CONSUMER-BEHAVIOURAL INTENTION AND CONSUMPTION TOWARDS FUNCTIONAL FOOD IN MALAYSIA

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ABSTRACT

Unhealthy eating behaviour has been linked to the risks of many chronic diseases all around the world including Malaysia. Functional foods and its association with health benefits and reducing the risk of diseases open a promising avenue for consumers to pursue a healthier life as well as extending their life expectancy. This study aims to examine the attitude dimensions, social influence and self-efficacy related factors that may influence consumer-behavioural intention to consume functional foods and to identify the relationship between consumer-behavioural intention and consumer-consumption behaviour as well as to examine the effect of past experience as moderator on the intention-behaviour relationship. By using mall intercept surveys, data were collected from 452 respondents aged 18 and above who shopped at hypermarkets in Malaysia. From the analysis undertaken, it was found that the level of consumer-behavioural intention to consume functional food was encouraging and it positively affected the level of functional food consumption behaviour among consumers. The results revealed that perceived reward from using functional food, self-efficacy and necessity for functional food significantly influenced consumer-behavioural intention to consume such food. Findings also showed that feeling of using functional food (dimension of past experience) moderated the relationship between intention and behaviour. Consumer intention towards the consumption of functional food was found to be different across gender, age and marital status. The findings delivered rich insights for the marketers and manufacturers of the functional food industry in formulating effective promotions and marketing strategies that could be aimed at the right consumers. It is hoped that this study will provide beneficial information to the government in enhancing the health promotional campaigns and activities aiming at improving healthy consumption and the health of Malaysians. This study has paved the way for further research that include a study of consumer behaviour towards specific functional food categories with unique components that could cure different health problems or reduce the risk of different disease.

Keywords: intention to consume functional food, attitude dimensions, self-efficacy, social influence, past experience

ABSTRAK

Tingkah laku pemakanan tidak sihat telah dikaitkan dengan pelbagai risiko penyakit kronik di seluruh dunia termasuk Malaysia. Makanan fungsian dan kaitannya dengan faedah-faedah kesihatan dan mengurangkan risiko penyakit memberi peluang kepada pengguna untuk memperolehi kehidupan yang sihat dan juga meningkatkan jangka hayat hidup mereka. Tujuan kajian ini adalah untuk mengkaji faktor-faktor dimensi sikap, pengaruh sosial dan efikasi diri yang boleh mempengaruhi niat tingkah laku pengguna untuk mengamalkan makanan fungsian. Selain itu, kajian ini juga bertujuan untuk mengenal pasti hubungan di antara niat tingkah laku pengguna dan tingkah laku penggunaan serta untuk mengkaji kesan pengalaman lepas sebagai moderator terhadap hubungan di antara niat-tingkah laku. Dengan menggunakan kaedah kajian pintasan pusat membeli belah, data telah dikumpulkan daripada 452 responden yang berumur 18 tahun dan ke atas yang membeli belah di pasaraya-pasaraya dalam Malaysia. Berdasarkan analisis yang dijalankan, didapati bahawa niat tingkah laku pengguna untuk mengambil makanan—fungsian adalah menggalakkan dan mempengaruhi secara positif terhadap tahap penggunaan makanan fungsian dalam kalangan pengguna. Keputusan mendedahkan bahawa tanggapan ganjaran menggunakan makanan fungsian, efikasi diri dan keperluan bagi makanan fungsian mempengaruhi secara signifikan niat tingkah laku pengguna untuk mengambil makanan tersebut. Hasil kajian juga menunjukkan bahawa perasaan menggunakan makanan fungsian (dimensi kepada pengalaman lepas) menjadi perantara di antara niat dan tingkah laku. Niat pengguna terhadap pengambilan makanan fungsian didapati berbeza mengikut jantina, umur dan status perkahwinan. Hasil kajian juga memberikan pandangan mendalam untuk pemasar dan pengeluar dalam industri makanan fungsian bagi merangka promosi yang berkesan dan strategi pemasaran yang mensasarkan golongan pengguna yang tepat. Kajian ini diharapkan dapat memberikan maklumat yang bermanfaat kepada kerajaan dalam meningkatkan kempen mempromosikan kesihatan yang baik, dan aktiviti yang meningkatkan pengambilan makanan sihat serta kesihatan rakyat Malaysia. Kajian ini telah membuka jalan untuk kajian seterusnya termasuk kajian tingkah laku pengguna terhadap kategori makanan fungsian yang mempunyai komponen yang unik dan boleh mengubati masalah kesihatan atau mengurangkan risiko penyakit yang berbeza.

Kata kunci: niat mengambil makanan fungsian, dimensi sikap, efikasi diri, pengaruh sosial, pengalaman lepas

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LIST OF ABBREVIATIONS

Abbreviation	Description of Abbreviation
WHO	World Health Organisation
NCD	Non-Communicable Disease
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
SCT	Social Cognitive Theory
PBC	Perceived Behavioural Control
HBM	Health Beliefs Model
FF	Functional Food
KMO	Kaiser-Mayer-Olkin
ANOVA	Analysis of Variance
VIF	Variance Inflation Factor
SE	Standard Error

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Eating behaviour has been linked to the risk of many chronic diseases all around the world including Malaysia. Steinmetz and Potter (1996), and McKevith (2004) reported that the consumption of healthy food is important in preventing obesity and certain types of chronic disease.

As reported by World Health Organisation (WHO, 2010), unhealthy foods, unhealthy eating habits and less physical activity may lead to obesity, which is known to be a major contributor to the global burden of Non-Communicable Diseases (NCDs), which although non-infectious, are often referred to as chronic diseases. NCDs, such as hypertension, kidney disease, diabetes, chronic lung diseases, heart disease, high cholesterol and certain types of cancer, are increasing, affecting people of all age groups in all around the world (WHO, 2011). Therefore, to prevent NCDs, individuals must consume a healthy diet, such as consuming more functional foods and carry out physical activity.

Although there have been numerous efforts and strategies to encourage healthy consumption among individuals, previous studies demonstrate that individuals fail to follow the practice of healthy consumption (Reynolds, Baranowski, Bishop, Farris, Binkley, Nicklas, et al., 1999; Sjoberg, Hallberg, Hoglund & Hulthen, 2003). Kennedy (1998) and French, Story, Neumark-Sztainer, Fulkerson and Hannan (2001) argued that individuals are more inclined towards unhealthy eating habits, in which they consume large amounts of fats and carbohydrates, have low fibre diets, drink a lot of soft drinks and rarely take fruits

and vegetables.

Due to unhealthy eating habits, the prevalence of overweight and obesity (which are the major contributors of NCD) is occurring in all parts of the world at an alarming rate and has developed as an epidemic of the twenty-first century. The World Health Organisation (WHO) announce that, worldwide, obesity rate of adults were expected to rise from 400 million in 2005 to 700 million in 2015 (WHO, 2006). The WHO (2011) reported that, worldwide, the deaths rate due to NCDs were increased from 35 million in 2004, up to 36 million deaths in 2008. The WHO (2006) reported that 60 percent of world annual deaths were due to NCDs and that approximately 25 percent of these deaths were premature and could have been prevented.

With regard to adult obesity rate, the WHO (2010) has ranked Malaysia sixth in the Asia-Pacific Region. Furthermore, according to a speech given to the Dewan Rakyat by the Deputy Health Minister, on 14 November 2011, Malaysia has the highest obesity rate among South East Asian countries (The STAR, 2011).

In implementing the Tenth Malaysia Plan for of 2011-2015, the Government acknowledged that unhealthy eating habits, lack of physical activity and unhealthy lifestyles contribute to the increasing burden of NCDs, in which, within ten years, there was a considerable increase in the prevalence of diseases that link to individual behaviour; such as, 250 percent and 88 percent increase in obesity and diabetes respectively (Tenth Malaysia Plan, 2010). The Ministry of Health (2010) reported that about 70 percent of the attendance at the Government Health Clinics was related to NCDs, which reveal a notable implication on medical cost and requirement for a long-term rehabilitative care.

It was reported that NCDs lead to premature deaths among Malaysian citizens. Moreover, the prevalence of NCDs and related health risks continues to increase and that fighting NCDs is becoming one of the country's biggest challenges (Ministry of Health, 2010). Consequently, these phenomena have a significant effect on increasing the healthcare cost and economic productivity (due to disability and dying), as unhealthy citizens are not as productive as the healthy ones.

Since 1991, the Ministry of Health has regularly organised various health promotion activities and health-oriented campaigns to promote healthy lifestyle practices among Malaysian citizens that focus on certain NCDs that are strongly associated with lifestyle (for example: heart diseases, cancer and diabetes campaigns) and specific health-behaviour promotions and their long-term effects (for example: promotion of healthy eating, promotion of exercise and physical activities, and anti-smoking campaigns). Therefore, it can be assumed that Malaysians are well informed about healthy eating and the benefits of living a healthy lifestyle.

Despite consistent reminders and campaigns by the Government concerning the health related risks caused by unhealthy eating behaviour, the escalation of obesity in Malaysia is now at a frightening rate and the prevalence of NCDs continues to rise. As a result, national organisations, especially the Ministry of Health, have raised a call for increased preventive care to enhance the quality of health and lifestyle of Malaysians.

Table 1.1 shows the latest trends and facts about obesity and NCDs in Malaysia due to unhealthy eating that have prompted the government to actively and seriously promote a healthy lifestyle and healthy eating behaviour among Malaysians. Consequently, there is certainly a great deal of interest to investigate consumer behaviour towards healthy foods, such as functional foods, as well as their

beliefs and perceptions as to whether some functional foods or their components can indeed help in maintaining healthy well-being and reducing the risk of NCDs.

Table 1.1
Latest Trends and Facts about Obesity and NCDs due to Unhealthy Eating in Malaysia.

Trend and Fact
About 5.8 million Malaysians suffer from hypertension compared to 4.2 million in 2006.
The number of obese adult Malaysians has increased to about 2.6 million.
Approximately 6.2 million have hypercholesterolemia (high levels of cholesterol), up from 2.7 million in 2006.
The eating habits of Malaysians remains unhealthy with 92.5 percent or about 16.4 million adults consuming less than the recommended five serving of fruits and/or vegetables daily
The incidence of NCDs is increasing among younger people.
For each Malaysian diagnosed with diabetes, another one remains undiagnosed.
For every two identified with hypertension, three are not diagnosed.
For every patient detected with hypercholesterolemia, three remain undiagnosed.

Source: The STAR (16 July 2012)

Hence, consumers have changed the priority of consuming food from needs to satisfying hunger to the needs to become healthy and promote well-being (Niva, 2007). Following the trends, food with novel ingredients named "functional food" emerges within food industry. Roberfroid (1999) stated that, functional food is a food that consists of ingredients that has a positive effect on human health and well-being. Urala and Lahteenmaki (2007) defined functional food as "Foods and drinks that provide health benefits that reduces the risk of diseases in addition to its nutritional value".

Table 1.2 shows some examples of functional foods that already exist in the Malaysian market. In this study, the analysis on consumer behaviour towards the intention to consume functional foods was done in general, without any specification concerning different categories.

Table 1.2
Example of Functional Food

Type	Product
Yoghurt	Probiotic yoghurt/low fat
Spread / Margarine	Low cholesterol/low fat content/added vitamins
Fruit Juice	Probiotic/added vitamins or minerals
Carbonated soft drinks	Nutritionally fortified drink/energy drink
Sweets	Xylitol-sweetened sweets
Biscuits	Added oat/low cholesterol/low fat/less sugar
Milk	Probiotic/high calcium/lactose free
Bread	Fibre-rich with fatty acids/omega 3/wholemeal
Egg	Omega-3/low cholesterol/added vitamin A & E
Cereal	Oatmeal with beta-glucan/added vitamins and minerals

Many studies discovered that functional foods have been scientifically proven to improve overall health, prevent health-related diseases, reduce health problems and reduce the rate of obesity (Wolk, Manson, Stampfer, Colditz, Hu, Speizer et al., 1999; Liu, Manson, Lee, Cole, Hennekens, Willett et al., 2000; Pereira, O'reilly, Augustsson, Fraser, Goldbourt, Heitmann et al., 2004). In line with that, the Malaysian Government has made substantial efforts in reducing the obesity rate and healthcare costs by investing in disease prevention campaigns and promotions to raise the awareness of Malaysian consumers concerning the link between a healthy diet and good health. Consequently, it has generated considerable public interest in functional foods in Malaysia. As a result, some consumers are switching to products in their diet that they perceive to be healthier or more purposeful, such as functional foods.

Despite gaining acceptance among consumers, the information regarding the process of consumer behaviour, the influences factors, and consequences is presently insufficient (Urala and Lahteenmaki, 2003). According to Verbeke (2005) and Bech-Larsen and Scholderer (2007), there is a need to investigate the antecedent factors

that influence the consumer intention towards functional food consumption, and the relationship between consumer-behavioural intention and consumer-consumption behaviour (Verbeke & Vackier, 2005; Armitage & Conner, 2001).

1.2 Problem Statement

Enjoying more unhealthy foods and consuming less of healthy foods and drinks, such as functional foods that can prevent an individual from getting some chronic diseases, has become a behavioural problem among Malaysians. Supported by the report in the latest National Health and Morbidity Survey in 2011 that NCDs continuously become the main health problems in Malaysia, which is the most prevalent, unpreventable diseases and expensive to cure, yet, the situation has not improved (The STAR, 2012).

Despite knowing the benefits of healthy foods in preventing NCDs, the Malaysian diet in respect of healthy foods has not been promising. Consequently, the relationship between unhealthy diets and the development of such diseases suggests that this study is permitted to analyse the antecedent factors that may influence the consumer intention towards the consumption of functional food in order to prevent NCDs, increase good health and well-being as well as reduce medical costs. In addition, functional foods and their association with health benefits is rather a new concept in Malaysia, and it is worth investigating the behaviour of Malaysians towards such foods.

Furthermore, there is little investigation has been conducted to analyse the factors that influence consumer intention to consume functional foods and how they perceive these products (Bech-Larsen & Scholderer, 2007; Herath, Cranfield & Henson, 2008). This is supported by Urala and Lahteenmaki (2003), who stated that

even though functional foods are in demand, relatively limited information is known on consumer behaviour towards such food. To date, the empirical studies on consumer behaviour towards functional food, particularly in the Malaysian context, is scarce. The majority of prior studies concerning consumer behaviour towards functional food have been done in developed countries (for example: Wrick, 1992, 1995; Gilbert, 1997, 2000; Childs, 1997; Child & Poryzees, 1997; IFIC, 2009) and European countries (for example: Poulsen, 1999; Niva, 2007; Bech-larsen & Scholderer, 2007; Verbeke, 2005; Urala & Lahteenmaki, 2003, 2004, 2007).

Majority of the literature on functional food studies in most countries varies broadly in terms of their emphasis, for example, the acceptance of functional food, research methodology, consumer knowledge and awareness, and the consumer attitude towards functional food (Verbeke, 2005; Niva & Makela, 2007), and the functional foods and the associated possible health effects and the technology behind them (Roberfroid, 1999; Roupas, & Margetts, 2009; Miller, 2002; Ahmad, 1996). However, the findings of these studies in many cases produced very mixed results and were not consistent with each other (Verbeke, 2005). This leads to the conclusion that the influencing factors of consumer-behavioural intention may not be consistent across different countries (Urala, 2005; Verbeke, 2005). Furthermore, Urala (2005) suggested that cross-cultural research within and outside of Europe is warranted to comprehend the consumer belief and behaviour towards functional food products.

Previous studies discovered that individuals who consume more of functional foods have been scientifically proven to reduce the rate of obesity, which is the major contributor to the risk of many chronic diseases such as NCDs, thus, will improve the overall health among individuals (Pereira et al., 2004). Thus, this study intended to

minimize the gap in literature and develop more understanding concerning the issue of unhealthy consumption behaviour among Malaysian, which indeed leads to the prevalence of obesity and non-communicable disease. The finding would shed further light on the knowledge in the area of functional food consumption behaviour, especially when it comes to discussing the relationship that antecedent variables (i.e. reward, necessity, confidence, safety, social influence and self-efficacy) have on intention to consume more of functional food, the relationship between intention and consumption behaviour as well as the effect of past experience moderator on intention-behaviour gap.

To the best of our knowledge, very few studies in Malaysia have reported empirical research from the consumer behaviour perspectives, especially concerning the antecedents of functional food intention and the actual consumption, using the Theory of Planned Behaviour model (TPB: Ajzen, 1988, 1991). This is supported by Rezai, Teng, Mohamed and Shamsudin (2012), who stated that there is little knowledge about consumer awareness and their perceptions towards functional food in Malaysian. Therefore, empirical work is needed to overcome this shortcoming.

In previous literature, the elements of attitude towards food choice, including functional foods were measured using general attitude scales. For example, the statements of healthiness and taste were measured using scales of "bad to good" and "pleasant to unpleasant" (Poulsen, 1999, Ajzen, 1980). However, Urala (2005) argued that there is lack of published attitude measurements that would be targeted directly to functional food consumption behaviour. Therefore, in order to have a better prediction of consumer behaviour towards functional food, this study adopted four dimensions of attitude developed by Urala and Lahteenmaki (2007) that are more relevant to functional food-related attitudes, which are; reward from using

functional foods, necessity for functional foods, confidence in functional foods, and safety of functional foods.

These four dimensions of attitude were chosen because functional food is different from conventional food in terms of extra benefits gained from consumption of such food. Individual consumed functional food not just to satisfy their hunger but also to obtain the reward from using functional foods such as being healthy and lower the risk of getting certain diseases. Therefore, attitude towards necessity to consume functional food is important for individuals in order to obtain good health and well-being (Urala & Lahteenmaki, 2007). In terms of attitude dimensions of confidence and safety, in order for consumption behaviour to be performed, individuals need to have a strong confidence and trust in food safety and benefit claims by the manufacturer from using the functional food products (Landstrom, Hursti, Becker & Magnusson, 2007; Urala & Lahteenmaki, 2007).

According to marketing literature, it was reported that social influence are important in predicting intention for the eating behaviour domain (Baker, Little & Brownell, 2003; Cox, Anderson, Lean & Mela, 1998). In Malaysian culture, individuals are inclined to follow what people closed to them do or asked them to do, especially parents, family members and closed friends. Supported by prior research, they reported that parents, family members and friends were the most influential people with regards to healthy eating behaviour (Baker et al., 2003; Kassem, Lee, Modeste & Johnston, 2003; Verbeke & Vackier, 2005). Thus, social influence was included in this study. Despite the health benefits obtained from consuming functional food, it is difficult to change consumer behaviour especially towards healthy consumption. Therefore, individuals also need to have a strong and high level of internal motivation of self-efficacy in order to participate in healthy

consumption behaviour, because high self-efficacy leads to a strong confident that they can perform the behaviour (Strahan, Steven & Mark, 2002). Locke and Latham (1990) stated that the stronger the individual's self-efficacy, the higher his/her obligation to consume functional food. Thus, self-efficacy was selected as antecedent variable in this study.

Previous literature reported that intentions are good predictors of behaviour, however, there is often a substantial gap between people's intentions and their subsequent behaviour (Sheeran & Abraham, 2003; Abraham, Clift & Grabowski, 1999; Orbell & Sheeran, 1998; Kashima et al., 1993; Bagozzi, 1992). Past experience was reported to fit into the TPB model as a moderating factor for the relationship between intention and behaviour (Kashima, Gallois & McCamish, 1993; Sheeran & Abraham, 2003; Cooke & Sheeran, 2004; Pomery, Gibbons, Reis-Bergan, & Gerrard, 2009). This study concerns the analysis of the consumer-behavioural intention to consume more of functional food; food that comes with health claims promoting their benefits. Therefore, the decision-making process towards such foods will involve risk and safety choices. Indeed, past experience offers support in decision-making that requires risk taking and safety choices towards healthy consumption, in which, as consumers become more experienced with the health benefits and positive experience that they received from using the functional foods, they would consume more often of such food (George, 2002). Due to the above discussion, this study has included past experience variable as moderator to examine the predictive power of intention and functional food consumption behaviour relationship.

Many studies have supported the applicability of the TPB in explaining consumer intention and behaviour, which have been supported by the meta-analysis

studies conducted by Godin and Kok (1996), Armitage and Conner (2001), and Hagger, Chatzisarantis and Biddle (2002). Nevertheless, there is a lack of theoretical utilisation that could be used to explain attitudes, social influence, and consumer-behavioural intention towards functional foods in the context of Malaysian consumer. In addition, there is also a need to investigate the additional issues raised in the growing body of knowledge using social cognitive approaches, such as the influence of self-efficacy construct towards consumer intention, and the influence of past experience as a moderator on the relationship between consumer intention and behaviour, which have not been addressed in previous research, particularly in functional food behaviour in Malaysia; hence, further investigation is needed.

Consequently, the main objectives of the present study are, to investigate the influence of the antecedent variables (attitude dimensions, social influences and self-efficacy) on the behavioural intention of the consumers towards the consumption of functional foods using a modified construct of TPB model, and to examine the relationship between consumer-behavioural intention and the actual consumption behaviour of the consumers towards functional foods. In other words, does a positive intention towards functional foods will also increase the level of consumption behaviour? If not, why? Furthermore, this study also examines the effect of past experience as a moderator on the intention-behaviour relationship. That is, to see whether by adding the moderating factor of past experience in the relationship, it will strengthen the relationship between intention and consumption behaviour.

In relation to the above discussion, the examination of consumer intention towards healthy food choice, particularly functional food, is warranted, especially in the context of the Malaysian consumer.

1.3 Research Questions

The research questions of this study are:

1. What is the level of consumer-behavioural intention towards functional food consumption among consumers in Malaysia?
2. Does behavioural intention among consumers in Malaysia influence the consumption behaviour towards functional food?
3. What are the factors relating to attitude, social influences and self-efficacy that influence the consumer-behavioural intention to consume functional food?
4. Does the self-efficacy of consumers have a direct relationship with the consumer-consumption behaviour towards functional food?
5. Does past experience moderate the relationship between consumer-behavioural intention and the consumer-consumption behaviour towards functional food?

1.4 Research Objectives

The objectives of this study are:

1. To determine the level of consumer-behavioural intention towards functional food consumption among consumers in Malaysia.
2. To examine the relationship between consumer-behavioural intention and consumer-consumption behaviour towards functional food among consumers in Malaysia.
3. To identify the factors related to attitude, social influences and self-efficacy that may influence consumer-behavioural intention to consume functional food.

4. To examine the direct relationship between the self-efficacy of consumers and consumer-consumption behaviour towards functional food.
5. To examine the moderating effect of past experience on the relationships between consumer-behavioural intention and consumer-consumption behaviour towards functional food.

1.5 Significance of the Study

The present study is expected to contribute to the theoretical knowledge and methodology, and has potentially valuable implications for the policy makers (government), marketers and manufacturers in the functional food industry.

From the theoretical perspective, this study may contribute in terms of determining whether the modified TPB model can be apply to anticipate and explain the consumer-behavioural intention and the consumption of healthy food (i.e.: functional foods) in the Malaysian context. Furthermore, it also aims to identify which constructs are the most powerful in predicting and explaining the intention to consume functional foods among Malaysian consumers. Therefore, the relevant parties can take the necessary action to enhance their promotional health campaigns and product-positioning strategies using those constructs accordingly. Thus, constructs that explain a minimal and moderate amount of the behaviour variance should be replaced with other constructs for further research.

Furthermore, present study will produce a conceptual model for understanding consumer behaviour and factors that motivate and drive behavioural change, which will help the understanding of the social and psychological influences on consumer behaviour, particularly in the functional food context. For example, this

study offers the wisdom into the antecedent factors of consumer-behavioural intention and demonstrates the strength of the relationships that affect the decision-making process of consumers. In addition, the research findings will enable researchers to generate practical knowledge and evidence concerning consumer intention, behaviour and motivation towards healthy food choices. Finally, the efficacy of the modified TPB model in this study in predicting functional food consumption behaviour in Malaysian samples may provide a useful framework for further research in this behavioural domain.

This study will also provide past experience dimensions with new developed measurement scales, which specifically focus on functional food consumption behaviour. As reported by previous studies (Sheeran & Abraham, 2003; Abraham et al., 1999; Orbell & Sheeran, 1998; Kashima et al., 1993; Bagozzi, 1992), a gap exists between the intention and behaviour relationship. Therefore, the moderator factor of past experience may strengthen the relationship between behavioural intention and the consumption behaviour of the model as well as increase the predictive power of behavioural intention towards food consumption behaviour.

Schiffman and Kanuk (2002) stated that research in consumer behaviour is the important part of effective strategic marketing and promotion because it will facilitate the marketers in understanding the consumer behaviour towards certain products and services. Furthermore, Urala and Lahteenmaki (2007) mention that, the success of functional food to be consumed as healthy diet depends on consumer acceptance towards these products. With regards to food consumption, it is vital for marketers and manufacturers to understand that consumers make decision based on their belief towards certain food, social norms, past experience, and, internal and external influences. Therefore, this study may offer rich insights for the marketers

and manufacturers of the functional food industry regarding the psychological factors and social influences that affect the decision making of consumers towards the consumption of functional food products in Malaysia. The empirical results from present study would be valuable for them in formulating effective marketing interventions and strategies that could be aimed at the right consumers, and also to facilitate the development of the functional food industry.

This study will also be beneficial to policy makers or the government, in that it can enhance the practices and promotional health campaigns of the Malaysian government that aim to improve the dietary behaviour and health of Malaysians, as well as reduce the number of NCD patients in Malaysia. The understanding of consumer attitudes, perceptions, and behaviour will help to tailor the diffusion of health information and promotional campaigns, so that it will motivate Malaysian citizens to achieve optimal health through a balanced diet and a healthy lifestyle. This study will assist the Malaysian government, particularly the Ministry of Health and other related ministries, to develop educational campaigns and design behavioural change models to ensure that those segments of the population who can benefit the most from functional foods actually consume them.

Many people are more concerned about their body weight and image rather than the prevention of diseases when they make a decision in food choices. Therefore, for the target group that has less experience with functional food consumption, attempts to change their behaviour may include health reminder intervention and modifying social images. Therefore, the government should also emphasise programmes that promote a healthy body image and ideal weight rather than focus on the diseases, especially for women, college girls and schoolgirls. Glynn and Clemens (1995) reported that strategies that increase the awareness of

knowledge and skills in the selection of healthy foods, combined with the availability of healthy foods, would help the consumers in getting those foods. Thus, the Malaysian government can play its part in initiating policies to ensure that healthy food, including functional food is accessible and affordable for Malaysians to buy because this will facilitate and encourage consumers towards practicing healthy eating.

Consequently, marketers, manufacturers and the government can use the findings concerning the identified beliefs in this study to develop the right message (for example: eating functional food can avoid heart diseases), to be delivered by the appropriate sources (for example: nutritionists, dieticians, physicians or celebrities) in the planning of tailored health communication interventions towards healthy lifestyle through functional food consumption.

1.6 Scope of the Study

This study focuses on investigating the consumer-behavioural intention of Malaysian consumers towards functional food products as a prototype for health-protective behaviour. This research is generally to understand the purchase intention and consumption behaviour of Malaysian adult consumers aged 18 and above who consume functional food products. Research was conducted in the Klang Valley. The Klang Valley was chosen as the sampling location because it has the largest amount of shopping complexes with grocery markets or supermarket in Malaysia. In addition, the consumers in the Klang Valley are more exposed to information concerning functional foods and a variety of functional foods are also widely available.

1.7 Definition of the Key Terms

Some important terms appearing repeatedly in this study are briefly defined as follows:

1. Functional food is defined as foods and drinks that provide health benefits that reduces the risk of diseases in addition to its nutritional value (Urala & Lahteenmaki, 2007)
2. Consumer-consumption behaviour refers to the behaviour of individual and households when they make decisions to consume the product using their available resources (Kaman Lee, 2009)
3. Consumer-behavioural Intention is defined as a person's perceived likelihood of performing the intended behaviour in a specific way (Ajzen & Fishbein, 1980)
4. Attitude refers to a psychological tendency that is expressed by evaluating a particular object with some degree of favour or disfavour (Eagly & Chaiken, 1993)
5. Reward is defined as feeling of satisfaction and enjoyment in terms of health, mood, and well-being resulted from functional food consumption (Urala & Lahteenmaki, 2004)
6. Necessity refers to the perceived need for functional food for individual or for people in general due to the possible benefits for health (Urala & Lahteenmaki, 2004)
7. Confidence is defined as the confidence that the individual has in functional food as foods that promote health and the reliability of scientific basis and researches of the promised health effect (Urala & Lahteenmaki, 2004)

8. Safety refers to how individual perceive the related risk or possible harmful effects when functional foods are consumed (Urala & Lahteenmaki, 2004)

9. Social influence is defined as the perception of individual towards his/her social influences or environmental referents that are around him/her, expect him/her to act or not to act towards certain behaviour (Ajzen & Fishbein, 1980)

10. Self-efficacy is defined as the confidence one feels about performing a particular behaviour, including confidence in overcoming the barriers to achieve that behaviour (Bandura, 1986)

11. Past experience is defined as the internal and external excitement and reward felt by the individuals separately due to the consumption of functional food that motivates them and produces their approval or re-purchase behaviour of such food (Schmitt, 1999)

12. Feeling of using functional food refers to the intrinsic experience in terms of rewards and emotional gain due to functional foods consumption.

13. Functional food environment refers to the extrinsic experience in terms of external attribute of the functional foods such as availability and price.

1.8 Organisation of the Thesis

This thesis consists of five chapters. Chapter 1 contains introduction of the study. Chapter 2 discusses literature review covering the variables considered in this study, which include consumer-behavioural intention, previous study on factors influencing consumer intention, and hypothesis generated for this study. Chapter 3 describes the methodology used in this study, population and sampling design, measurement, data collection procedures, and statistical methods applied to analysed the data. Chapter 4 presents the finding of the study. Finally, Chapter 5 provides further discussion of the results, the implication, limitation and the conclusion of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents an overview of consumer-consumption behaviour. Followed by a discussion on the general concept of consumer-behavioural intention and various factors that have been investigated as antecedents of behavioural intention. The antecedent variables chosen as the independent variables for this study are then discussed. This chapter also reviews previous studies concerning the moderating influence on the relationship between behavioural intention and consumption behaviour. In addition, the theoretical underpinning for this study is also discussed. Finally, the research framework and hypotheses are proposed.

2.2 Consumer-consumption Behaviour

Human behaviour is different between one individual and another, and can be shown as an implicit or explicit response. Behaviour refers to "any denotable overt action that an individual, a group of individuals, or some living system (e.g., a business, a town, and a nation) performs. An action has a denotable beginning and a denotable ending and is performed in an environmental context in which the individual or group is embedded" (Jaccard & Blanton, 2005; p. 128). In sales and marketing terms, Kotler, Amstrong, Ang, Tan and Yau (2009) describe consumer behaviour as " the behaviour of individual and households when they purchase the goods and services for personal used". Consumer-consumption behaviour refers to the behaviour of individual and households when they make decisions to continuously consume the product using their available resources (Kaman Lee,

2009).

The human behaviour towards certain foods depends on a several factors, which influence the psychological needs of humans in a different ways, and, as a result, some products are chosen while others are rejected. When consumers make their decision about purchasing and consuming food and drink, many factors motivate them to choose certain products rather than simply hunger. Babicz-Zielinska (2006) stated that, generally, all factors that may influence a consumer's food choice decision-making process can be put into one of the three following dimensions: product related factors (for example: contents, attributes, functionality); individual related factors (for example: demographic, attitude, appetite); and environmental factors (for example: social group, cultural, time). These three classes of factors (product, individual and environmental related factors) may affect the decision-making and perception towards certain products and services of consumers.

Consequently, as reported by previous literature in consumer behaviour studies, food consumption is influenced by many factors including individual factors, such as preferences, perceived convenience, health involvement, attitudes towards eating, values, past experience, habit, personality, knowledge (Ajzen, 1991; Armitage & Conner, 2001; Verbeke & Vackier, 2005), health, mood, weight control and familiarity (Steptoe, Pollard & Wardle, 1995); social aspects, such as social norms, personal norms, social identity, self-identity and social groups (Terry & Hogg, 1996; Armitage & Conner, 1999; Terry, Hogg & White, 1999); and product attributes, such as price, freshness, content and product appeal (Steptoe et al., 1995; Urala & Lahteenmaki, 2003). Individuals make a decision to consume a certain type of food due to many reasons, including maintaining good health. Despite the benefits of maintaining good health and well-being from consuming healthy foods, studies

have shown that many individuals do not follow dietary recommendations.

For example, Diaz, Mainous, Koopman, Carek and Geesey (2005) found that African Americans consume more calories from saturated fat and have significantly higher cholesterol levels. Knutson (2000) mentioned that convenience, taste, and cost constitute the major factors that influence people when they choose fast foods. On average, 40.4 percent of college students ate fast food at least three times a week, 25.8 percent five times a week (Knutson, 2000), and 65 percent at least once a week or more (Gerend, 2009). Pereira, Kartashov, Ebbeling, Van Horn, Slattery, Jacobs et al. (2005) found that those individuals with higher fast-food consumption rates tend to be younger and the consumption had a strong positive relation with obesity. Brownell (2004) mention that the consumption of fast food has been shown to increase the overall daily calorie intake, and, at the same time, decrease the daily consumption of fruits and vegetables. Studies have revealed that adolescents and young adults consume a significantly low level of fruits and vegetables (Inchley, Todd, Bryce & Currie, 2001; Neumark-Sztainer, Story, Hannan & Croll, 2002; Larson, Neumark-Sztainer, Harnack, Wall, Story & Eisenberg, 2008; Blanchard, Fisher, Sparling, Shanks, Nehl, Rhodes et al., 2009). Inchley et al., (2001) stated that almost half of adolescent in Scotland do not take vegetables, and around one-third of adolescents do not take fruits in their daily diet. Larson et al. (2008) also provided additional support that college students do not follow the daily-recommended diet for fruit and vegetable consumption.

Many studies concluded that the consumption of healthy food lowers the risk of chronic diseases (Block, Patterson & Subar, 1992; Rafter, 2002). This was supported by Pratt and Tsitsika (2007), who indicated that an unhealthy consumption leads to chronic diseases, including heart disease, diabetes, stroke, obesity and

certain types of cancer. Therefore, consumers are expected to become more health conscious and it is acknowledged that to maintain good health is by eating healthily rather than through the use of medication (Hasler, 2002). In the study of Wos (as cited in Babicz-Zielinska, 2006), the author stated that the key psychological factors in food consumption are motive, attitude and personality. Psychological factors induce and direct consumer behaviour to fulfil the demands for food and drinks to maintain good health. Babicz-Zielinska (2006) reported that individual choose certain healthy food as their diet in order to gain both health and physical rewards.

The important of functional food (i.e. food that is associated with health-enhancing effects beyond basic nutritional functions) has been accepted in the food industry and among consumers, as consumers become more health aware and more interested in healthier lifestyles, and, accordingly, the food industry has developed functional food products with positive nutritional benefits using the recent advances in science and technological methods to prevent weight gain, improve health, and reduce the risk of chronic diseases (Rafter, 2002). Many studies discovered that functional foods have been scientifically proven to improve overall health, prevent health-related diseases and reduce health problems, such as high cholesterol, heart diseases, stroke and diabetes (Wolk et al., 1999; Liu et al., 2000; Montonen, Knekt, Jarvinen, Aromaa & Reunanen, 2003; Pereira et al, 2004). For example, Pereira et al. (2004) found an association of the consumption of high fibre cereal with heart disease prevention and well-being of the gut.

To the best of our knowledge, there is a lack of studies on consumer-consumption behaviour towards functional food in Malaysia, albeit some studies focused on the functional food concept and the associated possible health effects and technology behind them. For example, Ahmad (1996) reported that the development

of functional foods emphasised traditional medicinal compounds that originate from plant sources including plant roots and flowers (for example; *merkunyit, tongkat ali,* palm oil, *pegaga,* and hibiscus), and from animal extracts (for example, sea cucumber) that have been scientifically proven to improve health, prevent illness and cure some diseases. This conceptual paper mainly discussed the scientific research development of functional food in Malaysia that is based on traditional medicinal compounds; thus, it is not related to a study on consumer behaviour per se.

In their conceptual study, Marina, Che Man & Amin (2009) discussed some of the findings associated with virgin coconut oil, such as antioxidant activity, physicochemical properties, and methods for virgin coconut oil adulteration detection. In addition, Lau et al. (2013) provided a review of the functional food definitions, as well as the growth potential of functional food in Malaysian market.

Moreover, Hassan (2011a) investigated the conflicting cultural values concerning decision-making process of functional food under the rapid socio-economic transition among Malay, Chinese and Indian in Malaysia. Meanwhile, Hassan (2011b) focused on understanding the effect of culture and religious value systems on the consumption of traditional functional foods among Malay Muslim consumers. Both studies (Hassan, 2011a; 2011b) specifically focused on the cultural values of the three main ethnic groups in Malaysia, health related values, and religious values in functional food consumption behaviour. Additionally, both studies by Hassan were limited to traditional functional food, which restricted the studies within certain cultural boundaries and values. Thus, the findings cannot be generalised to other categories of functional food or other behavioural settings in Malaysia.

Rezai et al. (2012), who conducted their study in the Klang Valley on 439 samples, found that majority of respondents showed positive attitude towards functional food. Age, income, food safety, subscribing to the magazine, vegetarian, and involved in food related company, were significantly influence the acceptance towards functional food. Furthermore, Teng, Rezai, Mohamed and Shamsudin (2012) reported that genders, income, age, food safety, consumer preferences, health consciousness, price, and attribute were significantly influencing the willingness to pay for functional foods in Malaysia. Moreover, Zuraini, Haslina & Nur Hasniza (2010) conducted a study to identify customer acceptance towards healthy cakes in the Klang Valley, Malaysia, and the results showed that the functional aspect of food was the most influential contributor in determining the acceptance of customers towards healthy cakes.

Based on prior research, the combination of social, psychological, knowledge-based and economic factors were some of the reasons for functional food consumption. However, physiological factors, such as hunger and thirst are less significant to the analysis related to consumer behaviour towards functional food (Urala & Lahteenmaki, 2003).

Moreover, functional foods were chosen due to their health benefits that may prevent and lower the risk of certain diseases. Perceived healthiness in functional foods and the health benefits that link to the products have been regarded as relating prevention of chronic diseases, well-being and increased performance (Lappalainen, Kearney & Gibney, 1998; Jonas & Beckmann, 1998; Urala & Lahteenmaki, 2003, 2004, 2007; Verbeke & Vackier, 2005; Verbeke, 2005). Thus, it has driven the growing interest in functional food consumption among people, especially those who are health conscious, have a healthy lifestyle or facing an illness.

Verbeke (2005) argued that, consumers who have experience illness themselves and faced illness among relatives are the ones who have a positive attitude towards functional foods. Consequently, consumers regarded the positive rewards and potential health benefits gained from functional food consumption as being important factors in choosing such food. This was supported by West, Gendron, Larue and Lambert (2002), who mentioned that the demand for functional food that can prevent the widespread of diseases are strongly related to chronic diseases such as cancer; thus, it has captured a great deal of attention from consumers.

Research findings support the suggestion that an unhealthy diet contribute to weight gain and obesity (French, Harnack & Jeffery, 2000; Gillis & Bar-Or, 2003; Bowman & Vinyard, 2004; Henderson & Kelly, 2005), which may lead to certain diseases. Although unhealthy food intake is only one part of the complex set of causes of obesity, thus, it is crucial to understand the psychological, social and attitudinal factors that influence the consumption behaviour of consumers towards certain products, including those associated with weight gain and also food that can maintain good health, such as functional foods.

Therefore, a study on the factors that influence the consumption behaviour of Malaysians towards functional food products is pertinent, so that the findings may assist marketers and the Malaysian government to effectively address the promotional programmes and strategies related to healthy diet through the consumption of functional food products.

2.3 Consumer-behavioural Intention

TPB model by Ajzen (1991) stated that intention is the main predictor and regarded as the immediate antecedent of individual behaviour. Intention is defined as "the motivational factors that influence an individual's readiness to act and to demonstrate the effort they would strive to perform the behaviour" (Ajzen, 1991). Armitage & Conner (2001) mention that, with the influence of positive attitude and perceive opportunities, a behavioural intention is likely will be performed.

Previous literature indicates that intention has established a significant association between intention and behaviour, and accurately predicted a variety of action tendencies. For example, purchase intention was established to segment the market for new redesign product (Sewall, 1978), the acceptance of a new product model (Silk & Urban, 1978), and brand choice and preference (Pessemier & Lehman, 1972). Supported by Chan and Lau (2000), they demonstrated that a significant relationship occurs between green purchase intention and behaviour among Chinese consumers.

Follows and Jobber (2000) also found a positive association between green purchase intention and behaviour, which the results showed that individuals who perceived the environmental consequences is important, would be likely to commit in green purchasing. In addition, the analysis of awareness on green marketing in Malaysia demonstrated that consumers with a high awareness about green marketing would show a stronger relationship between knowledge and purchase intention towards environmental friendly products.

In the food context, the intention to buy or to consume certain types of food is considered to be one of the most important behavioural indicators. In meta-analytic review of 185 independent studies, Armitage and Conner (2001) reported that

intention was the best predictor of future behaviour. Meta-analyses have shown that intention accounts for between 20 to 30 percent of the variance in health related behaviour (Albarracin, Johnson, Fishbein & Muellerleile, 2001; Armitage & Conner, 2001; Sheeran, 2002). Nonetheless, in seafood consumption studies, it showed that behavioural intention has a significant effect on consumption frequency (Olsen, 2001; Verbeke & Vackier, 2005; Tuu, Olsen, Thao & Anh, 2008).

Verbeke (2005) argued that, it is vital for marketers to understand that, consumers analyse different factors when making decision to purchase functional foods, which is not only involve price, convenience, and taste, but also health and nutrition. However, taste has been considered as an important factor for the intention to consume functional foods, along with trustworthiness of the health claims (Verbeke, 2005). Studies on functional food in Denmark, Finland and the USA revealed that taste, wholesomeness and convenience most affected the intention to purchase functional food spread, yoghurt and orange juice (Bech-Larsen, Grunert & Poulsen, 2001). Besides convenience and taste, attribute relating to familiarity, price, package size and digestive function were also found to be significant in behavioural intention towards functional food in Finland (Urala & Lahteenmaki, 2003). Bhaskaran and Hardley (2002), and Gray, Armstrong and Farley (2003) also concluded that the main factors of consumer purchase intention were the taste, convenience, price, health effect and the quality of functional foods.

Rezai et al. (2012) and Teng et al. (2012) found that most of the consumers in Malaysia are willing to pay for functional food and have a positive perception towards the intention to consume functional foods and believe that such foods are beneficial for their health. Teng et al. (2012) identified that genders, age, income, health consciousness, food safety, consumer preference, price and the attributes of

functional food significantly influence the consumer-behavioural intention to consume functional food.

Jonas and Beckmann (1998) reported that health is the main reason for choosing functional food in Denmark and England. In addition, Lappalainen et al. (1998) stated that European consumers has mention the healthiness of functional foods as the most important factor in food choice decision making other than taste, price, quality and family preference. In another study, Urala and Lahteenmaki (2007) stated that, other than demographic factors, attitude and lifestyle, in general, flavour, price, quality, convenience and health effects are the main factors that influencing the acceptance and consumption intention of functional food.

Conner and Armitage (1998) in their meta-analysis studies, clarified that self-efficacy independently influence the behavioural intention, even controlling the effect of the other factors suggested by the TPB. Moreover, Armitage, Conner and Norman (1999b) found evidence of a stronger effect. They investigated the significance of self-identity in the explanation of behavioural intention together with the effect of mood. They found that in a food choice context, self-identity was much more significant than attitude in explaining behavioural intention. From the above discussion, it shows that intention influence the numerous behavioural tendencies in many different setting; and in addition, intention has been established to have a significant positive relationship towards behaviour. This shows that it is very important to study the construct of behavioural intention and that it cannot be ignored. Therefore, further empirical research is warranted to examine the predictive power of intention towards functional food consumption behaviour in Malaysia.

As mentioned above, there are numerous antecedents that influence the behavioural intention towards the consumption of healthy food, such as functional

food. However the above antecedents were explained in general of their relationship towards intention to consume functional food without taken into consideration the health-protective behaviour behind it. Therefore, in this study, the variables of attitude dimensions (i.e. reward, necessity, confidence and safety), social influence and self-efficacy were chosen due to the unique attribute of functional food products that such foods provide benefits of being healthy and lower the risk of getting certain diseases (Urala & Lahteenmaki, 2007). In addition, previous studies discovered that individuals who consume more of functional foods have been scientifically proven to reduce the rate of obesity, which is the major contributor to the risk of many chronic diseases such as NCDs, thus, will improve the overall health among individuals (Pereira et al., 2004).

Individuals consumed functional food not only to satisfy their hunger but also to obtain the extra positive reward from using functional foods such as being healthy and lower the risk of getting chronic diseases. Therefore, they realize that it is necessity to consume functional in order to obtain good health and well-being (Urala & Lahteenmaki, 2007). In addition, individuals need to have a strong confidence and trust in food safety and benefit claims by the manufacturer from using the functional food products in order for consumption behaviour to be performed (Landstrom et al., 2007, Urala & Lahteenmaki, 2007).

Based on Malaysian culture, individuals are inclined to follow what people closed to them do or asked them to do, especially in terms of consumption of food. Supported by prior research, they reported that parents, family members and friends were the most influential people with regards to healthy eating behaviour (Baker et al., 2003; Kassem et al., 2003; Verbeke & Vackier, 2005). Thus, social influence was included in this study.

It is difficult to change consumer behaviour especially towards healthy consumption. Therefore, individuals also need to have a strong and high level of internal motivation of self-efficacy in order to participate in healthy eating behaviour, because high self-efficacy leads to a strong confident that they can perform the behaviour (Strahan et al., 2002). Locke and Latham (1990) stated that the stronger the individual's self-efficacy, the higher his/her obligation to consume functional food. Thus, self-efficacy was selected as antecedent variable in this study.

2.4 Antecedents of Customer-behavioural Intention

Previous research concerning the behavioural intention demonstrated that various numbers of studies have investigated the variety of antecedents of behavioural intention in different types of behaviour and context (for example: Sewall, 1978; Silk & Urban, 1978; Brug, Lechenr & De Vries, 1995; Armitage & Conner, 1999a, 1999b, 2001; Chan & Lau, 2000; Follows & Jobber, 2000; Povey, Conner, Sparks, James & Sheperd, 2000; Sheeran, 2002; Urala & Lahteenmaki, 2003, 2004, 2007; Conner & Sparks, 2005; Urala, 2005; Verbeke 2005; Verbeke & Vackier, 2005; Tuu et al., 2008).

Above discussion mentioned that there are numerous antecedents that influence the behavioural intention towards the consumption of healthy food, such as functional food. Nevertheless, this study focus to examine the influence of attitude dimensions, social influences and self-efficacy antecedents towards behavioural intention to consume functional food.

2.4.1 Attitude of the Consumers

Each day, consumers make spontaneous decisions regarding food choices, a behaviour that is described as habitual (Ernst & Epstein, 2002). Shepherd and Sparks (1994) stated that consumer food choice behaviour could be predicted by measuring their attitude, as attitude was found to be one of the key factors that influence the behavioural intention of individuals (Ajzen & Fishbein, 1980).

The definition of attitude used in this study is given by Eagly and Chaiken (1993) that is "a psychological tendency that is expressed by evaluating a particular object with some degree of favour or disfavour". In addition, attitude plays a role as guidance on how information is noticed, adopted, accepted or rejected (Eagly & Chaiken, 1993). Frewer, Scholderer and Lambert (2003) stated that the process of evaluation towards certain object would express the approval or disapproval, liking or disliking, buy or not to buy, and consume or not to consume.

In the food context, attitude is reported to be the key factor in explaining food consumption behaviour (Olsen 2001; 2004; Verbeke & Vackier, 2005). The relationship between attitude and intention has been shown to be significantly high, being in the range of 0.38 to 0.55 (Shepherd & Raats, 1996; Saba & Vassallo, 2002, Verbeke & Vackier, 2005). In previous food studies, the influence of attitude on behavioural intention has been described to be higher than the influence of subjective norms and perceived behavioural control (PBC) in the TPB model (Olsen, 2001; Verbeke & Vackier, 2005).

In previous studies on consumer behaviour, much of the focus has been on predicting the actual behaviour of the consumers. For example, attitudes towards healthy eating have been reported worldwide and both adults and children have been described to acknowledge healthy consumption as beneficial to their health (Brug et

al., 1995). However, negative attitudes towards healthy eating were also found in their study concerning the inconvenience of preparing the food, cost, and availability of fruits, vegetables, and boiled vegetables.

Previous literature focusing on organic consumption reported that consumer attitudes relating to safety, health beliefs and belief in the high quality of organic products showed significant effects on behavioural intention to purchase organic food (Padel & Foster, 2005; Gracia & de Magistris, 2008). In addition, Torjusen, Lieblein, Wandel and Francis (2001) reported that attitude towards the health attribute positively influence the purchased of organic food among Norwegian consumers. Padel and Foster (2005) found that perceived good health from green product consumption and the attitude towards environmental protection were the main factors that influence organic food consumption. Gracia and de Magistris (2008) reported that attitude towards health attribute and environments were found to be important determinants that influence the organic food consumption among Italian consumers.

Prior researches related to behavioural intention towards functional foods, demonstrate that, besides demographic factors, consumer attitudes significantly influences the acceptance or the intention to consume functional foods (Poulsen, 1999; Urala & Lahteenmaki, 2004; Verbeke, 2005; Sparke and Menrad, 2006). These stimuli are considered and processed by the consumer, and, as a reaction, the preferences are revealed through purchase decisions. Generally, consumers do not consider functional foods as one homogenous group. Urala and Lahteenmaki (2004) stated that the functional food related attitudes influenced the intention to consume functional food products are differ depending on the type of functional food product. This was supported by the study of Poulsen (1999), who reported that the enrichment

substance and the type of product enriched significantly influence the attitudes of Danish consumers to use functional food.

According to Eagly and Chaiken (1993), they indicated that individual attitudes would be more stable when the object becomes familiar. However, in the case of functional food, attitudes can change rapidly due to the fast alterations in product availability and the aspect of safety in product innovation (Barcellos & Lionelli, 2011). Urala and Lahteenmaki (2007) suggested that functional food marketers and producers should understand the attitudes of the consumers towards functional food in order to produce functional food products that can fulfil consumer expectations, as well as to communicate the health-related information honestly and attractively to the right consumers.

Bech-Larsen and Grunert (2003) in their study relating to the perceived healthfulness of functional food, reported that the use of different health claims, types of enrichment, and types of product were the factors that influence the behavioural intention of the consumers to consume functional food. The findings from empirical studies also suggested that consumers purchase functional foods because of the healthiness of the foods, taste, security, pleasure and familiarity (Poulsen, 1999; Urala & Lahteenmaki, 2003). Furthermore, Urala and Lahteenmaki (2003) found that consumers appear to relate the benefits from the consumption of functional food with better health, being a better person and good well-being.

Previous studies indicated that, consumers attitude towards functional food products was influence by the product healthiness, including yogurts, cereal and juice (Annunziata & Vecchio, 2011). Supported by Kahkonen, Tuorila and Lawless (1997) and Bech-Larsen and Grunert (2003), they mention that the consumers regarded yogurt and orange juice as inherently healthy, thus provide benefits for better health.

In addition, Pereira et al. (2004) stated that in several prior studies, cereal product with fibre components has been connected to the reducing the risk of heart diseases. In particular, a study by Annunziata and Vecchio (2011) showed that consumer perception of functional food healthiness has contributed significantly on attitude towards functional foods, as well as the fulfillment of perceived well-being and better health (Urala & Lahteenmaki, 2003, 2004; Verbeke, 2005; Niva, 2007; Siro, Kapolna, Kapolna & Lugasi, 2008).

As discuss above, in most of the previous studies, the attitude measurements used in examining the effect of attitude towards food choice, including functional foods, examined the elements of attitude in general. For example, attitude towards healthiness (Lappalainen, et al., 1998; Nielsen, Bech-Larsen & Grunert, 1998; Poulsen, 1999; Frewer et al., 2003; Ural & Lahteenmaki, 2003, 2004, 2007); quality and price (Lappalainen, et al., 1998); taste (Nielsen et al., 1998; Poulsen, 1999; Bech-Larsen et al., 2001; Frewer et al., 2003; Urala & Lahteenmaki, 2003); wholesomeness, convenience and availability (Bech-Larsen et al., 2001); and pleasure, security and familiarity (Poulsen, 1999; Frewer et al., 2003; Urala & Lahteenmaki, 2003) were some of the main factors that influenced functional food behavioural intention and consumption.

In some studies, the preference concepts, such as liking or disliking, bad or good, and unsatisfied or satisfied were considered to be a focus in measuring the attitude towards certain foods (Olsen, 2003). For example, the attitude for certain food products was measured as semantic differential scale rankings from "dislike very much" to "like very much". However, in this study, the attitude was assessed as the overall evaluation of the individual towards behavioural intention towards

functional food consumption by some integrated items focusing on the four different attitude dimensions establised by Urala and Lahteenmaki (2007).

Measurement used in previous studies also provided a suitable tool for predicting consumer acceptance of functional food, however, there is a lack of published attitude measurement that target directly towards the consumption behaviour of functional food (Urala, 2005). Since the concept of functional food is fairly new, especially in Malaysian market, and functional foods are also known as a novelty product with credence attributes and categories as healthy foods that comes with special health benefits (Verbeke, 2005; Urala & Lahteenmaki, 2007). Therefore, attitude measurements that directly emphasise the health-focus studies, such as the behavioural intention towards functional foods consumption are needed (Urala & Lahteenmaki, 2003, 2004).

After three studies by Urala and Lahteenmaki (2003, 2004, 2007), the evidence showed that a specific attitude scale is needed in order to provide a feasible tool to measure attitudes towards functional foods. They have come out with a good reliability and validity scale in measuring individual's attitude towards functional food, and four attitude dimensions specifically in relation to functional foods were identified. Consequently, to have a better prediction of consumer intention and behaviour towards functional food, this study adopted the four dimensions of attitudes measurement developed by Urala and Lahteenmaki (2007) that specifically focus on functional food. The four dimensions are, perceived reward from using functional food, necessity for functional food, confidence in functional food, and safety of functional food. Supported by Chen (2011), he stated that, the scale offers a reliable measurement in predicting the consumer attitude of functional food even at the concept level. Backstrom, Pirttila-Backman and Tuorila (2003) also mention that,

functional foods are quite new in the market, and the four attitude dimensions that measured the willingness to use functional foods are concerned with the novel characteristics of the functional food products in general.

The most crucial factor in consumer acceptance towards functional food is the perceived reward from using such a food (Urala & Lahteenmaki, 2007). As the perceived reward dimension demonstrate the positive consequences and personal pleasure of the individuals, attained from the consumption of functional food, thus, functional food may provide a new and convenient method for taking care of one's self. Other than the providing benefits towards good health, improved individual's mood and performance, as well as preventing diseases, functional food consumption also deliver an easy way towards healthy lifestyle (Urala, 2005).

Prior studies found that consumer attitude that linked towards the perceived benefits, mainly related to the healthiness of the foods and well-being that they will get from consuming functional foods, is the best predictor towards the intention to consume functional food. Bech-larsen and Grunert (2003) stated that the perceived quality of healthiness in food product has become the important motivation in consumer's food choice decision making. These arguments were supported by Verbeke (2005), who also found that anticipated health benefits are the main determinant of functional food acceptance.

Landstrom et al. (2007) reported that 84 percent of Swedish consumers were familiar with functional food, and the results also demonstrated positive correlation between personal reward from functional food consumption, having an interest in natural products and general health. In addition, Urala and Lahteenmaki (2007) stated that the perceived reward and the necessity for functional foods consumption were the most important factors towards the acceptance to use such food, however,

the influence of necessity for functional food among Finnish consumers became weaker. Barcellos and Lionello (2011) in their study on Brazilian consumers reported that consumers are mostly favourable concerning the reward they can get from functional foods, trust in the benefits provided and confidence in their dieticians and nutritionists regarding the benefits of functional food.

The dimension of attitude of necessity for functional food indicates how necessary individual think that functional food consumption is for him/her or other people in general (Urala & Lahteenmaki, 2004). Urala and Lahteenmaki (2004, 2007) reported that the necessity for functional food positively influence the behavioural intention towards functional foods, especially functional food that can prevent from getting the risk of heart diseases, such as cholesterol lowering spread. Chen (2011) stated that the necessity for functional food consumption significantly influence the willingness to use functional food among Taiwanese. However, a study by Landstrom, Hursti and Magnusson (2009) on Swedish consumers, aimed at examining consumer attitudes, perceptions and the perceived need for functional foods, reported that consumers felt that functional foods were unnecessary if the person did not suffer from any health problems and that a lifestyle change would not result in optimal health.

Confidence in functional foods demonstrates the individual attitude concerning the level of confidence one's having towards the information and claims about functional food and its health effects. This dimension indicates how individual trust the information and how strong individual believe in the scientific claims of the promised health benefits from using the functional food. Urala and Lahteenmaki (2004, 2007) reported that after the dimension of perceived reward, confidence in functional food was also the important factor that influences the behavioural

intention towards functional food consumption among consumers. Supported by Chen (2011), he found that confidence in functional food demonstrated a significant relationship towards consumer willingness to use functional food products in Taiwan.

Luhmann (1979) in his study mention that, trust resemble confidence. Niva and Makela (2007) stated that, in functional food context, trust is not only dealing with food safety but also trust in the scientific association between food components and ingredients and their effects on human body and health. Thus, trust in information and claims related to health play a crucial role in functional food purchase decision-making. Supported by Verbeke (2005), he stated that confidence and trust in the health benefits from using functional foods is the most superior factor influencing the behavioural intention of the consumers towards functional food.

Moreover, Markovina, Cacic, Kljusuric and Kovacic (2011) stated that, besides health awareness, price and quality, lack of trust and confidence for functional food explains young consumer attitudes towards functional food. Consumers perceived risk of consuming functional food along with its benefits. According to McConnon et al. (2002), 78 percent of respondents agreed to the statement that, "a lot of claims made by food manufacturers about their food products are misleading". This showed that consumers distrust the scientific promises of functional foods. Therefore, nutrition professionals, marketers and governments need to provide appropriate and effective education concerning the functional food benefits to the consumers.

Moreover, Annunziata and Vecchio (2011) stated that the source of information plays an important role towards consumer confidence of the information about functional food. Their results describe that consumers had a lower level of

confidence in information from functional food manufacturer, while a high level of confidence is afforded to doctors and government.

Consistent with Urala and Lahteenmaki (2003), their findings reported that Finnish consumers showed a high degree of confident with the information coming from public authorities and less confident with newspaper, retailer and functional food manufacturer. In addition, Cox et al. (2008), found that the information source was forth in relative importance for Australian consumers. Furthermore, Niva and Makela (2007) concluded that most respondents believed in the beneficial health effects of functional food if recommended by medical expert.

The fourth dimension of attitude, which is safety of functional food, is related to the possibility of getting health risk when individual consumes the functional food. It measures the possible harmful effects of functional food. In prior researches, the risk and the safety regarding the consumption of functional food have been emphasised and it may influence the willingness to use functional food (Jonas & Beckmann, 1998; Backstrom et al., 2003; Frewer et al., 2003). Some of the functional food was modified using sophisticated scientific methods by adding and/or removing the component of a food. Therefore, some consumers perceived functional food to be risky and were not safe to be consumed due to unnaturalness in food (Frewer et al., 2003).

Verbeke (2005) argued that there in terms of perceived safety and trust in information source and claims, and European consumers were more unfavourable towards functional foods, the technology, and related information regarding novel foods. A study on consumer attitudes in Taiwan reported that perceived safety towards the possible harmful effects of functional foods doest not influence the consumption of functional food in general (Chen, 2011).

A study on functional foods in Canada stated that consumers would disregard the health benefits of the functional foods if the production technology seems frightening (Labrecque & Charlebois, 2011). Therefore, the perceived risks from functional food consumption would prevent the consumers to consume the functional food (Frewer et al., 2003). However, Urala and Lahteenmaki (2004) argued that consumers perceived that risks came from the consumption of functional foods in general, however, the perceived risk do not influence the consumers acceptance to use functional foods.

The four dimensions of attitude developed by Urala and Lahteenmaki (2007) – reward, necessity, confidence and safety - were chosen in this study because they are specifically related to functional foods. In addition, these dimensions have been adopted in much of the research relating to functional food for which consistent research results have been described in the literature (for example: Urala & Lahteenmaki, 2004, 2007; Chen, 2011; Barcellos & Lionello, 2011). Given the above discussion, it shows that the impact of consumer attitude in explaining consumer intention is very important. Consequently, further analysis is needed, especially in the context of Malaysian consumers.

2.4.2 Social Influences

The social influences of an individual is known as "the perception of individual towards his/her social influences or environmental referents that are around him/her, expect him/her to act or not to act towards certain behaviour" (Ajzen & Fishbein, 1980; Ajzen, 1991). The examples of social influences are: parents, family, friends, government, neighbours, or physicians (doctors). Ajzen and Fishbein (2005) mention that both personal thoughts and social influences were predictors of

behavioural intention, however, for certain individual personal thoughts were better predictors of intention.

Although some findings from the marketing literature were contradictory, many studies reported that subjective norms or social influences are crucial in describing the relationship between intention and behaviour (Ryan, 1982; Cox et al., 1998; Thogersen, 2002), and act as antecedent for behavioural intention (Cox et al., 1998; Baker et al., 2003; Blanchard et al, 2009). The empirical research and meta-analysis showed that the influence of others towards the behaviour is the weakest antecedent in predicting intention and behaviour (Ajzen, 19991; Armitage & Conner, 2001). Nevertheless, Armitage and Conner (1999) reported that the lack of predictive power of subjective norm would be due to inaccurate conceptualisation of the subjective norm items or weak measurement. For example, Brewer, Blake, Rankin and Douglass (1999) in his study on factors influencing the milk consumption among women, reported that attitudes showed a positive relationship with behavioural intention, where as, subjective norms did not show correlation with behavioural intention.

Annunziata and Vecchio (2011) reported that the significant others influence an individual towards the behavioural intention to consume functional foods in their study on 400 Italian consumers. Moreover, studies by Smith and Paladino (2010) in Australia, and Arvola, Vassallo, Dean, Lampila, Saba, Lahteenmaki et al. (2008) in Italy, Finland and United Kingdom, indicated that subjective norms were positively influence the buying intention of the consumers towards organic food. Supported by Kalafatis, Pollard, East and Tsogas (1999), they stated that social influence has a positive and significant relationship with behavioural intention to purchase environmentally products in United Kingdom. A study of buying behaviour towards

green products among young consumers in Hong Kong showed that social influence was the strongest predictor. Likewise, the study by Abdul Wahid, Rahbar and Tan (2011) reported that social influence is the top predictor of green purchase behaviour among environmental volunteers in Penang.

Furthermore, Lee and Green (1991) reported that social influence predicted behavioural intention of the consumers. Similarly, Brug et al (1995) reported that significant others influence an individual towards the consumption of fruit and vegetable among adult, children and adolescents. Supported by Cox et al. (1998), the results reported that social pressure predicted consumer intention to increase fruit consumption.

In the context of food choice, social variables seem to be important in the consumption of home meals (Miller, 1998; Olsen, 2001; Olsen & Ruiz, 2008) in different cultures (Tuu et al., 2008). Olsen and Ruiz (2008), in their research on eating behaviour, showed that family members (for example, children, adolescents and parents) were the important people that influence the intention and behaviour of other members in the family. Previous studies also demonstrate that family members and relatives were the most crucial people to influence the behaviour of individual members and always used to measure the construct of subjective norms (Steptoe et al., 2004; Verbeke & Vackier, 2005; Olsen & Ruiz, 2008; Chan, Prendergast, Bech-Larsen & Gronhoj, 2009). In addition, a study by Chan et al. (2009) in Taiwan reported that family members were the most influential group for adolescents concerning healthy eating.

Moreover, research on healthy food consumption behaviour described that parents and friends were known to be the most influential individual in healthy consumption behaviour of adolescents (Feltham, 1998; Caruana & Vassallo, 2003;

Baker et al., 2003; Videon & Manning, 2003; Turner, Stone, Pozdol & Coonrod, 2006). Tuu et al. (2008) reported that children observation of their parents eating pattern and food preference; influence the children towards the consumption of healthy food. For example, children whose parents smoke are twice as likely to become smokers as those whose parents do not (Eiser, Morgan & Gammage, 1989).

Steptoe et al. (2004) assessed the influence of social factors on changes in fruit consumption over 12 months and found that social support from family and other people (friends and co-workers) led to an increased in fruit intake over a 12-months period. Therefore, the participation of parents, family members or relatives, either as programme recipients or in conjunction with a school-based programme to promote healthy eating among children, is considered to be extremely important (Swadener, 1995). In addition, Michell (1997) found that friends were the greatest influence in youth smoking because they want to belong to a particular group, which correlates more towards peer-bonding rather than peer-pressure.

Individuals showed a high level of trust concerning the functional food benefits and health information that coming form the government, therefore, the government have played a significant role in influencing the consumer acceptance of functional food products (Annunziata & Vecchio, 2011). Furthermore, the findings of Urala and Lahteenmaki (2003) stated that consumers in Finland were moderately confident with health benefits information given by newspaper, retailers and food producers, and very confident about the same information that coming from the public authority, which supported the argument that the government played a significant role in influencing consumer food choice. This was supported by Chan et al. (2009), who also found that the government was among the most important groups that influence adolescents towards healthy eating in Taiwan.

Despite contradictory findings and weak correlation between social influences and intention (Ajzen, 1991; Armitage & Conner, 2001), the literature suggested that social influences play an important role in predicting the intention for the eating behaviour domain and exert a significant influence (Ryan, 1982; Cox et al. 1998; Bissonnette & Contento, 2001; Thogersen, 2002; Baker et al., 2003; Annunziata and Vecchio, 2011). Therefore, the construct of social influence cannot be ignored in this study and further investigation is needed, particularly, in the context of functional foods among Malaysian.

2.4.3 Self-efficacy

The concept of self-efficacy was the major construct in the Social Cognitive Theory (SCT), established by Bandura (1977). The definition of self-efficacy is "the confidence one feels about performing a particular behaviour, including confidence in overcoming the barriers to achieve that behaviour" (Bandura, 1986). Ajzen (1991) stated that individual's intention and behaviour is strongly affected by their confidence in the ability to perform towards the behaviour.

Strahan et al. (2002) reported that individuals who have a high level of self-efficacy would be more expected to engage in health behaviour because they have a strong believe that they can succeed. Therefore, the stronger believe of individual in their self-efficacy, the higher their obligation to engage in the intended behaviour (Locke & Latham, 1990). In other words, individual self-efficacy would have a positive relationship with intention towards certain behaviour and the behaviour itself. Moreover, Schwarzer and Fuchs (1995) found that high self-efficacy in individuals was linked to high achievement, better health and excellent social integration.

Previous studies on consumer-behavioural intention reported that self-efficacy is a superior predictor of intention than PBC (Terry & O'Leary, 1995; Armitage & Conner, 1999; Povey et al., 2000). Armitage and Conner (1999) in their study of the intention to consume a low-fat diet found that individual PBC and self-efficacy showed a distinct and independent relationship on behavioural intention. The results showed that self-efficacy was influence by internal control belief (such as motivation and resisting high-fat food), where as external control belief (such as availability, procedure and cost) was a significant predictor of PBC. Therefore, Armitage and Conner (1999) concluded that, self-efficacy and PBC were two different and distinct constructs. This was supported by the findings of Terry and O'Leary (1995), Povey et al. (2000) and Tolma, Reininger, Evans and Ureda (2006), who reached similar conclusions that the construct of self-efficacy is stronger than PBC in predicting behavioural intention.

Prior researches emphasised the important of self-efficacy construct in TPB model and the evidence is accumulating. Schwarzer and Fuchs (1995) argued that, it is necessary to add self-efficacy construct within TPB model and that self-efficacy has been used as main construct in various behaviour research domains. Supported by Giles, McClenahan, Cairns and Mallet (2004), they reported that in many behavioural studies, self-efficacy has showed substantial contribution towards the prediction of behavioural intention compared to other constructs within TPB model.

In different behavioural contexts, such as fruit and vegetables consumption (Brug et al., 1995; Povey et al., 2000), Alcohol drinks (Armitage, Conner, Loach & Willets, 1999a), physical exercise (Terry & O'Leary, 1995; Weinberg & Daniel, 2007), and intention to get a mammogram (Rutter, 2000; Tolma et al., 2006), the results showed that increased self-efficacy would enhance the intention towards the

behaviour. In their study on the intention to get mammogram screening among women in Cyprus, Tolma et al. (2006) reported an increased in variance explained from 26.7 percent to 34.5 percent by adding self-efficacy construct to the TPB model, and self-efficacy was the most powerful predictor in the model.

Povey et al. (2000) and Brug et al. (1995) stated that self-efficacy showed a positive relationship towards fruits and vegetables consumption in adults. Likewise, Craciun and Baban (2008) also found that self-efficacy influence the children in taking fruit snack in school. Cox et al. (2004) reported that self-efficacy was a significant predictor towards behavioural intention to consume functional foods. In addition, Roddy et al. (1996) indicated that although the motivation or intention to purchase organic food is high, it is impossible to transform the intention into action due to low self-efficacy.

Previous research also presented evidence that supported self-efficacy as a very important construct in explaining both consumer intention and the behaviour in the TPB model (For example, Yordy & Lent, 1993; Brug et al., 1995; Terry & O'Leary, 1995; Armitage et al., 1999a; Armitage & Conner, 1999; Povey et al., 2000; Conner & Norman, 2005; Tolma et al., 2006; Craciun & Baban, 2008). Armitage and Conner (1999) reported that self-efficacy has influenced intention and behaviour, as well as, the best predictor of both intention and behaviour compared to other construct within TPB model. Supported by Conner and Norman (2005), they stated that perceived self-efficacy is directly related to health-related behaviour. Furthermore, Yordy and Lent (1993), and Hagger, Chatzisarantis & Biddle (2001) found that self-efficacy provided an additional influence on the intentions and behaviour of physical activities, showing that self-efficacy directly influences behaviour.

Tolma et al. (2006) has mentioned that there is a need to verify the validity of self-efficacy construct in different behavioural context and among different samples. The main objective of present study is to examine factors that may influence consumer-behavioural intention to consume functional foods. Thus, to motivate people to eat healthy foods, to change their unhealthy consumption habit and to sustain the positive behaviour towards healthy eating needs strong internal self-efficacy. Shannon, Bagby, Wang and Trenkner (1990), and Schwarzer and Fuchs (1995) found that individuals who had strong confidence in their self-efficacy would change their behaviour towards healthy diet and were less likely to relapse to their previous unhealthy diet.

Therefore, the construct of self-efficacy will be used to examine its predictive power towards behavioural intention to consume functional food as well as its predictive power towards the consumption behaviour in the modified TPB model in this study. Self-efficacy in this study deals with the strong believe that individuals have on their own capabilities and potential to perform the chosen behaviour focusing primarily on internal factors (for example motivation, acquisition of information, skills, abilities, emotions, compulsions), as well as confidence in defeating the obstacles to achieve that behaviour (Bandura, 1986; Armitage & Conner, 1999).

2.5 Past Experience

Despite the fact that intentions are good predictor of behaviour, previous studies demonstrated a considerable gap between behavioural intention and following behaviour and relatively little empirical studies has examined factors that may explain and help to overcome the gap between intention and behaviour

(Bagozzi, 1992; Orbell & Sheeran, 1998; Sheeran, 2002; Sheeran & Abraham, 2003).

For example, meta-analyses reviews indicated that intention represents for 20 to 40 percent of the explained variance of behaviour (Godin & Kok, 1996: Hagger et al., 2002; Down & Hausenblas, 2005). In addition, in his review on health behaviour, Sheeran (2002) indicated that 47 percent of consumers with higher intention, failed to execute their intended behaviour. A review of consumer behaviour by Young et al. (1998) also reported that intention to purchase among consumers were transformed into action in less than 62 percent of cases. Meanwhile, Orbell and Sheeran (1998) in their meta-analysis study reported that on average intention explain for 28 percent of the variance in behaviour. This means that another 72 percent of variance is still unexplained.

As reported by Sheeran and Abraham (2003) in their study on 185 undergraduates at two universities in United Kingdom, there is a gap between intention and behavior, which is caused by those who demonstrate a positive intention to exercise but do not perform the behaviour. The gap between an independent variable, which is intention, and a dependent variable, which is the behaviour, showed an evidence that a third variable may influence the direction and/or the strength of the relationship between intention and behaviour (Baron & Kenny, 1986). Therefore, the third variable is known as moderator. Indeed, to understand the gap between intention and behaviour is to examine the moderator(s) that might increase the predictive power of intention-behaviour relationship.

Some of the variables that have already been studied as moderator between intention and behaviour relationship were self-efficacy (Courneya & McAuley, 1994; Sheeran & Orbell, 2000; Ajzen, 2002), past experience (Cooke & Sheeran, 2004;

Pomery et al., 2009), past behaviour (Verplanken, Aarts & van Knippenberg, 1997; Sheeran & Abraham, 2003; Corner & Godin, 2007), age (Kashima et al., 1993; Sheeran & Orbell, 1998), habit (Triandis, 1980; Limayem et al., 2003), and self-schema (Estabrooks & Courneya, 1997; Kendzierski & Whiteker, 1997; Sheeran & Orbell, 2000).

This study concerns the analysis of the consumer-behavioural intention to consume functional food; food that comes with health claims promoting their benefits. Thus the decision-making process towards such foods will involve risk and safety choices. Therefore, past experience offers support in decision-making that requires risk taking and safety choices towards healthy consumption, in which, as consumers become more experienced with the health benefits of the functional foods, they would purchase and consume more often of such food (George, 2002).

Previous literature argued that individual habit, past behaviour and past experience are the same and was interchangeable (Ajzen, 1991; Limayem et al., 2003; Albstadt, 2011). Ajzen (1991, p. 204) described past experience as "...an important source of information about behavioural control", which is similar with habits (Limayem et al., 2003). Likewise, Albstadt (2011) found that past behaviour seems to have several forms, such as experience with the behaviour, frequency of behaviour, and habits. Albstadt mentioned that experience is clearly based on past behaviour, in which experiences are explicitly integrated with one another forming the past behaviour, thus could increase the explained variance of the intention and behaviour relationship. Thus, in this study, the construct of past experience is considered as similar to past behaviour.

The role of past behaviour or past experience in TPB model has been investigates in numerous studies including behavioural studies (Eagly & Chaiken,

1993). Several studies have found that, in TPB model, past experience influences both intention and future behaviour (Ajzen, 1991; Conner & Armitage, 1998). Likewise, Pomery et al. (2009) indicated that past experience is significantly influence future behaviour. Taylor and Todd (1995) reported that there is a positive relationship between intention and technology acceptance behaviour for experience user. Their findings showed that prior computer general experience has been shown to be helpful in forming favourable usefulness perceptions of their systems. Likewise, Ndubisi, Jantan and Richardson (2001) stated that entrepreneurs with longer prior experience in the general usage of computers perceived IT to be more useful than their less experienced colleagues.

According to Conner and McMillan (1999), they stated that in terms of behavioural perspective, the addition of past experience construct in TPB model is justified, since past experience influence future behaviour. Mak, Lumbers and Eves (2011) reported that past experience was an important factor influencing food consumption behaviour, as familiarity increases with repeated experience (Luckow, Sheehan, Fitzgerald & Delahunty, 2006). Tse and Crotts (2005), in their study on local cuisine consumption by tourists, indicated that first time visitation was negatively correlated with the number and the range of culinary exploration by the tourists, where as, repeat visitation was positively correlated. Similarly, past experience was found to be a significant predictor towards tourists' intention to consume local cuisine in destination (Ryu & Jang, 2006).

In their pioneering article of 1982, Holbrook and Hirschman first introduced the term of experience in the context of consumption and marketing. It has become important in explaining consumer behaviour (Addis & Holbrook, 2001), marketing of the future (Schmitt, 1999), and a foundation for the economic studies (Pine &

Gilmore, 1999). In Vezina's study (as cited in Caru & Cova, 2003) the author stated that the consumption experience was not only limited to pre-purchase and post-purchase activities but included series of activities that effect the decision-making and future behaviour of consumers.

Direct product experiences and indirect product experiences result in different levels of mental interpretation and product preferences. Caru and Cova (2007) explained that experience perform directly when people search for information, shop, buy, and consume the product. Where as, advertising and marketing communication are part of indirect product experiences when consumers are exposed to them (Brakus, Schmitt & Zarantello, 2009). At the individual consumer level, direct experience is related to the number of times the product has been used or consumed by a particular consumer (Fornell, William & Birger, 1985). Ajzen and Fishbein (2005) argued that direct experience produces more informative attitudes and intentions that are better predictors of subsequent behaviour. This was supported by Cooke and Sheeran (2004), who found that direct experience moderated both the relationship between intention and behaviour, and attitude and behaviour, however, it did not moderate the relationship between PBC and behaviour.

Brakus et al. (2009) suggested that research on the past experience construct should be encouraged in other contexts such as in services (for example: restaurants, spas, airlines) and food consumption. In addition, the influences of past experience need to be tested over a set of different behaviours and contexts to reveal the path of the exact effects of past experience in the TPB model (Albstadt, 2011). Thus, to the best of our knowledge, few studies focus on past experience as a moderator on the relationship between consumer-behavioural intention and consumer-consumption behaviour of functional food. Moreover, the specific scales for measuring past

experience towards the behaviour of functional food consumption has not yet been developed. Therefore, this study examines whether the construct of past experience moderates the intention-behaviour relationship as well as develops the measurement for the construct of past experience from the perspective of functional food consumption behaviour.

The concept of experiential marketing proposed by Schmitt (1999), which overlaps with consumption experience by Pine and Gilmore (1999) and brand experience by Brakus et al. (2009), were utilised to develop the measurement for past experience in this study. Schmitt (1999) defined experience as the "internal and external excitement felt by the consumers separately after observing or participating in an event that motivates them and produces their approval or purchase behaviour that enhance the product's value". Schmitt reported that the experiences of customers could be explained in terms of five dimensions – sense, feel, think, act and relate, The sense experience includes aesthetics (such as beauty and appearance) and sensory qualities of the products or services including sight, hearing, smell, taste and touch.

The feel experience is the emotional response, moods or feelings of a consumer about something, such as a product, services, or people. The think experience includes analytical and imaginative thinking, in which the things that attract the consumer's attention and interest could excite the consumer and produces surprising and inspiring creative thoughts. The act experience related to the physical, lifestyle and behavioural experiences, such as, the experience from the actual participation, interaction and product consumption, and is already outside the range of personal feeling and perception that further change an individual's living pattern. Lastly, the relate experience refers to social experiences, such as relating to a

reference or special group. It can make consumers produce relations through experienced providers and obtain social recognition and belongingness.

Pine and Gilmore (1999) established four dimensions of a consumption experience, which are: entertainment, esthetics, educational and escapism. Those four dimensions are different in terms of the level of consumer participation and involvement. Where as, Brakus et al., (2009) established five dimensions of brand experience, which are: sensory, affective, intellectual, behavioural and social. The conceptualisations of the past experience in the case of healthy foods were related to sensation, feelings, emotions, cognitions, and behavioural responses captured by health benefit-related stimuli, and over time, these experiences might result in emotional bonds towards the products (Brakus et al., 2009). Therefore, the measurement used is focusing on the emotions, feelings and behavioural responses that consumers gained from the benefits of using the functional foods.

Consequently, the concept of experiential marketing proposed by Schmitt (1999) was utilised in present study to developed measurement for past experience from the perspective of functional food consumption, in general, focusing on the dimensions of sense, feel and act. However, Schmitt's experience dimensions overlap with those of Brakus et al. (2009) - sensory, affective, and behaviour - and one of the dimensions of experience of Pine and Gilmore (1999); that is aesthetics. The experience dimensions of previous studies are as shown in table 2.1.

Table 2.1
Experience Dimensions from Previous Studies

Previous Studies	**Dimensions**
Schmitt, 1999 (Experiential marketing)	*Sense *Feel Think *Act Relate
Brakus et al., 2009 (Brand experience)	*Sensory *Affective Intellectual *Behaviour
Pine & Gilmore, 1999 (Consumption experience)	Entertainment *Aesthetics Educational Escapism

Note: * Dimensions that overlap

Prior research reported that it is important to measure the strength of intention in predicting the behaviour using moderating factor of past experience, thus, past experience fits into the TPB model as a moderating factor for the relationship between intention and behaviour (Sheeran & Abraham, 2003). Evidence from previous research suggested that past experience moderates the relationship between intention and behaviour, in which intention based on greater experience better predicts behaviour than the intention based on less experience (Kashima et al., 1993).

Kashima et al. (1993) reported that frequent experience of using condom in the past had influenced the respondent's intention to use condoms in the future. Likewise, among 185 samples of undergraduate students, Sheeran and Abraham (2003) demonstrated that when the frequency of past experience towards physical activity was high, intention was a significant predictor of behaviour, mean while, it was not when the level of past experience was low. This was supported by George (2002), in his study on online shopping, who stated that past experience influences

the Internet purchase behaviour.

As people become more experienced in online shopping, they will purchase more often. Cooke and Sheeran (2004) in their meta-analysis of 41 studies quantified the moderating effects of seven properties of cognitions on cognition-intention and cognition-behaviour relationship. Those moderators were: accessibility, temporal stability, affective-cognitive consistency, involvement, certainty, ambivalence and direct experience. The results indicated that all of the moderators including direct experience improved the consistency of the intention and behaviour relationship. Charng, Piliavin and Callero (1988) investigated the influence of past behaviour (i.e. past experience) as moderator on the relationship between self-identity and intention, and the result revealed that past experience showed a positive moderating effect. The result explained that the relationship between self-identity and intention was high when individual performed the behaviour more frequently.

In addition, Pomery et al. (2009) accomplished three studies comparing the predictive validity of three proximal antecedents (i.e. behavioural expectation, behavioural willingness and behavioural intention) to risk behaviour (class skipping and smoking) and included experience and age as moderators. The study provided an understanding towards the impact of experience on behavioural intentions, behavioural willingness and behavioural expectation in terms of young people. Their results presented a picture of shifting antecedents of behaviour as young people mature and accumulate experience. They argued that many adolescents reported no intention to engage in risky behaviour because they have not done it in the past (no past experience), therefore they have no specific plans to do it in the future. Moreover, the findings also demonstrated the importance of experience, in which the behavioural intention towards the actual behaviour was stronger for those who have

more experienced with the behaviour (for example, smokers).

However, contradictory findings were also reported on the impact of past experience on the relationship between intention and behaviour. For example, the findings from travel mode choice stated that the relationship between intention and behaviour was low when the behaviour had been frequently carried out in the past (Verplanken et al., 1997). The same effect occurred in the studies of Conner and McMillan (1999), and Fekadu and Kraft (2001), in which, the relationship between self-identity and intention would be higher, if individual performed the behaviour less frequently. In other words, self-identity was a stronger predictor of intention at lower levels of past behaviour (past experience).

Since the findings from previous studies on the moderating effect of past experience seems to be mixed, it could be argued that the moderating effect of past experience may not hold for all behaviours. Relatively little research has investigated past experience as a moderator that might help to bridge the gap between individual's intention and their behaviour. There are evidence to believe that the positive past experience of consumers with the consumption of functional food would strengthen the predictive power of their behavioural intention to consume functional food in the future. Therefore, the issues discussed above justify the examination of past experience as a moderator on the relationship between intention and behaviour in other contexts; namely, on the study of functional food consumption behaviour in Malaysia.

2.6 Socio-demographic

Social demographic factors have been said to affect food choice (for example: Childs, 1997; Poulsen, 1999; de Jong, Ocke', Branderhorst & Friele, 2003; Verbeke,

2005). However, there are contradictory findings about demographic characteristics of the consumers and the types of consumer who use functional foods, which are only partially associated with the willingness to use functional food (Urala, 2005). According to de Jong et al. (2003), type of functional food, followed by gender, age and education influence the use of functional food the most; however, the differences between varieties of functional food types are notable.

Previous studies demonstrated that females were more likely to anticipate in functional food consumption compared to men (for example: Childs, 1997; Childs & Poryzees, 1998; Poulsen, 1999; Bech-Larsen & Grunert, 2003; Verbeke, 2005; Landstrom et al., 2007; Teng et al., 2012). For example, Verbeke (2005) indicated that age, gender, education, presence of young children, and presence of sick family members emerge as socio-demographic determinants of functional food acceptance. In USA, demographic characteristics of functional food users were known as being female, within 35 to 55 of aged, well educated and came from higher income class (Childs, 1997). Whereas, Danish consumers who most willing to purchase functional foods were female, elderly and with a lower education (Poulsen, 1999).

Females were found to be functional food users compared to men, partially because they were more concern in healthy food consumption and healthy living in general (Bogue & Ryan, 2000). Furthermore, the main reason for women being more conscious about health appears to be related to their role as the person responsible for food purchasing and preparing food in the family, as well as their sense of responsibility to the family health and welfare (Childs & Poryzees, 1998; Frewer et al., 2003; Bech-Larsen & Scholderer, 2007). Where as, men were found to be less interested in eating healthy food (Ralph, Seaman & Woods, 1996; Roininen, Lahteenmaki & Tuorila, 1999).

In terms of age, elderly and middle-aged consumers were more likely to consume healthy products (Childs & Poryzees, 1998; Roininen et al., 1999; Poulsen, 1999; Frewer et al., 2003; Bech-Larsen & Scholderer, 2007) and tended to choose foods primarily to prevent disease (Kashima et al., 1993; Sheeran & Orbell, 1998; Bhaskaran & Hardley, 2002). Frewer et al. (2003) reported that the main reason for elderly individuals be more responsive towards health was because these individuals have a higher probability of being diagnosed with some disease than those who are younger. Supported by Verbeke (2005) and Urala (2005), they mention that, compared to younger consumers, older consumers were more conscious on the health benefits of the functional food consumption, that is relevant to prevention of a diseases.

Supported by, Bogue and Ryan (2000), they found that young consumers were more concerned about increased their energy levels, while elderly consumers were more concerned towards health benefits of reducing cancer development. Poulsen (1999) reported that there were no differences in willingness to use functional food with respect to educational level and income, but older consumers in the age group of 55 years and above are more willing to use functional food. In contrast, the results of Childs and Poryzees (1997), reported that younger consumers show higher intention to purchase functional food that prevents disease compared to older consumers. Likewise, studies by Rezai et al. (2012), and de Jong et al. (2003) reported similar results.

As far as marital status is concerned, Laroche. Bergeron and Barbaro-Forleo (2001) mentioned that green consumers in the USA were composed of married people and that they were more likely to put the welfare of others before their own. Poulsen (1999) and Verbeke (2005), in their study in Europe, stated that married

people were found to perform higher behavioural intention to consume functional food compared to single consumers. It may be suggested that married people are more concerned towards unhealthy food that can bring a negative impact on health not only for themselves but also for their family, especially kids and elderly, Therefore, caring for the health of the family could be a huge motivation for married people to consume functional food in order to stay healthy and prevent the risk of certain diseases.

Although the level of academic achievement and the level of income somewhat play a role in functional food consumption, the findings of previous research were conflicting. With regards to the level of academic achievement, Childs and Poryzees (1998) stated that education has been reported to be positively associated with a belief in the nutraceutical claims of the products. Likewise, de Jong et al. (2004) and Anttolainen, Luoto, Uutela, Boice, Blot, Mclaughlin et al. (2001) also found that consumer with higher education were appear to be more concerned towards functional food consumption. In addition, Hilliam (1996) stated that consumers in Europe with higher socio-economic group (high income and education) were more willing to purchase functional food. Likewise, Shimakawa, Sorlie, Carpenter, Dennis, Tell, Watson et al. (1994) indicated that lower income group and less educated consumers tend to consume a less healthy diet. Urala and Lahteenmaki (2007) found that both higher and lower educations were positively effect the willingness to use functional food in Finland. In contrast, Poulsen (1999) showed that education level has no correlation with functional food consumption.

In the study of market segmentation in the United States, Childs (1997) reported that the average user of functional food were from the higher income background that highly concerned with health due to illness in the family and

themselves. This was supported by Hilliam (1996), who mentioned that consumers in Europe from a higher socio-economic group (high income) are willing to purchase functional food due to their ability to pay and their better knowledge and higher awareness compared to low income consumers. In contrast, Herath et al. (2008) found that the lower income consumers showed higher interest in functional food consumption. Nonetheless, Poulsen (1999), and Urala and Lahteenmaki (2007) demonstrated that both higher and lower income consumers were significantly influencing the willingness to consume functional foods.

The above discussion showed inconsistent findings in terms of demographic profiles of functional food consumers. Therefore further study concerning consumer-behavioural intention towards healthy food choice, particularly functional food, is warranted in the context of Malaysian consumers.

It may be suggested that consumer attitude, social influence, self-efficacy, intention and past experience are the important factors that may affect the domain of consumer behaviour; thus, they should be included in this study.

2.7 Theoretical Underpinning

A number of models have been successfully used to explain and predict food consumption related to intention and behaviour. Among frequently used model are: Theory of Reasoned Action (Fishbein & Ajzen, 1975; Ajzen and Fishbein, 1980), Theory of Planned Behaviour (Ajzen, 1985, 1991), Health Believe Model (Becker & Rocenstock, 1984), and Social Cognitive Theory (Bandura, 1986). However, previous studies suggested that Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) have had an important correlation in food consumption intention and behaviour studies. Thus, in present study, the TPB was utilised as the

conseptual model.

According to the TRA, behaviour is influence by individual's intention to execute or not to execute the intended behaviour. For the purpose of this study, intention is defined as "a person's perceived likelihood of performing the intended behaviour in a specific way". Ajzen and Fishbein (1980) stated that consumer attitude and subjective norms influence the intention to perform the behaviour. Attitude towards the behaviour cause by the related belief concerning the outcome of performing the specific behaviour (for example: functional food consumption), and the degree to which the person evaluates the outcome as being good or bed (for example: whether consuming functional food is seen as a good or bad thing).

The subjective norm is defined as, "the person's perception that most people who are important to him/her think he/she should or should not perform the behaviour in question" (Azjen & Fishbein, 1980). The TRA and the relationship between its components can be seen in Figure 2.1.

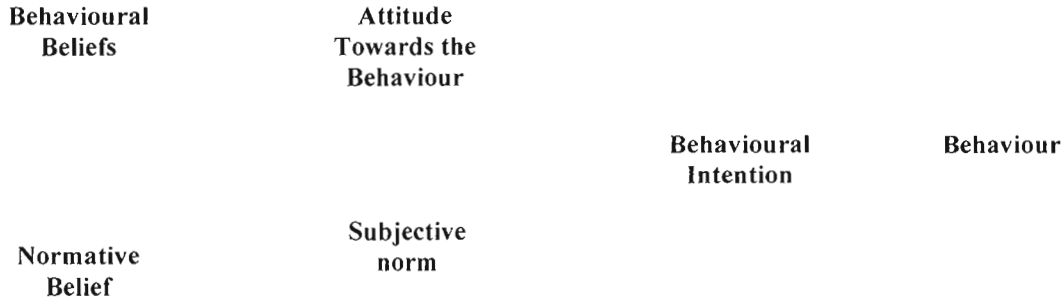

Figure 2.1
The Theory of Reasoned Action (TRA)
Source: Ajzen and Fishbein (1980)

Ajzen (1985) suggested that the TRA is built on the assumption that all relevant behaviours are under volitional control. However, not all of the behaviours are under volitional control. In spite of the fact that, an individual is inspire to perform the behaviour, if his/her actual behaviour is not fully under volitional control, he/she may not actually perform the actual behaviour due to intervening environmental conditions, for example, the availability of the product, opportunities, resources, time and money. Thus, to control the problem, Ajzen (1991) extended the TRA to the TPB model by introducing the variable of Perceived Behavioural Control (PBC). Ajzen (1991) defined PBC as "people's perception of the ease or difficulty of performing the behaviour of interest".

The TPB model suggests that the relative importance of attitude, subjective norm, and PBC in the prediction of intention and behaviour are expected to be different across behaviour and situation (Ajzen, 1991). The TPB also explains that both PBC and intention could be used directly to predict behaviour achievement. This means that, under certain condition where intention explains only a small amount of variance in behaviour, PBC was expected to independently predict the behaviour (Ajzen, 1991).

The TPB model and the relationship between its components can be seen in Figure 2.2. The arrows explain the direct associations of attitude, subjective norm, and PBC with intention, and intention with behaviour. The dashed arrow links PBC directly to behaviour. The dashed arrow is used because this association increases when volitional control decreases.

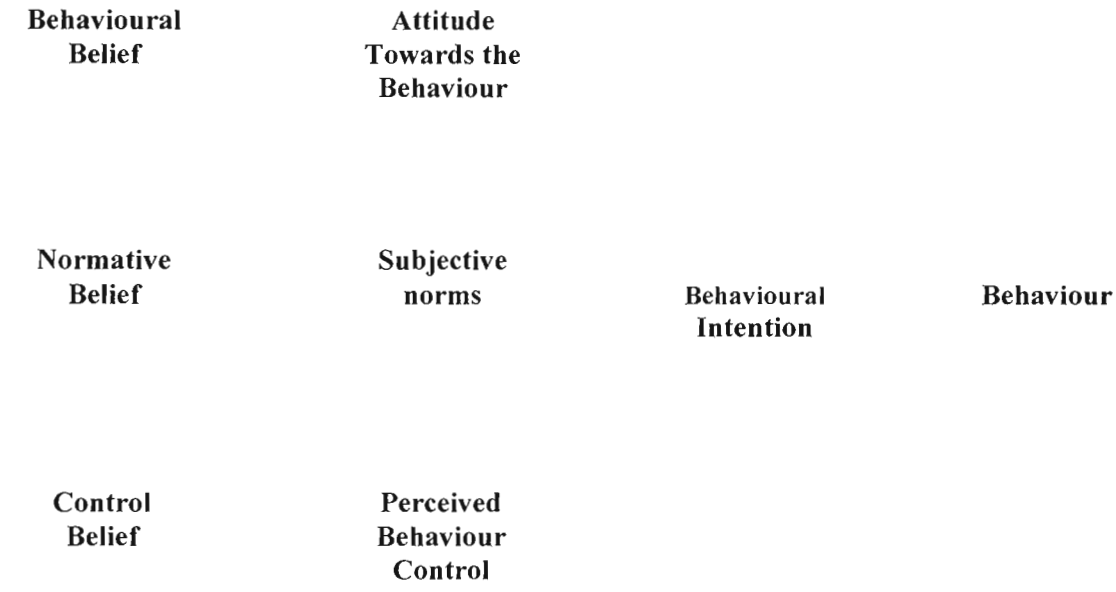

Figure 2.2
The Theory of Planned Behaviour (TPB)
Source: Ajzen (1991)

The main objectives of this study are congruent with the main goals of the TPB, which are to predict and to understand human behaviour. The present study wanted to investigate the antecedent factors that may influence the behavioural intention of Malaysian consumers towards healthy eating behaviour (refers to the consumption of functional food). Therefore, the elements of the TPB including attitude towards the behaviour, social influences, behavioural intention and consumption behaviour were selected for the study. However, PBC was excluded and replaced with the construct of self-efficacy. The exclusion of PBC in this study was based on two reasons, as discussed below.

First, the TPB suggests that the inclusion of PBC is appropriate in the study of consumer behaviour if the behaviour is also under the influence of external factors, such as resources (time and money) and opportunity, as well as environmental factors, such as availability of the product in the market. Under certain situation or condition that allows a person with total control over behaviour outcome, intention would be enough to predict behaviour. In other words, the inclusion of PBC would be more advantage when a person's volitional control over the behaviour decreases.

However, the present study emphasis on examining the consumer behaviour towards healthy consumption (i.e. functional food), which Armitage and Conner (2001) suggested in their study on low-fat dietary behaviour, is under volitional control. In addition, many studies emphasised that dietary and eating behaviours showed a lack of evidence for PBC in influencing eating behaviour, while the intention to perform the desired behaviour showed quite good variance of prediction (Kassem et al., 2003).

Second, the construct of PBC has some similarities with the concept of self-efficacy. Self-efficacy deals with the internal factor of confidence that one feels about executing a specific behaviour, and confidence in defeating the obstacles to attain that behaviour" (Bandura, 1986). Thus, Ajzen (1991) stated that PBC and self-efficacy were interchangeable. However, this similarity between PBC and self-efficacy is not universally accepted by several researchers (Terry & O'Leary, 1995; Armitage & Conner, 1999; Povey et al., 2000; Tolma et al., 2006).

For example, in the study of the intention to consume a low-fat diet, Armitage and Conner (1999) reported that PBC and self-efficacy were different and independently influence the behavioural intention. They argued that, availability of

the product was significant predictor of PBC, where as, internal control belief (such as motivation) predicted self-efficacy. Therefore, Armitage and Conner (1999) concluded the necessity to split the internal and external perception of control. Tolma et al. (2006), in their study on intention towards mammogram screening, stated that the influence of self-efficacy towards the intention for mammogram screening was stronger than PBC. This was supported by Povey et al. (2000), and Terry and O'Leary (1995), whose findings demonstrated similar conclusions.

Moreover, the PBC measure concerns with individuals perceived control over the external factors, such as, situational and environment factors (For example: availability, procedure, and cost), while self-efficacy is concerned with the perceived confidence in individual's ability to carry out the desired behaviour focusing primarily on internal factors, for example, motivation, emotions, compulsions and skills (Armitage & Conner, 1999; Terry & O'Leary, 1995; Povey et al., 2000).

As far as food choice is concerned, for an individual to change and to sustain the behaviour towards healthy eating, needs a strong internal self-efficacy. Shannon et al. (1990) found that individuals with strong self-efficacy were quicker to react to change towards healthy consumption. Supported by Schwarzer and Fuchs (1995), they stated that individuals with high self-confidence (high self-efficacy) in intervention programmes were less likely to relapse to their previous unhealthy consumption.

Consequently, previous studies on dietary behaviour showed evidences that self-efficacy is a stronger predictor of behavioural intention compared to PBC (Terry & O'Leary, 1995; Armitage & Conner, 1999; Povey et al., 2000). Therefore, excluding the construct of PBC and adding the construct of self-efficacy should contribute more and be a significant improvement to behavioural intention in this

study.

The TPB model is a widely used behavioural theory to predict and understand the human behaviour in numerous different settings including health-related behaviour and consumption behaviour. In meta-analysis review of the application and efficacy of TPB by Armitage and Conner (2001) demonstrated different setting such as alcohol consumption, investment, smoking behaviour and food choice. The result revealed that TPB explained an average of 39 percent and 27 percent of the correlation in intention and behaviour respectively. In addition, a review by Godin and Kok (1996) stated that the TPB components accounted for 41 percent of the correlation in intention and 31 percent of correlation in behaviour in prospective studies.

The TPB model is a well-used framework for predicting a wide range of eating behaviours, such as healthy eating (Paisley, Lloyd, Sparks & Mela, 1995; Oygard & Rise, 1996; Conner, Norman & Bell, 2002), the consumption of low fat diet (Armitage & Conner, 1999), fruits and vegetables consumption (Povey et al., 2000; Lien, Lytle & Komro, 2002), food choice (Spark, Guthrie & Shepherd, 1997; Kassem et al., 2003), dietary supplements (Conner et al., 2001), organic food purchasing behaviour (Arvola et al., 2008), and health related eating behaviour (Ajzen & Timko, 1986; Paisley & Sparks, 1998).

For example, Povey et al. (2000) investigated the utilisation of the TPB model on two consumption behaviours. These behaviours are, fruits and vegetable consumption and the eating low-fat diet. The findings demonstrated that the TPB components were found to be good predictors of intention for both behaviours (Low-fat diet, 64 percent variance; fruit and vegetable intake, 57 percent variance). However, the TPB components were less good at predicting the behaviour (low-fat

diet, 18 percent variance; fruit and vegetable intake, 32 percent variance). The study also revealed that self-efficacy construct was constantly a good predictor towards intention and behaviour compared to PBC.

Paisley and Sparks (1998) also used TPB to examine the factors that may have the correlation with intention to reduce fat intake. Their findings reported that cognitive and affective components of attitude and past behaviour were positively influencing the intention to reduce fat intake among respondents. In addition, Oygard and Rise (1996), in their study, on intention to eat healthier food, found that TPB components explained for 32 percent of variance in behavioural intention among 500 young adult. The results also indicated that the strongest predictor of intention was attitude, followed by PBC. Moreover, several studies examined the consumption of specific foods using the TPB. For example, Spark et al. (1997) utilised the TPB model to examine the intention to reduce the consumption of red meat and potato chips. The results showed that perceived difficulty influence the behavioural intention of the consumers to make dietary changes in terms of red meat and potato chip.

In general, the TPB model is more successful in predicting intention compared to the behaviour. This was supported by the meta-analysis by Armitage and Conner (2001) and Gordin and Kok (1996), in that both studies reported that the percentage variance in intention is higher than the percentage variance in behaviour.

Consequently, the constructs of attitude, social influence and self-efficacy fit well for examining the antecedent factors that may influence the consumer-behavioural intention towards functional food consumption in Malaysia using TPB as the model.

2.8 Research Framework

The primary focus of present study is to examine the influence of attitude dimensions (reward, necessity, confidence, and safety), social influence, and self-efficacy in predicting behavioural intention on the functional food consumption among Malaysian consumers. This study also aims to examine the direct relationship between self-efficacy and consumption behaviour towards functional food. In addition, present study also intends to fill the gap of the intention-behaviour relationship by examining the moderating effect of past experience on the relationship between consumer-behavioural intention and consumer-consumption behaviour. The proposed research framework for this study is as shown in Figure 2.3

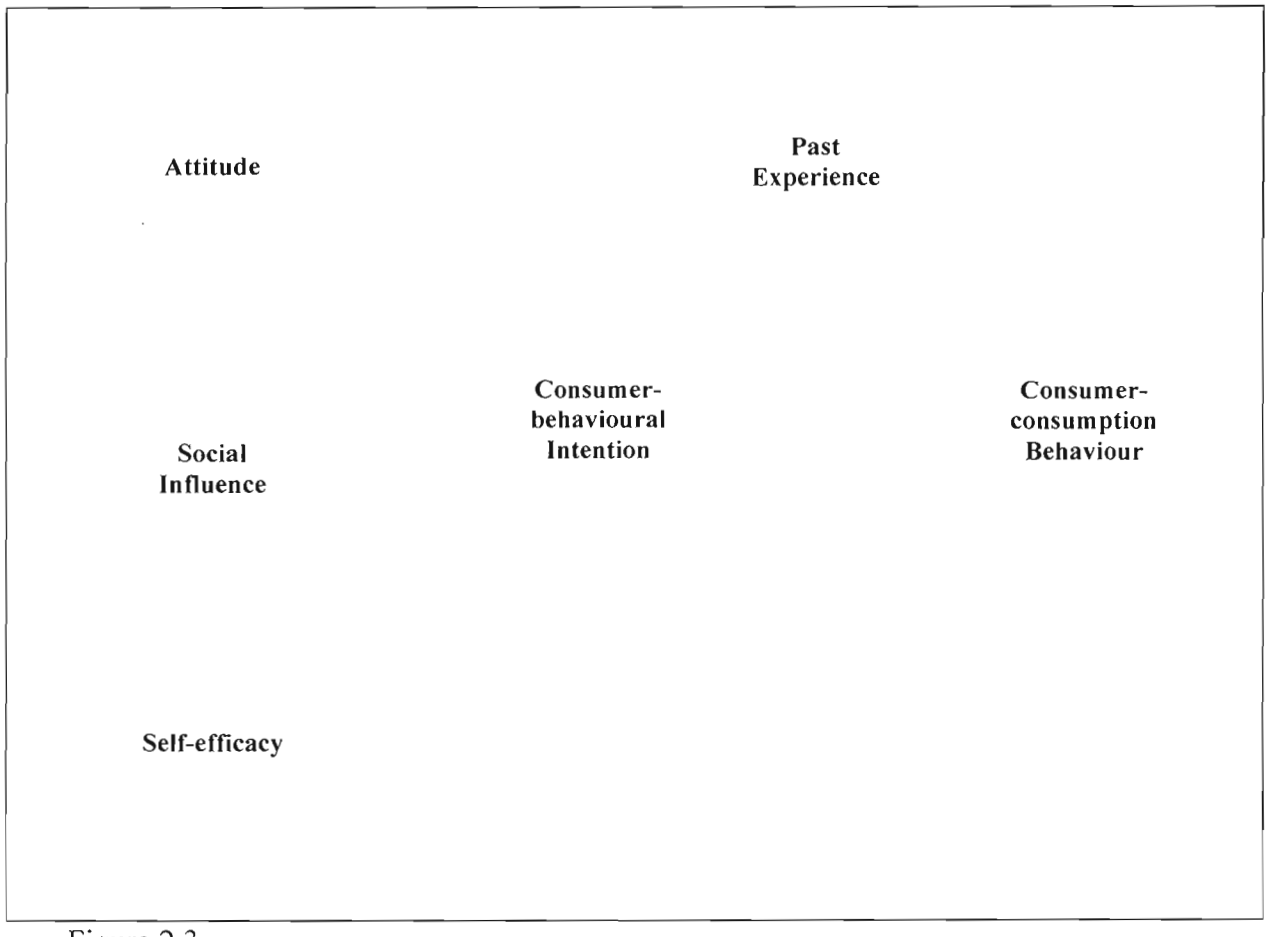

Figure 2.3
Research Framework

2.9 Hypotheses

The main purpose of the present study is to examine the predicting power of attitude, social influence and self-efficacy on consumer-behavioural intention to consume functional food and to analyse the relationship between variables. Another purpose is to examine the direct relationship between self-efficacy and consumption behaviour. In addition, the study also intends to examine the effect of moderating factor of past experience on the relationship between intention and behaviour.

As stated by Ajzen (1985, 1991), intention is the strongest predictors of behaviour. In addition, intention has demonstrated a significant positive relationship towards behaviour and accurately predicted a variety of action tendencies. Follow and Jobber (2000) found a positive relationship between intention and environmentally responsible purchase behaviour. Armitage and Conner (2001), and Gordin and Kok (1996) found that intention was the best predictor of future behaviour. In addition, Tuu et al. (2008) and Verbeke and Vackier (2005) affirmed that behavioural intention also has a significant effect on behavioural frequency. Therefore, this study hypothesise that:

Hypothesis 1: Consumer-behavioural intention is positively related to consumer-consumption behaviour towards functional food.

Previous literature suggested that attitude is one of the important factors in explaining food consumption behaviour (Olsen, 2001, 2004; Verbeke & Vackier, 2005). As mentioned by Ajzen (1991), the stronger the attitude towards intended behaviour, the stronger is the individual's intention to perform that intended behaviour. In terms of functional food acceptance, Urala and Lahteenmaki (2004)

and Verbeke (2005), indicated that consumer attitudes strongly affect the intention to consume functional foods. Verbeke (2005) stated that believing in the health benefits of functional foods was the most important factor influencing consumer acceptance. This was supported by Urala and Lahteenmaki (2007), who stated that the perceived reward from using functional foods was the most important factor towards the willingness to use such food among Finnish consumer. The rewarding feeling perceived by the consumers explained the improved performance of mood, healthy lifestyle and disease prevention derived from the consumption of functional foods (Urala, 2005). Thus, it is hypothesises that:

Hypothesis 2a: Perceived reward from using functional food is positively related to consumer-behavioural intention to consume such food.

Consumers felt that the perceived need of functional foods was necessary if the person suffered from health problems and if it would result in better health (Landstrom et al., 2009). Urala and Lahteenmaki (2004, 2007) reported that the necessity for functional food positively influence the behavioural intention towards functional foods, especially functional food that can prevent from getting the risk of heart diseases, high blood pressure and gut problems. Chen (2011) also found that the necessity for functional food consumption significantly influence the willingness to use functional food among Taiwanese. Hence, it is anticipated that:

Hypothesis 2b: Necessity for functional food is positively related to consumer-behavioural intention to consume such food.

Trust, and, at the same time, confidence in scientific promises of functional foods and health-related benefits from the consumption of such food, play an important role in functional food acceptance. Urala and Lahteenmaki (2004, 2007) reported that after the dimension of perceived reward, confidence in functional food was also the important factor that influences the behavioural intention towards functional food consumption among consumers. Likewise, Chen (2011) also found that confidence in functional food demonstrated a significant relationship towards consumer willingness to use functional food products in Taiwan. Therefore, this study hypothesises that:

Hypothesis 2c: Confidence in functional food is positively related to consumer-behavioural intention to consume such food.

The risk and the safety regarding the consumption of functional food have been emphasised and it may influence the willingness to use functional food (Backstrom et al., 2003; Frewer et al., 2003). Some consumers perceived functional food were not safe to be consumed and the perceived risks from functional food consumption would prevent the consumers to consume such food (Frewer et al., 2003). Therefore, if a functional food is perceived as having a high degree of safety, then the intention to consume functional food is also more likely to be higher. Thus, following hypothesise is proposed:

Hypothesis 2d: Perceived safety of functional food is positively related to consumer-behavioural intention to consume such food.

Lee and Green (1991) reported that social influence predicted behavioural intention of the consumers. Similarly, Brug et al. (1995) stated that significant others influence an individual towards the consumption of fruit and vegetable among adult, children and adolescents. Supported by Cox et al. (1998), the results reported that social pressure predicted consumer intention to increase fruit consumption. Moreover, Annunziata and Vecchio (2011) reported that the significant others influence an individual towards the behavioural intention to consume functional foods in their study on 400 Italian consumers. Thus, this study hypothesises the following:

Hypothesis 3: Social influence is positively related to consumer-behavioural intention to consume functional food.

Strahan et al. (2002) reported that individuals who have a high level of self-efficacy would more expected to engage in health behaviour because they have a strong believe that they can succeed. Therefore, individual self-efficacy would have a positive relationship with intention towards certain behaviour and the behaviour itself (Locke & Latham, 1990). Povey et al. (2000) found that increased self-efficacy would enhance the intention towards the behaviour to eat fruits and vegetables. In addition, Cox et al. (2004) reported that self-efficacy was a significant predictor towards behavioural intention to consume functional foods. Hence, it is hypothesised that:

Hypothesis 4: Self-efficacy is positively related to consumer-behavioural intention to consume functional food.

Yordy and Lent (1993), and Hagger et al. (2001) found that self-efficacy provided an additional influence on both, the intentions and behaviour, showing that self-efficacy directly influences behaviour. Supported by Conner and Norman (2005), they stated that self-efficacy was directly related to health-related behaviour. In terms of healthy food consumption, Povey et al. (2000) and Brug et al. (1995) stated that self-efficacy showed a positive relationship towards fruits and vegetables consumption in adults. Likewise, Craciun and Baban (2008) also found that self-efficacy influence the children in taking fruit snack in school. Therefore, this study hypothesises that:

Hypothesis 5: Self-efficacy is positively related to consumer-consumption behaviour towards functional food.

As people gain experience with behaviour, it would increase awareness, familiarity with the behaviour and increase contemplation of the behaviour and its consequences (Lickow et al., 2006). Therefore, it is believed that a consumer's positive experience with the consumption of functional foods will influence their behavioural intention to consume functional food in the future. Pomery et al. (2009) found that past experience increased the variance of the relationship between intention and behaviour. Taylor and Todd (1995) stated that past experience with technology created a strong link between intention and technology acceptance. In another study, entrepreneurs with longer prior experience perceived IT to be more useful than their less experienced colleagues (Ndubisi et al., 2001). Experience moderates the relationship between intention and behaviour, in which intention based on greater experience better predicts behaviour than the intention based on less

experience (Kashima et al., 1993). For the reasons explained above, a relationship between past experience, intention and functional food consumption behaviour is hypothesised as:

Hypothesis 6: Past experience moderates the relationship between consumer-behavioural intention and consumer-consumption behaviour towards functional food.

2.10 Summary

Needless to say, unhealthy eating behaviour that leads to obesity, which is the major contributor to the risk of many chronic diseases known as NCDs seems to be an important issue that received continuous attention of research when the prevalence of obesity is occurring at an alarming rate and has become a global issue (WHO, 2011). Following the trend, functional food, which is food that consists of ingredients that have positive effect on human health and well-being, was introduced to the market that aims to reduce the rate of obesity as well as chronic diseases.

Based on the result of literature review on antecedents of consumer-behavioural intention and its relationship with consumer-consumption behaviour, the following conclusion can be made. Firstly, the majority of research on consumer-behavioural intention has focused on general attribute of functional food such as taste and quality, subjective norms and personal factors that may influence the behavioural intention among consumers. The findings of these studies indicate that the antecedents of consumer-behavioural intention may not be consistent across different culture and environments and therefore further empirical research is needed, particularly in healthy consumption behaviour where individual may acts

independently or semi autonomously. Secondly, the relationship between consumer-behavioural intention and consumer-consumption behaviour is dependent on the motivation to obtain benefits in terms of good health and well-being as well as the intrinsic and extrinsic factor of past experience towards functional food consumption.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter explained on the research design and methodology used in this study. The detail of the samples, data collection procedure, the operationalisation of the variables, the measurement of the variables studied and method of data analysis were also discussed. This chapter also explained the pilot test for this study.

Research is a systematic process that includes the selection of research method, data collection, data analysis and reporting the research findings (Chua, 2006). Research can be categorised as quantitative and qualitative research, which distinct in terms of objective, concept, research methodology, sampling, data collection, data analysis and instrumentation (Creswell, 2002). Research methodology is used to collect the data concerning certain information for the purpose of making a decision or solving the given research problem.

The methodology may include interview, surveys, publication research and other research techniques, and could include both present and historical information. Different research methods have different purposes and different levels of validity. Validity is a term that refers to whether or not a study measures what it's supposed to measure. The results of a study provide stronger evidence if the research has a higher measure of validity.

3.2 Research Design

Quantitative research is used in present study and it was performed with the objective of obtaining a good understanding of the behavioural intention of

Malaysian consumers towards healthy eating, i.e. to consume functional food. The present study is using both descriptive and correlational studies. The descriptive study describes the characteristics of the consumers who consume functional foods, their frequency of using them and their perception towards such foods, while the correlational study is applied to determine the relationship between the variables, as well as an examination on the effect of past experience as moderator between intention-behaviour relationships.

This study uses the cross-sectional method to answer the study's research questions in which data were gathered once. The survey method was employed because survey research is the best method to be adopted in order to acquire personal and social facts, beliefs and attitudes (Kerlinger, 1973). The respondents were selected using simple random sampling and a self-administered questionnaire was distributed to all the participants during a mall intercept in selected shopping malls in the Klang Valley. The sampling design of simple random sampling was utilised, since it has the least bias and offer the most generalisability (Sekaran, 2006). The unit of analysis for this study comprised individual consumers aged 18 and above who went shopping at selected shopping malls in the Klang Valley. This study treats each consumer's response as a source of household data.

3.3 Population and Sample

The population for this study comprised consumers aged 18 and above who live in Peninsular Malaysia. The study sample was consumers who went shopping at various shopping malls in the Klang Valley, Malaysia. Consumers in the Klang Valley were chosen as the study samples for several reasons.

Firstly, the Klang Valley was chosen because it has the largest number of shopping malls in Malaysia. Chuang (2007) stated that the Klang Valley alone has more than 66 shopping malls and that it plays a major role in attracting consumers from different backgrounds. Secondly, the Klang Valley consists of 6 million people, which is 20 percent of the Malaysian population (ETP Annual Report, 2011). Thirdly, the Klang Valley is known as the focal point of the consumers from other states to come for shopping, especially on weekends and public holidays, which contributes to the variety of the consumer pool from different states and backgrounds.

Fourthly, consumers in the Klang Valley are more exposed to the information on healthy foods including functional foods, and, finally, the variety of functional food types are widely available in most of the shopping mall outlets around the Klang Valley compared to others states in Malaysia. 12 shopping malls were targeted as the selected area for this study, which consists of 19 grocery stores or supermarkets, including Giant, Cold Storage, Parkson and Isetan supermarket. These shopping malls were selected based on top 20 prominent stores rating given by Chuang (2007). Besides that these 12 supermarkets have fulfill the characteristics of the study, which related to functional food product. Table 3.1 showed the list of selected shopping malls, the number of questionnaires distributed and overall response rate with a consideration of a 5 percent margin of error (Sekaran, 2006).

The cluster sampling technique was used in this study because a complete list of exact members of the population (consumers aged 18 and above) for this study cannot be determined as well as the numbers of population are more than 1,000,000. In addition, the lists of subjects are also widely scattered. Appendix 2 explained the relationship between sample size and total population based on Krejcie dan Morgan

(1970). It should be noted that as the population increases, the sample size increases at a diminishing rate and remains constant at 384 cases when the population reach 250,000 and above.

In this study, to ensure the minimal response number of 384 cases and taking into account that survey method has poor response rate (Nik Kamariah, 1995), thus, for data collection purposes, 800 questionnaires were distributed to Malaysian adult consumers in 12 supermarkets and groceries stores in Klang Valley. In addition, Sekaran (2006) stated that the minimum sample size could be determined by multiplying the number of variables in the study by ten. This study consists of nine variables. Therefore, the minimum sample size that needed is 90. Supported by Roscoe (1975), he recommended that for most consumer behavioural research, a sample size of 30 to 500 is appropriate.

Table 3.1
List of Selected Shopping Malls in Klang Valley and Numbers of Questionnaires

Shopping Mall	Grocery store/ supermarket/ hypermarket	Question. Distributed	Returned & Usable	Response Rate (%)	Overall Response Rate (%)
Mid Valley Megamall	Carrefour, Jusco & Metrojaya	130	80	61.5	10.0
Ampang Park	Ori Supermarket	40	27	67.5	3.38
Lot 10	Isetan	40	22	55.0	2.75
Sogo	Sogo	50	23	46.0	2.88
Maju Junction Mall	Giant	50	35	70.0	4.38
Sungai Wang Plaza	Parkson & Giant	80	43	53.8	5.38
Suria KLCC	Parkson, Isetan & Cold Storage	120	55	45.8	6.88
Pavilion	Parkson	40	20	50.0	2.50
Sunway Putra Mall	Parkson & Cold Storage	90	55	61.1	6.88
Great Eastern Mall	Cold Storage	40	16	40.0	2.00
Brem Mall	Giant	40	31	77.5	3.88
Festival City Mall	Econsave & Parkson	80	45	56.3	5.63
Total		800	452		56.50

3.4 Data Collection Procedures

For the purpose of this study, the sampling procedure used is the cluster sampling techniques in which the total population is divided into clusters of consumers who went shopping for groceries at selected shopping malls in the Klang Valley area. Similar method has been used by other studies in consumer behaviour research (Zuraini et al., 2010; Annunziata & Vecchio, 2011; Nor Azila, Zuriana, Norsiah, Norazwa, Azilah, Azli et al., 2012).

As mentioned earlier, a self-administered questionnaire is used as data collection tools during a mall intercept in selected shopping malls in the Klang

Valley. Although there are more than 66 shopping malls in the Klang Valley (Chuang, 2007), it was decided to choose 12 shopping malls based on ranking of top 20 prominent shopping malls as well as the fulfillment of the characteristics of the study. The random selection was done, by approaching the consumers who went shopping for groceries and asking them to be a respondent. Every tenth of the customers that entered the grocery store or supermarket will be approached. Each respondent was given a questionnaire and the completed questionnaire was collected on site. In the case where the respondent could not complete the questionnaire on site, they were given a pre-stamped envelope with the researchers mailing address for the respondents to return it by mail to the researcher.

Together with the questionnaire was a cover letter that described the purpose of the study, the important of the respondent's response and the contract promising of the complete anonymity of the respondent's response. Moreover, a brief definition of functional food in general is also stated to show the differences between functional food and conventional food, as well as to reduce ambiguity about the term.

In this study, the term functional food was illustrated as "a food product with the benefits that can maintains or promote health or reduces the risk of some diseases, in additional to its usual nutritional value" (Urala & Lahteenmaki, 2007). This is consistent with Sheeran and Abraham (2003), and Norman and Smith (1995), in their research on exercise behaviour that the definition of exercise was written on the cover of the questionnaire. In addition, some photos of functional food products were attached to each questionnaire to make sure that the respondents understood and could differentiate between conventional and functional food products. The questionnaire consists of both Bahasa Malaysia and English and it was formed using back-translation to assure the meaning in both languages (Green & White, 1976).

Due to the nature of the samples in this study, a Bahasa Malaysia version is needed because it is more familiar to Malaysians (Asmah, 1982), apart being a national language.

The questionnaire comprises 8 sections: 1) socio-demographic characteristics, 2) general information related to functional food purchase, 3) consumer-consumption behaviour, 4) consumer-behavioural intention to consume functional food, 5) attitude towards functional food, 6) social influence, 7) self-efficacy and 8) past experience with the consumption of functional foods. The Statistical Package for Social Science (SPSS) version 20.0 was used to analyse the data.

3.5 Operationalisation of Variables and Measurement

The main variables in this study were measured using multiple items drawn from previous research except for the socio-demographic characteristics (Section 1) and general information relating to functional food purchase and users (Section 2). However, some of the items were re-phrasing and modified to suit the study local setting.

This study was conducted using parametric statistics on the assumption that the size of the sample was sufficient to represent the population, data were normally distributed and the data were from interval-level data. A five-point Likert scale was used to measure all of the items for the main variables (Sections 3, 4, 5, 6, 7, and 8) to minimise the confusion among respondents and to make sure of the equality among variables (Ackfeldt & Coole, 2003; Ingram, Nottage & Roberts, 1991). The five-point Likert scale are: 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree. According to Elmore and Beggs (1975), they stated that by increasing the Likert scale's point numbers from five-point to seven-

point or nine-point does not enhance the reliability of the ranking, thus five-point scale is just good as any.

The majority of previous behavioural and marketing research (Coetzee, 2005; Crawford, 1997) and language (Brown, 2011) regarded Likert-scale data as interval-level data. Sekaran and Bougie (2009) also reported that Likert-scale is generally regarded as an interval scale and were designed to identify the strength of the respondents supported towards the statement. This is supported by Norman (2010), who argued that parametric statistic could be used with Likert-scale data.

Section 1 consists of the socio-demographic data that used to analyse on the profiles of the respondents. Table 3.2 summarises the measures of the socio-demographic variables in this study.

Table 3.2
Socio-demographic Characteristics

Variables	**Items**
Gender	Male Female
Age	18-30 years old 31-40 years old 41-50 years old More than 50 years old
Religion	Islam/Muslim Buddhism/Taoism Hinduism Christianity Others
Ethnicity	Malay Chinese Indian Others
Marital Status	Single Married Divorce/Widowed
Level of academic achievement	Primary/Secondary School Certificate/Diploma Degree Masters/Doctorate
Monthly income	RM3000 or less RM3001-RM5000 RM5001-RM7000 RM7001-RM9000 More than RM9000

Section 2 in this study regarding general information relating to functional food purchase consists of questions relating to familiarity toward functional food, respondents views about functional food, types of functional food consumed, average frequency of the consumption in a month and sources of information regarding functional foods.

First of all, only functional food users were asked to complete the questionnaire, and to do so, a screening process was conducted to identify and reject the non-users of functional food products. Two types of measures were used, both of

which were rated as "Yes" and "No" answers. First, the respondents were asked whether he/she is familiar with functional foods. In other words, whether they know, recognised, have knowledge or realised about functional food.

Secondly, they were asked whether or not they use functional foods. If the answer for the second measure was "No", she/he could stop answering the remaining questions and was removed from the list of respondents for further analysis. If the answer was "Yes" the respondent was asked to give their opinion on what they think of functional food in general. This was to capture the respondent's views towards functional food. They could choose from ten elements that may come to their mind, as listed below in Table 3.3, by answering "Yes" or "No" for each types.

Table 3.3
Measurement for a Respondent's Opinion on Functional Food

Items
Healthy food
Natural food product
Probiotic food
Made from organic ingredients
Non-toxic in nature
Chemical free
Food that can prevent certain diseases
Food supplement
Health-enhancing foods
Food that contains nutrition

Functional food consumption was operationalised as the extent that consumers consume any type of functional food as part of their daily diet (Urala & Lahteenmaki, 2007) and the frequency of such consumption in a month. Two types of measure were used: i.e. types of functional food that are most consumed and the frequency of the consumption in a month. This study focused on the self-reported

measure of past behaviour. In practice, self-reporting of past behaviour frequency has been applied in food consumption research (Verbeke 2005; Verbeke & Vackier, 2005).

Respondents were asked to select the types of functional foods they have consumed previously from a list that consisting of ten types of functional foods by ticking the "Yes" or "No" box for each types (Table 3.4), as a means to know what types of functional food are most consumed by them. Six types of functional foods (milk, energy drinks, probiotic yogurts, fruits juices, spread, and sweets) were based on Urala and Lahteenmaki (2007), and the researcher has added another four types of functional food (cereal, bread, biscuits and eggs) that are most available in hypermarkets in Malaysia.

Functional food consumption was also measured in terms of the average frequency of the functional food consumption in a month (Kaman Lee, 2009). The measures were based on previous researches (Verbeke & Vackier, 2005; Kaman Lee, 2009), with modifications concerning the phrasing of the items to suit the functional food context in this study. The measure was presented with five alternative choices from eating "1 to 2 times a week" to "more than 8 times a week" as listed in Table 3.5. This method was known as a self-report of prior behaviour frequency, and Armitage and Conner (1998) argued that it is a normal practice to use this method in social studies, and also in food consumption research (Olsen, 2001; Verbeke & Vackier, 2005; Tuu et al., 2008).

Table 3.4
Type of Functional Food Products

Types of Functional Food
Milk: with omega-3/vitamins/minerals/low fat
Energy drinks
Yogurts: with Probiotic/low fat/low cholesterol
Fruit juices: with added vitamins/calcium
Spread/margarine: with low cholesterol/omega-3 & 6/vitamins
Sweets: with xylitol/low sugar
Cereal: with added vitamins/low cholesterol/low fat
Bread: rich in fibre/low cholesterol/vitamins
Biscuit: with oat/low fat/less sugar/low cholesterol
Egg: with added vitamin A & E/omega-3/low cholesterol

Source: Urala and Lahteenmaki (2007) - for items number 1 to 6

Table 3.5
Average Frequency of Functional Food Consumption in a Month

Frequency
1–2 times a month
3-4 times a month
5-6 times a month
7-8 times a month
More than 8 times a month

Source: Kaman Lee (2009)

With regards to the sources of information regarding functional foods, respondents were asked to choose the source of information that they normally used by ticking the "Yes" or "No" box for each source as listed in Table 3.6.

Table 3.6
Source of Information on Functional Food

Source of Information
Social network (e.g. Facebook, Twitter, email)
Electronic media (e.g. advertisement in TV, radio, billboard)
Printed media (e.g. magazine, newspaper, product brochure)
Doctor, nutritionist
Word of mouth (e.g. from family, friends, relatives, neighbours)
Product website

In section 3, consumer-consumption behaviour towards functional food was defined as the functional food consumption behaviour of the individual in general, without any specificity concerning categories of product, context, and time that behaviours occurs and is limited to the functional food types listed in Table 3.4. Consumption behaviour refers to the behaviour of individual when they make decisions to continuously consume functional food. Previous literature on functional food consumption behaviour mostly examines the general and/or recent frequency of the consumption, and not the behaviour itself (Verbeke & Vackier, 2005). However, this study operationalised consumer-consumption behaviour as self-reported measures of general behaviour towards functional food consumption.

The consumer-consumption behaviour measure for this study was based on a study of Kaman Lee (2009), which examined gender differences in green purchasing behaviour of Hong Kong consumers, with modifications concerning the phrasing of the items to suit the functional food context in this study. It required respondents to rate their responses towards seven items relating to functional food consumption behaviour in general (Table 3.7) by measuring seven self-rating items on five-point Likert scale.

Table 3.7
Consumer-consumption Behaviour Measure

Items
I often consume functional food products
I normally consume products that are good for my health and promote my well-being
I will put priority to buy functional food products that are safe to be consumed
When buying a product, I will look for products that contain ingredients that can make me healthier
I choose to consume products that contain healthy components such as probiotic, vitamins, minerals, fat free, high fibre and low cholesterol.
I normally consume products that are more nutritious
I choose to consume products that I believe can prevent me from certain diseases

Source: Based on Kaman Lee (2009)

Section 4 of the questionnaire focuses on behavioural intention towards functional food context. As Armitage and Conner (2001) indicated that behavioural intention is measured in terms of expectation, and three items were assessed in terms of intended, expected and desired. Therefore, in this study, behavioural intention was operationalised as, the likelihood of an individual's motivation and willingness to consume more of functional food. Bhattacherjee (2001) suggested that this type of intention was also known as continuance intention, in other words behavioural intention to continue using functional food.

Consumer-behavioural intention was measured using the scale developed by Verbeke and Vackier (2005). Four items were assessed in terms of will, intend, want and expect to consume functional food based on the statements relating to functional food listed in Table 3.8. The phrasing of the statement of the items was rephrase to fit the functional food sample and local context, and was measured on five-point Likert scale.

Table 3.8
Consumer-behavioural Intention Measure

Items
I will eat/drink functional food to make myself healthier
I intent to eat/drink functional food to prevent me from certain chronic diseases
I want to eat/drink functional food product if I can trust it contains healthy component
I expect to consume more functional food in the future

Source: Based on Verbeke and Vackier (2005).

The antecedent factors of consumer-behavioural intention in this study were categorised into three major components: namely, attitude (Section 5), social influence (Section 6) and self-efficacy (Section 7). All of the items for attitude dimension, social influence and self-efficacy were measured on five-point Likert scale ranging from 1=strongly disagree to 5=strongly agree.

The first component was defined as the evaluations of the individual towards the intention to consume functional food. Attitude towards functional food in this study was operationalised by using four distinct attitude dimensions – reward, necessity, confidence, and safety – developed by Urala and Lahteenmaki (2007). These measurement scales with 25 functional food-related items were established after three studies (Urala & Lahteenmaki, 2003, 2004, 2007). Accordingly, reward and necessity consist of eight items each, confidence with four items and safety with five items were produced.

Reward is defined as feeling of satisfaction and enjoyment in terms of health, mood, and well-being resulted from functional food consumption, and is important to the consumer's sensation of reward (Urala & Lahteenmaki, 2004). The necessity for functional food measures how essential the consumers think that functional food is for themselves or for people in general (Urala & Lahteenmaki, 2004, 2007). In other

words, the necessity for functional foods is an attitude towards the perceived need for such foods due to the possible benefits for health. All of the items except item number 5 on this dimension were negatively worded.

Confidence in functional food was measured as the confidence that the consumers have in functional food as foods that promote health and the reliability of scientific basis and researches of the promised health effect (Urala & Lahteenmaki, 2004, 2007). Thus, the term confidence is defined as consumer attitude towards the information and claims about functional food, particularly on functional food benefits related to health effects. Finally, the safety dimension is operationalised as how respondents perceive the related risk or possible harmful effects when functional foods are consumed (Urala & Lahteenmaki, 2004, 2007). All the items except item number 3 on this dimension were negatively worded stating the potential nutritional risks of functional food. Thus, if individuals have a strong confidence in functional food, and they perceive a functional food has a lower degree of safety and risk, then their readiness to consume such food is more likely to be greater than their willingness to consume conventional food.

The structured questions regarding consumer attitude towards functional foods were based on Urala and Lahteenmaki (2007). The 25 items of attitude statement used to measure the dimensions of reward, necessity, confidence and safety in this study was as in Table 3.9, 3.10, 3.11 and 3.12 respectively.

Pallant (2011) stated that the negative-worded statement was used to reduce acquiescent bias, where the respondent agree to all statement; to reduce extreme response bias, where the respondent chooses all high or all low rating on likert scale statements; as well as to increase the accuracy of data for further analyses.

Table 3.9
Reward Measure

Items
My mood improves when I consume functional food
Functional foods helps to improve my performance
Healthy lifestyle is easier to follow by eating functional foods
Eating functional foods regularly can prevent certain disease
The idea that I can take care of my health by consuming functional foods gives me happiness
Functional foods can fix the damage caused by an unhealthy diet
I am ready to compromise on the taste if the food is functional
I am actively look for information regarding functional foods

Source: Urala and Lahteenmaki (2007)

Table 3.10

Necessity Measure

Items
Eating functional foods are completely unnecessary (R)
Functional foods are fraud (R)
The increasing number of functional foods in the market is a bad trend for the future (R)
For a healthy individual, it is useless to consume functional foods (R)
It is good that new technology enable the development of functional foods
I only want to eat foods that do not have any medicine-like effects (R)
Health effects are not suitable in delicacies (R)
Functional foods are consumed mostly by individuals who have no need for them (R)

(R) denotes items negatively worded
Source: Urala and Lahteenmaki (2007)

Table 3.11
Confidence Measure

Items
Functional foods upgrade my well-being
The safety of functional foods has been very thoroughly studied
I believed that functional foods fulfil their promises
Functional foods are science-based top products

Source: Urala and Lahteenmaki (2007)

Table 3.12
Safety Measure

Items
Consuming to much of function food can be harmful to health (R)
In some cases functional foods may be harmful for healthy people (R)
Consuming functional foods is completely safe
The new components f functional foods carry unforeseen risks (R)
Exaggerated information is given about health effects of functional foods (R)

(R) denotes items negatively worded
Source: Urala and Lahteenmaki (2007)

The second component, social influence, was operationalised as one dimension consisting of parents, friends, family members and government (Baker et al, 2003; Chan et al., 2009). To measure social influence, respondents need to rate how his/her significant other (i.e. parents, friends, family members and government) would influence his/her performance on the intention to consume functional food. Social influence measure was based on Chan et al. (2009). There were four items for social influence to be measured, as shown in Table 3.13.

Table 3.13
Social Influence Measure

Items
My parents influence me to eat/drink functional food products.
My relatives advise me to eat/drink functional food products.
My friends recommend me to eat/drink functional food products.
The government influences me to eat/drink functional food products.

Source: Based on Chan et al. (2009)

The third component, which is self-efficacy was operationalised as the confidence that the respondents have in their capability to perform the behavioural intention towards the consumption of functional food focusing primarily on internal

facilitators and/or inhibitors, such as motivation, abilities, compulsions and resistance (Armitage & Conner, 1999). The measures for this study were based from Armitage and Conner (1999), with modifications concerning the phrasing of the items to suit the functional food context in this study. Table 3.14 showed the five items measuring self-efficacy scores concerning the intention to consume functional food in this study.

Table 3.14
Self-efficacy Measure

Items
Whether or not I consume functional foods is entirely up to me
I am confident that I can consume functional food regularly
I am very sure that I would be able to consume functional foods next week
I am certain that I will be able to refrain myself from consuming foods that are not healthy
If I wanted to, it would be very easy for me to consume functional food every day

Source: based on Armitage & Conner (1999)

In this study, experiential marketing proposed by Schmitt (1999), which focuses on sense, feel and act factors, which overlaps with brand experience by Brakus et al. (2009) and consumption experience by Pine and Gilmore (1999), was used to formulate the measurement for the construct of past experience from the perspective of functional food consumption in general. Past experience in this study was operationalised as the internal and external excitement, and reward felt by the respondents separately due to the consumption of functional food that motivates them and produces their approval or re-purchase behaviour of such food.

There were fifteen past experience items were developed derived from the aspects of sense, feel and act in experiential marketing by Schmitt (1999). The sense experience includes internal and external sensory and aesthetics qualities of

functional food consumed by the consumers, such as the price and the taste of functional food. Feel experience refers to the emotional or feelings gained by the consumers resulting from the use of functional food, such as feeling rewarded, enjoy and satisfaction with such food.

The act experience reflects the physical, lifestyle and behavioural experiences. For example, consumers may change their behaviour by eating more of the functional food or by eating new and different types of such food due to positive past experience. The phrasing of the items of past experience was modified to suit the products under study (functional foods), the sample, and local setting. Five-point Likert scale ranging from 1=strongly disagree to 5=strongly agree were used to measure all of the items. Table 3.15 displays the items for past experience construct. Table 3.16 summarises the measurement characteristics for the variables used in this study and Table 3.17 displays the previous reliability for each variables.

Table 3.15
Past Experience Measure

Items
I like eating/drinking functional foods.
Eating/drinking functional foods make me feel happy.
I eat/drink functional foods regularly because I am satisfied with such food.
Eating/drinking functional foods make me feel good and healthy.
Eating/drinking functional foods give me more energy.
Functional food are likely to have a beneficial impact on my personal health
I feel that consuming functional food is being part of a natural way of living
I like the taste of functional foods.
I feel that functional foods are fresh and delicious.
The prices of functional foods are mostly comparable with conventional products.
Functional foods are easy to get and are available in many shops.
My positive experience with functional food consumption influences me to eat more of such foods.
My past experience with functional food consumption influences me to try other types of such foods.
Eating/drinking functional foods make me want to change my lifestyle to be healthier.
I will share my functional food experience with others.

Source: based on Schmitt (1999)

Table 3.16
Measurement Characteristics

Variable & Dimensions	Scale	Sources	Total Items
Consumer-consumption Behaviour	Likert scale 1-5	Self-constructed measure based on Kaman Lee (2009)	7
Consumer-behavioural Intention	Likert scale 1-5	Self-constructed measure based on Verbeke & Vackier (2005)	4
Attitude dimensions -Reward -Necessity -Confidence -Safety	Likert scale 1-5	Urala & Lahteenmaki (2007)	 8 8 4 5
Social Influence	Likert scale 1-5	Self-constructed measure based on Chan et al. (2009)	4
Self-efficacy	Likert scale 1-5	Self-constructed measure based on Armitage & Conner (1999)	5
Past Experience	Likert scale 1-5	Self-constructed measure based on Schmitt (1999)	15
Socio-demographic information (Gender, age, marital status, ethnicity, religion, level of education, household income)	Open-ended	Self-constructed measure	7
General information related to Functional food purchase: - Familiarity - Respondents opinion - Type of functional food - Average frequency - Sources of information	Open-ended	Self-constructed measure - Based on Kaman Lee (2009)	6
Total			73

Table 3.17
Previous reliability for each variables

Variable & Dimensions	Sources	Reliability
Consumer-consumption Behaviour	Fila & Smith (2006)	.72
Consumer-behavioural Intention	Limayem et al. (2003)	.93
Attitude dimensions	Urala & Lahteenmaki (2007)	
-Reward		.85
-Necessity		.80
-Confidence		.78
-Safety		.75
Social Influence	Fila & Smith (2006)	.66
Self-efficacy	Armitage & Conner (1999)	.83
Past Experience	Limayem et al. (2003)	.91

3.6 Pilot Study

Before distributing the questionnaire to the actual samples, the questionnaire was pre-tested to test the respondents' understanding of each of the items asked in the questionnaire, to confirm the validity and reliability of the instruments, as well as reducing bias (Sekaran & Bougle, 2009). 40 individuals in Kuala Terengganu were selected as respondents. The researcher was present while the respondents completed the questionnaire to recognise ambiguous wording, to answer the respondents' questions and generally to check on the ease of completion. Then, the reliability analysis was conducted using the data of the pilot study.

The acceptability of reliability scale was determined by using the value of Cronbach's Alpha coefficients. As shown in Table 3.18, the reliability estimates for pilot study ranged from .68 to .90, which are generally acceptable (Sekaran &

Bougie, 2009); hence, the scales can be regarded as relatively reliable. The pilot test also identified several problems, such as the questionnaire content, understanding of wording and sentences, and time taken. Some vague sentences were noted and corrected.

Each respondent took approximately 30 minutes to answer the questionnaire and some amendments were made to the final version. The final version of the questionnaire was 13 pages long including 2 pages for the cover letter and brief description of functional food in general. Refer to Appendix 1 for the sample of the questionnaire for this study and Appendix 3 for results of pilot study.

Table 3.18
Reliability Coefficient for Multiple Items in Pilot Study (n=40)

Variables	Alpha (α)
Consumer-consumption behaviour	.85
Consumer-behavioural intention	.68
Reward	.71
Necessity	.90
Confidence	.77
Safety	.76
Social influence	.68
Self-efficacy	.85
Past experience	.84

3.7 Data Analysis

For the purposed of data analysis and hypothesis testing, several statistical tools and methods were used from SPSS software, version 20.0. Respective analyses were employed to answer the research questions for this study and the analyses were discussed below.

3.7.1 Factor and Reliability Analyses

Hair, Anderson, Tatham and Black (1998) mentioned that factor analysis was performed to determine the structure of the correlation among a large number of items, which can be achieved by determining common underlying dimensions, known as factor. The minimum value of significant factor loading was .30 for a sample of more than 350 (Hair et al., 1998). Therefore the same value is applied in this study. Factor analysis was based on the principal component method with Varimax rotation for all components.

To determine the suitability of the data set for factor analysis is by looking at the size of the sample and the strength of the relationship among variables or items (Pallant, 2011). Tabachnick and Fidell (2007) suggested that, the minimum sample size 150 cases should be sufficient, however, it is comforting to have at least 300 cases for factor analysis. According to Nunnally (1978), he recommends a 10 to 1 ratio, that is, ten cases for each item to be factor analysis. This study has nine variables, thus, the 10 to 1 ratio would be 90 cases. This study consists of 452 cases; therefore, it is sufficient enough for factor analysis.

Pallant (2011) stated that two statistical measures were used to assess the factorability of the data set, which is Kaiser-Mayer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. Bartlett's test of sphericity

investigates the existence of an adequate number of correlations among the variables and it produces the overall significant of all correlations within a correlation matrix (Hair et al., 1998). Based on recommendation from Hair et al. (1998), the measure of KMO measure of sampling adequacy can be explained using the following guideline: below .50, unacceptable; .50 to .59, poor; .60 to .69; moderate; .70 to .79, good; and .80 and above, excellent. Factor analysis is considered appropriate if the value of KMO measure of sampling adequacy index with the minimum of .60 and Bartlett's test of sphericity should be significant with $p < .05$ (Tabachnick & Fidell, 2007).

Reliability analysis was performed on factors extracted to test the internal consistency of the measurement, and they suggested that reliability coefficient less than .60 is poor, those in .70 ranges is acceptable, and over .80 are good (Sekaran & Bougie, 2009). Before the items were submitted for reliability test, the negative worded items were reverse coded.

3.7.2 Normality Test

To conduct a parametric analysis such as hypothesis testing, the data must be a normal distribution (Chua, 2008; Bhasah, 2007). There are various methods that can be used to determine a normal distribution of the data. In this study, the Kolmogorov-Smirnov test, skewness and kurtosis value and Normal Q-Q Plot were used to determine whether the data were normally distributed. According to Pallant (2011) and Bhasah (2007), normality was indicated when a non-significant result (sig. value) is more than .05, which Kolmogorov-Smirnov statistic values was more than .05.

Normal distribution was shown when the value of skewness and kurtosis approaching zero, which the value of mean, median and mode are in the same place

(Chua, 2008; Bhasah, 2007). However, data with skewness and kurtosis values in the range of ± 2.0 are considered to be in a normal distribution (Chua, 2008). Furthermore, data is considered normal distribution when Normal Q-Q Plot shows a reasonably straight line and Detrended Q-Q plot shows no real clustering of point, with most collecting around zero line (Pallant, 2011, Bhasah, 2007).

3.7.3 Descriptive Statistics

Descriptive analysis was conducted in order to transform the raw data into a form that easier to interpret and understand. Therefore the value of mean and standard deviation for all of the variables in this study were acquired.

3.7.4 Test of Differences

Pallant (2011) stated that the chi-square test was used to establish whether two categories of variables were related. In this study, the early and late respondents were tested using chi-square test to determine any significant differences between them in terms of demographic characteristics.

The test to examine any differences in the mean score for two groups (gender and familiarity with functional food) of variables in terms of their level of consumer-behavioural intention is by using t-test. The Levene's test was examined for homogeneity of variance, and the value for equal variance not assumed was used for violated case.

In order to determine any differences in the level of consumer-behavioural intention performed by the demographic variables with more than two categories such as age and marital status, thus, the analysis of one-way ANOVA is used. The

Levene's test was performed to confirm the assumption of homogeneity of variance has not been violated.

3.7.5 Correlation Analysis

In this study, Pearson correlation is used to examine the relationship between behavioural intention and consumption behaviour in terms of direction and the strength of the relationship. The relationship between antecedent factors and consumer-behavioural intention were also described using Pearson correlation analysis. A part from that, Pearson correlation was performed to acquire an understanding of the relationship among all of the variables in this study. A positive correlation showed that if one variable increases the other variable also increases. Where as, negative correlation means that if one variable increases the other decreases. The zero correlation means no relationship between the two variables. On the other hand, scale developed by Rowentree (1981) is used to explain the strength of the relationship. The scale is shown as in Table 3.19.

Table 3.19
The Strength of the Relationship

Interpretation	**Correlation Index**
Very Weak	0.00 – 0.20
Weak	0.21 – 0.40
Median	0.41 – 0.70
Strong	0.71 – 0.90
Very Strong	0.91 – 1.00

Source: Rowentree (1981)

3.7.6 Multiple Regression

Multiple regressions were utilised to examine the prediction ability of a set of independent variable on one dependent variable (Pallant, 2011). Moreover, in this study, multiple regressions analysis was also used to examine the amount of variance of consumption behaviour predicted by behavioural intention, the variance of consumer-behavioural intention explained by the antecedent factors, as well as the variance of consumer-consumption behaviour predicted by self-efficacy.

The basic assumption of linearity, normality of the data distribution, and homoscedasticity on the data were first examined before other analysis can be conducted. For data that have the value of standardised residual above 3.3 or less than -3.3 (Pallant, 2011), the data case were deleted to minimise the outlier. The variance inflation factor (VIF) was also examined to see the degree of multicollinearity. Hair et al. (1998) stated that the value of VIF near to 1.00 indicates little or no multicollinearity, and VIF of 1.00 to 10.00 considered acceptable. The path analysis method was not utilised in the present study because it was felt that multiple regression was adequate for this study as the objectives of this study was not to establish the pattern of causation of the model.

3.7.7 Hierarchical Regression

Holmbeck (1997) stated that when the moderator affects the relationship between two variables, the prediction level of the independent variable on the dependent variable changes according to the value of the moderator. Baron and Kenny (1986) suggested that hierarchical regression could be used to analyse the moderating effect of one quantitative variable on the relationship between two other quantitative variables. In this study hierarchical regression analysis was used to

examine the relationship between consumer-behavioural intention and consumer-consumption behaviour, and to analyse the effect of past experience as moderator on intention-behaviour relationship for functional food consumption behaviour.

For the purposed of this study, the procedures recommended by Sharma et al. (1981), which is the three-steps hierarchical re gression was performed. First, in model 1, only the independent variable was entered to measure the direct effect. Second, the moderator variable was enter to measure the direct impact on dependent variable as showed in model 2, and, third, both the independent and moderator variables (interaction term) were entered together to measure the additional variance explained (model 3). If the result in the step 3 demonstrated a significant R-square increase with a significant F change value, the moderator effect was present.

3.8 Summary

The study intends to examine the influence of reward, necessity, confidence, safety, social influence and self-efficacy on behavioural intention to consume functional foods among Malaysian consumers, to examine the relationship between behavioural intention and consumption behaviour, and at the same time to examine the moderating effect of past experience on the relationship between behavioural intention and consumption behaviour towards functional food. A set of questionnaire including 9 variables, demographic information and general information about functional food purchase, which consisted of 73 questions was prepared.

Consumer-consumption behaviour was measured by 7 items that constructed based on Kaman Lee (2009); 4 items were constructed based on Verbeke and Vackier (2005) to measure consumer-consumption behaviour; attitude

dimensions consist of reward, necessity, confidence and safety were measured by 25 items developed by Urala and Lahteenmaki (2007); social influence was measured by 4 items that constructed based on Chan et al. (2009); 5 items were constructed based on Armitage and Conner (1999) to measure self-efficacy; and past experience was measured by 15 items based on Schmitt (1999).

To decide what statistical test analysis to be used in the study depends on the landscape of the data. The data set was required to be normal distribution in order to adopt parametric statistical test. After going through a certain process, the data was found to be normal. Therefore, statistical test and analysis of the data was performed using SPSS.

CHAPTER 4

RESULT

4.1 Introduction

In this chapter, the results of the data analysis will be discussed. This chapter explained on the data collection, respondents profiles, analysis of goodness of measures, test of validity and reliability of the variables and factor analysis. Lastly, the results of the hypotheses testing are discussed.

4.2 Overview of the Data

4.2.1 Response rate

800 questionnaires were distributed individually to the consumers who went shopping at selected shopping malls in the Klang Valley, Malaysia. 486 questionnaires were return, however, 13 questionnaires were incomplete so they were excluded from the data set. Although a total of 473 questionnaires were usable, 21 were excluded because the respondents did not consume functional food. Therefore, it was found that 95.6 percent could be categorised as functional food users and only 4.4 percent were non-users. Therefore, the total of 452 questionnaires were usable and used for following analysis in this study, with a response rate of 56.5 percent. The sample size was approximate to other studies using adult consumer in the Klang Valley, with respective sample sizes for such studies were 439 (Teng et al., 2012) and 200 (Zuraini et al., 2010). Thus, the sample size for this study is appeared to be sufficient.

4.2.2 Test of Non-response Bias

The tests for non-response bias was performed to examine the potential of differences in respondents and non-respondents in some significant ways (Matteson, Ivancevich & Smith, 1984), in which non-respondent are believed to have similar characteristics to late respondents (Armstrong & Overton, 1977). In this study, 180 respondents were group as early responses (questionnaires that have been collected within the first month) and 272 respondents were group as late responses (those collected within the second to the fourth month) were tested using chi-square test to determine any significant differences between them in terms of demographic characteristics. The analysis demonstrated no statistically significant differences between the two groups (significant $p > .05$), as shown in Table 4.1. Therefore, non-response bias would not give any effect on the generalisibility of the results in this study. Accordingly, the analysis was performed on all 452 respondents. Refer to Appendix 4.

Table 4.1
The Test for Non-response Bias

Variables	Pearson chi-square
Gender	.18
Age	.22
Marital Status	.91
Ethnicity	.69
Religion	.62
Level of Academic Achievement	.55
Income	.34

Note: The critical values were all not significant

4.3 Profile of the Respondents

The total sample size were 452 respondents aged 18 and above. The findings demonstrated that majority of the respondents are female (70.4 percent) and 29.6 are male. In total, 37.4 percent of the respondents are 18-30 years old, 37.2 percent are 31-40, 22.3 percent are 41-50 and only 3.1 percent are 51 and above. In terms of respondents' religion, majority is Muslim/Islam (76.8 percent). This is consistent with the ethnicity of the respondents in which the percentage of Malays is 75.7 percent, 18.1 percent are Chinese, 5.1 percent are Indians and 1.1 percent are from other ethnic groups. The percentage of consumer based on ethnicity was found to be resemblance with the Malaysian population as recorded in population estimates based on the adjusted population and housing census of Malaysia 2010, of which 67.0 percent are Malays, 24.5 percent are Chinese, 7.3 percent are Indians and 0.9 percent are from other ethnic groups.

The majority of the respondents are married (68.4 percent). Those who are single constitute 30.5 percent and a minimal 1.1 percent is divorced. In relation to level of academic achievement, respondents with master/doctorate/degree were 19.2 percent, 42.0 percent graduated with bachelor degree, 18.8 percent with certificate/diploma and 19.9 percent from Primary/secondary School. Finally, majority of respondents earn more than RM3000 (76.5 percent) per month. Refer to Appendix 5.

Table 4.2
Profile of the Respondents (N=452)

Variable	Categories	N	%
Gender	Male	134	29.6
	Female	318	70.4
Age	18-30 years old	169	37.4
	31-40 years old	168	37.2
	41-50 years old	101	22.3
	More than 50 years old	14	3.1
Religion	Muslim/Islam	347	76.8
	Buddhism/Taoism	73	16.2
	Hinduism	21	4.6
	Christianity	10	2.2
	Others	1	0.2
Ethnicity	Malay	342	75.7
	Chinese	82	18.1
	Indian	23	5.1
	Others	5	1.1
Marital Status	Single	138	30.5
	Married	309	68.4
	Divorce/Widowed	5	1.1
Level of academic achievement	Primary/Secondary School	90	19.9
	Certificate/Diploma	85	18.8
	Degree	190	42.0
	Masters/Doctorate	87	19.2
Monthly income	RM3000 or less	106	23.5
	RM3001-RM5000	175	38.7
	RM5001-RM7000	75	16.6
	RM7001-RM9000	50	11.1
	More than RM9000	46	10.2

In the early stage of the analysis, the screening process was conducted on the samples to reject the non-users of functional food products, in which, 21 respondents (4.4 percent) were rejected; hence, only the data from functional food users (452 respondents) were used in subsequent analysis. Although all of the respondents actually consume functional foods, the results revealed that 7.5 percent of them were not familiar with the term functional food before. In addition, 37.4 percent of the respondents consumed functional foods more than 8 times in a month and only 12.2 percent consumed less than 3 times per month as shown in Table 4.3.

Table 4.3
Reported Familiarity and Consumption Frequencies of Functional Foods

Variable	Categories	N	%
Familiar with functional food	Yes	418	92.5
	No	34	7.5
Average functional food consumption in a month	1-2 times	55	12.2
	3-4 times	107	23.7
	5-6 times	78	17.3
	7-8 times	43	9.5
	> 8 times	169	37.4

For the purpose of this study, ten types of functional foods were listed for the respondents to state their level of use; Table 4.4 displays the frequencies of functional foods that are normally consumed. The results show that bread is the highest type of functional food chosen by most respondents (90.3 percent), followed by fruit juices, biscuits, milk, eggs, yogurt, cereals, spreads and soft drinks. Whereas,

sweets are the least popular type of functional food consumed by the respondents, with only 48.7 percent respondents stating that they sometimes consumed such food.

Table 4.4
Types of Functional Food Products Consumed by the Respondents

Types	N	%
Bread (Fibre-rich with fatty acids/omega 3/wholemeal)	408	90.3
Fruit juices (Probiotic/added vitamins or minerals)	399	88.3
Biscuits (Added oat/low cholesterol/low fat/less sugar)	379	83.8
Milk (Probiotic/high calcium/lactose free/low fat)	372	82.3
Eggs (Omega-3/low cholesterol/added vitamin A & E)	362	80.1
Yogurts (Probiotic yoghurt/low fat)	345	76.3
Cereal (Oatmeal with beta-glucan/added vitamins and minerals/low fat)	344	76.1
Spread/margarine (Low cholesterol/low fat content/added vitamin)	321	71.0
Soft drinks (Nutritionally fortified drink/energy drink)	315	69.7
Sweets (Xylitol/low sugar)	220	48.7

To get the respondents' view on functional food, they were asked to give their opinion on functional food in general. Table 4.5 shows the frequencies of the elements that come to their mind when they think of functional foods. Overall, the respondents think that functional foods are healthy, nutritious, health-enhancing foods, non-toxic in nature and can prevent certain diseases with the percentage ranging from 84.1 to 97.8 percent. Whereas, only 69 percent and 72.3 percent of the respondents think that functional foods are related to probiotic food and contain organic ingredients, respectively.

Table 4.5
Respondents Opinion on Functional Food in General

Element	N	%
Healthy food	442	97.8
Natural food product	344	76.1
Probiotic food	312	69.0
Made from organic ingredients	327	72.3
Non-toxic in nature	390	86.3
Chemical free	345	76.3
Food that can prevent certain diseases	380	84.1
Food supplement	358	79.2
Health-enhancing foods	421	93.1
Food that are nutritious	425	94.0

With regards to the sources of information regarding functional foods, the examination of the responses is shown in Table 4.6. The higher the percentage, the more likely the respondents use the source. Overall, the respondents are more likely to use electronic media, printed media, word of mouth, professional advice (doctor/nutritionist), social networks and websites. It was discovered that electronic media, such as television and radio, are rated as the most likely of all sources of information used by the respondents with 91.8 percent, followed by 90.7 percent via printed media; 78.5 percent of the respondents use word of mouth while 64.4 percent refer to professional advice from a doctor or nutritionist; 62.2 percent of the respondents refer to social networks, and, finally, 61.9 percent obtain information regarding functional food from websites.

Table 4.6
Source of Information Regarding Functional Food

Source	N	%
Social network (Facebook, Twitter, e-mail)	281	62.2
Electronic media (TV, radio, billboard)	415	91.8
Printed media (magazine, newspaper, brochure)	410	90.7
Doctor, nutritionist	291	64.4
Word of mouth (family, friends, neighbour)	355	78.5
Website	280	61.9

4.4 Normality Test

Bhasah (2007) and Chua (2008) stated that to enable parametric statistical techniques to be carried out, the data must be in a normal distribution. In this study, the Kolmogorov-Smirnov test, skewness and kurtosis value and Q-Q Normal Plot were used to determine whether the data were normally distributed. Therefore, the parametric statistical techniques were conducted to test the hypotheses in answering the research questions of the relationship between consumer-behavioural intention and consumer-consumption behaviour towards functional food; the influence of attitude dimensions (reward, necessity, confidence and safety), social influence and self-efficacy related factors on consumer-behavioural intention; the influence of self-efficacy on consumer-consumption behaviour; as well as the effect of past experience as moderator.

In this study, the normal distribution will be tested on nine variables to detect serious violation from the basic assumptions of normality (Bhasah, 2007; Chua, 2008). These variables are; consumer-consumption behaviour, consumer-

behavioural intention, reward, necessity, confidence, safety, social influence, self-efficacy and past experience. According to Pallant (2011) and Bhasah (2007), sig. value of more than .05 (not-significant result) showed normality, with the Kolmogorov-Smirnov statistic values was more than 0.05. As shows in Table 4.7 the sig. value for all variables were .000, suggesting violation of the assumption of normality. However, Pallant (2011, p. 63) stated that this is quite common in social science research that have larger sample, thus the distribution of scores were reasonably normal.

Table 4.7
The Value of Kolmogorov-Sminov for All of the Variables

Variables	Kolmogorov-Smirnov		
	Statistic	**df**	**Sig.**
Consumer-consumption Behaviour	.115	452	.000
Consumer-behavioural Intention	.175	452	.000
Reward	.115	452	.000
Necessity	.107	452	.000
Confidence	.169	452	.000
Safety	.087	452	.000
Social Influence	.145	452	.000
Self-efficacy	.146	452	.000
Past Experience	.119	452	.000

Pallant (2011), Bhasah (2007) and Chua (2008) stated that if the distribution were perfectly normal, the skewness and kurtosis value would be 0. However, variables with skewness and kurtosis values in the range of ± 2.0 are considered to

be in a normal distribution (Chua, 2008). The values of skewness and kurtosis for this result were less than ± 2.0 that confirm scores appear to be reasonably normally distributed, as shown in Table 4.8. Refer to Appendix 6.

Table 4.8
The Value of Skewness and Kurtosis for All of the Variables

Variables	Mean	Normal Distribution Std. Dev	Skewness	Kurtosis
Consumer-consumption Behaviour	4.14	.551	-.228	.000
Consumer-behavioural Intention	4.35	.518	-.287	-.665
Reward	3.86	.563	.078	-.215
Necessity	3.75	.685	-.923	.717
Confidence	3.88	.612	.000	.030
Safety	3.01	.627	.342	.252
Social Influence	3.53	.798	-.649	.657
Self-efficacy	3.87	.568	-.054	.416
Past Experience	3.91	.539	-.207	.987

In addition, data is considered normal distribution when Normal Q-Q Plot shows a reasonably straight line and Detrended Q-Q plot shows the points were most collecting around the zero line, with no real clustering (Bhasah, 2007; Pallant, 2011). A visual examination of the plots from the Normal Q-Q Plot for all variables in Appendix 7, shows a reasonably straight line, indicate normality. The examination of data indicated that there was no serious violation of the basic normality distribution's assumption. Therefore, all form of parametric tests can be performed on these variables.

4.5 Goodness of Measures

4.5.1 Construct Validity

Even though the discriminates and convergent validity of the borrowed measurements (for example: Urala & Lahteenmaki, 2007) have been confirmed, it was felt a need to re-examine the validity of measure because this study is using Malaysian setting, which may differ from other countries. Exploratory factor analysis was conducted on all items of consumer-consumption behaviour, consumer-behavioural intention, attitude, social influence, self-efficacy, and past experience.

Previous researches on consumer behaviour towards functional foods have been conducted in western countries such as United Kingdom, Finland, United States, and Sweden, where the profile of the consumers, the culture and environment are different from Malaysia. Therefore, in this study, exploratory factor analysis was conducted on all items measuring the construct of consumption behaviour, behavioural intention, attitude, social influence, self-efficacy, and past experience, to verify the construct validity of the measurement.

4.5.2 Results of Exploratory Factor Analysis

The items in the questionnaires were group into six components for factor analyses purposes. The first component consists of items in section 4 of the questionnaire, which is the variable of behavioural intention. The second, third and fourth components were the antecedent variables, which were factor analysed separately. The second component comprised four attitude dimensions (reward, necessity, confidence and safety) in Section 5 of the questionnaire, and the third and fourth component were social influences (Section 6) and self-efficacy (Section 7)

respectively. The fifth component was the moderator variable of past experience, and lastly, the sixth component was consumer-consumption behaviour towards functional food (Section 3). Factor analysis's results for each component were discussed as in Table 4.9 to Table 4.14. Table 4.15 below shows the comparison between the original dimensions and the final dimensions for all the variables for this study (after factor analysis). Finally, Table 4.16 shows the reliability coefficients for all variables.

4.5.2.1 Consumer-Behavioural Intention

For the construct of consumer-behavioural intention, factor analysis was conducted based on four items. The result reveals a Kaiser-Meyer-Olkin (KMO) value of .80, which shows that the data were free from multicollinearity and exceeds the recommended value of .50 (Hair et al., 1998). In addition, the Bartlett's test of sphericity was highly significant ($p = .00$. $p < .05$), supporting the factorability of the correlation matrix. Therefore, both results showed that the sample was factorable.

The principal components analysis indicated that only one component is presence with an eigenvalue exceeding 1, which showed that the factor represent 68.28 percent of the total variance in the item. The factor loadings are between .80 and .87. As shown in Table 4.9, the reliability for this factor is high, with the Cronbach's Alpha value of .84. All of the items are included because the item-to-total correlation showed that removal of any item would not increase the alpha above .84. Since this factor measure the level of consumers intention to consume functional foods, its original name was retained. Refer to Appendix 8.

Table 4.9
Factor and Reliability Analysis on Consumer-Behavioural Intention

Items	Factors Loadings
I intent to eat/drink functional foods to prevent me from certain chronic diseases.	.87
I will eat/drink functional food to make myself healthier.	.84
I expect to consume more functional foods in the future.	.80
I want to eat/drink functional food products if I can trust it contains healthy component.	.80
Eigenvalue	2.73
% of variance	68.28
Cronbach's Alpha	.84
Kaiser-Meyer-Olkin (KMO)	.80
Bartlett's Test of Sphericity: Approx Chi Square	736.484
df	6
sig	.00

4.5.2.2 Attitude Dimensions

The first antecedent is attitude, which consists of four dimensions – perceived reward from using functional food, necessity for functional food, confidence in functional food, and safety for functional food. Factor analysis was conducted based on the eight questions each for reward and necessity, four questions on confidence, and five questions on safety.

Table 4.10 indicated that, for all the 25 items, the assumption of factor analysis were met, with KMO value was discovered to be .88 and the Bartlett test was highly significant ($p = .00$, $p < .05$). The attitude factors produced 5 factors with eigenvalues more than 1, which explained 61.45 percent of the total variance of the items (Appendix 9). The results of Varimax rotation indicated some cross-loadings

among the items. Item 13 (N5) loaded on 3 factors, and item 17 (C1), which loaded on two factors, has a value of factor loading quite similar. Factor 5 was found to have only one item in it, which is item 14 (N6). As a normal practice, item N5, C1 and N6 were deleted to improve the scale reliability and decrease the inconsistent correlation among the factors (Hair et al., 1998). With four factors remaining, the final factor loadings of the items were between .58 and .90, which larger than the minimum value (> .30) needed for a sample size of 350 and above (Hair et al., 1998).

The Cronbach's Alpha value of the reliability analysis (Table 4.16) showed that factor 1 (α = .86), factor 2 (α = .91), factor 3 (α = .82), and factor 4 (α = .78), indicate high reliability (Cronbach's Alpha >.60). The results of item-to-total correlations demonstrated the deletion of any item would not increase the value of Cronbach's Alpha; therefore all of the scale items were included.

The four remaining factors were named accordingly. The first factor remained as reward, containing eight questions relating to the respondents feeling towards the benefits gained from functional food consumption. The second factor comprised six items that were dominated by questions relating to the respondents' view on how important or unimportant the functional foods are for the individual and society in general. Accordingly, its original name was retained as necessity.

One item (S3) from the original safety dimension was included in the third factor. However, the third factor was dominated by questions relating to the degree of trust in the information and claims concerning functional foods promoting health and the reliability of the research. Therefore, it was labeled as confidence, which comprised four items. Finally, the fourth factor with four items, which deals with the respondents' view about the possible harmful effects when functional foods are consumed, was named as safety of functional foods.

Table 4.10

Factor Loadings for Attitude Dimensions

Items	Factor			
	1	2	3	4
R1-FF improve mood	.783			
R2-FF improve performance	.773			
R5-FF give pleasure	.707			
R3-FF is a healthy lifestyle	.687			
R6-FF can repair damage of unhealthy diet	.685			
R8-Actively seek for FF information	.608			
R7-Will compromise on taste of FF	.594			
R4-FF prevent diseases	.575			
N2-FF is a total sham		.900		
N1-FF is completely unnecessary		.881		
N4-Healthy person is worthless to use FF		.846		
N3-FF is a bad trend for the future		.796		
N8-FF is consumed by people who do not need of FF		.759		
N7-FF is not appropriate in delicacies		.706		
C3-FF has fulfilled its promises			.796	
C2-Safety of FF is thoroughly studied			.777	
C4-FF is science-based top product			.771	
S3-FF is completely safe			.609	
S2-FF maybe harmful for healthy people				.803
S1-Excess use of FF can be harmful				.801
S4-FF carry unforeseen risks				.735
S5-Exaggerated information about FF				.683

Kaiser-Meyer-Olkin Measures of Sampling Adequency	.875
Approx Chi Square	5462.918
Bartlett's Test of Sphericity: df	300
Sig	.000

Factor 1=Reward; Factor 2=Necessity, Factor 3=Confidence; Factor 4=Safety

4.5.2.3 Social Influence

The second antecedent is Social Influence. The factor analysis conducted on social influence, which consists of four items shows a KMO value of .78, which exceed recommended value of .50 (Hair et al., 1998). It shows that the data were free from multicollinearity, thus the sample was factorable. Bartlett's test of sphericity was highly significant ($p = .00$. $p < .05$), supporting the factorability of the correlation matrix.

From the principal components analysis, it reveals that only 1 component is presence with an eigenvalue exceeding 1, which showed that the factor captures 65.29 percent of the total variance in the item. The factor loadings were between .78 and .86 (Table 4.11), with high reliability (Cronbach's Alpha of .82).

All of the items were included because the item-to-total correlations revealed that the removal of any item would not increase the alpha beyond .82, thus supporting the inclusion of all scale items. This factor deals with the respondents' views about the influence of people around them towards the consumption of functional foods. Therefore its original name was retained. Refer to Appendix 10.

Table 4.11
Factor and Reliability Analysis on Social Influence

Items	Factors Loadings
My relatives advise me to eat/drink functional food products.	.86
My friends recommend me to eat/drink functional food products.	.81
My parents influence me to eat/drink functional food products.	.79
The government influences me to eat/drink functional food products.	.78
Eigenvalue	2.61
% of variance	65.29
Cronbach's Alpha (α)	.82
Kaiser-Meyer-Olkin Measures of Sampling Adequacy	.78
Bartlett's Test of Sphericity : Approx. Chi-Square	642.926
df	6
Sig	.00

4.5.2.4 Self-efficacy

Finally, as displayed in Table 4.12, the value of Kaiser-Meyer-Olkin for self-efficacy, which is the third antecedent, was .75. Moreover, the result for Bartlett's test of sphericity was highly significant ($p = .00$. $p < .05$), validate the factorability of the correlation matrix. Principal components analysis indicates that only one factor was extracted with an eigenvalue more than 1. This factor explained 49.51 percent of the total variance in the items, with the factor loading of .51 to .80. The value of Cronbach's Alpha of .73 shows an acceptable reliability. Item-to-total correlations demonstrated that elimination of any items would not strengthen the value of Cronbach's Alpha, thus supporting the inclusion of all scale items. Since this factor

measures the degree of the consumer's efforts and willingness to consume functional foods, its original name was retained. Refer to Appendix 11.

Table 4.12
Factor and Reliability Analysis on Self-efficacy

Items	Factors Loadings
I am confident that I can eat/drink functional foods regularly.	.80
I am confident that I would be able to eat/drink functional foods next week.	.79
If I wanted to, it would be very easy for me to eat/drink functional food every day.	.77
I am certain that I will be able to refrain myself from consuming foods that are not healthy	.60
Whether or not I eat/drink functional foods is entirely up to me.	.51
Eigenvalue	2.48
% of variance	49.51
Cronbach's Alpha (α)	.73
Kaiser-Meyer-Olkin Measures of Sampling Adequacy	.75
Bartlett's Test of Sphericity : Approx. Chi-Square	524.903
df	10
Sig	.00

The exploratory factor analysis on attitude dimensions, social influence and self-efficacy, which are the antecedent for behavioural intention, indicated that the variables are identical with the antecedent variables proposed in the conceptual framework earlier, apart from the three items that were rejected, and one item from the original dimension was moved to another dimension. The attitude variable maintains its original dimensions, which are Reward, Necessity, Confidence and

Safety. On the other hand, the variables of social influence and self-efficacy remained as one separate dimension on its own.

4.5.2.5 Moderator Factor of Past Experience

Factor analysis on the moderator factor of past experience was conducted based on the total of fifteen questions. As shown in Table 4.13, the overall value of KMO was .95, and Bartlett test was found to be highly significant ($p = .00$, $p < .05$). Therefore, both values supported the factorability of the correlation matrix.

The past experience factors provided 2 factors with eigenvalues exceeding 1, which explained 61.27 percent of the total variance of the items (Appendix 12). After Varimax rotation, there were also quite a number of cross-loadings with three items (E8, E9 and E12) having a factor loading value quite similar. Thus, these items were deleted due to the common practice to improve the scale reliability, as well as reducing the unstable correlations among the factors (Hair et al., 1998). Thus, factor 1 consists of nine items with factor loadings ranging from .62 to .84, and factor 2 comprises three items with factor loadings of .58, .80 and .80.

As shown in Table 4.16, the reliability analysis conducted on factor 1 and factor 2 shows the value of Cronbach's Alpha of .92 and .72 respectively, which indicated high reliability. The value of Cronbach's Alpha if item deleted for both factors showed that, deleting any of the items would not increase the value of the Cronbach's Alpha. Therefore, all of the items were included.

The first factor is dominated by questions relating to respondents emotional gain due to functional foods consumption. Thus, it is named as Feeling of Using Functional Food. Whereas, the second factor, named as Functional Food Environment, contains questions relating to the external attribute of the functional

foods such as availability and price. According to Schmitt (1999), customer experience could be explained in terms of the intrinsic and extrinsic excitement felt by the consumers after observing or participating in an event or consuming the products that motivates their purchase behaviour. Thus, feeling of using functional food and functional food environment were separated as intrinsic experience approach and extrinsic experience approach, respectively.

Table 4.13
Factor Loadings for Moderator Factor of Past Experience

Items	Factors	
	1	2
E4-Eating FF makes me feel good and healthy	.835	
E5-Eating FF gives more energy	.831	
E6-FF give beneficial impact on personal health	.826	
E7-FF is part of natural way of living	.703	
E3-Eating FF regularly because satisfied	.700	
E14-Consuming FF changes lifestyle to be healthy	.696	
E2-Eating FF makes me happy	.691	
E1-Like eating FF	.664	
E15-Will share FF experience with others	.617	
E10-FF prices are comparable with conventional food		.804
E11-FF are easy to get		.801
E13-Past experience influences me to try other type of FF		.575
Kaiser-Meyer-Olkin	.95	
Approx Chi Square	4005.541	
Bartlett's Test of Sphericity: df	105	
Sig	.00	

Factor 1=Feeling of using functional food; Factor 2= Functional food environment

4.5.2.6 Consumer-consumption Behaviour

The factor analysis conducted on consumer-consumption behaviour, which consists of seven items, demonstrated that the value of Kaiser-Meyer-Olkin (KMO) was .88, which greater than the value of .50 as suggested by Hair et al. (1998). The

value of KMO indicates that the data set were clear from multicollinearity, therefore, the sample was factorable. In addition, Bartlett's test of sphericity was highly significant ($p = .00$; $p < .05$), confirming the factorability of the correlation matrix.

Principal components analysis revealed that only one factor was extracted with an eigenvalue exceeding 1, which showed that the factor explained 58.11 percent of the total variance in the item. The factor loadings are between .68 and .80 with high reliability of .88 as shown in Table 4.14. All of the scale items are included because the item-to-total correlation showed that deletion any of the item would not increase the alpha greater than .88. Since this factor measures the consumer's behaviour towards the consumption of functional foods, its original name was retained. Refer to Appendix 13.

Table 4.14
Factor and Reliability Analysis on Consumer-Consumption Behaviour

Items	Factors Loadings
I choose to consume products that contain healthy components such as probiotic, vitamins, minerals, fat free, high fibre and low cholesterol.	.80
I normally consume products that are good for my health and promote my well-being.	.80
When buying a product, I will look for products that contain ingredients that can make me healthier.	.78
I normally consume products that are more nutritious.	.77
I often consume functional foods products.	.76
I will put priority to buy functional food products that are safe to be consumed.	.74
I choose to consume product that I believe can prevent me from certain diseases.	.68
Eigenvalue	4.07
% of variance	58.11
Cronbach's Alpha (α)	.88
Kaiser-Meyer-Olkin Measures of Sampling Adequacy	.88
Bartlett's Test of Sphericity : Approx. Chi-Square	1435.664
df	21
Sig	.00

Table 4.15
Comparing Original Dimension to Final Dimension after Factor Analysis

Original dimension	**Dimension derived after factor analysis**
Consumer-behavioural Intention	Consumer-behavioural Intention
Attitude Reward Necessity Confidence Safety	Attitude Reward Necessity Confidence Safety
Social Influence	Social Influence
Self-efficacy	Self-efficacy
Past Experience	Past Experience Feeling of using functional food Functional food environment

4.5.3 Reliability Test

Reliability test for all variables was shown as in Table 4.16 below. The values of Cronbach's Alpha were all higher than the lower limit of acceptability ($\alpha > .60$) as recommended by Sekaran and Bougie (2009). Thus, showed a highly reliable measurement for all of the variables. Refer to Appendix 14.

Table 4.16
Reliability Coefficient for All of the Variables

Variables	Items	Reliability
Consumer-consumption Behaviour	7	.88
Consumer-behavioural Intention	4	.84
Reward	8	.86
Necessity	6	.91
Confidence	4	.82
Safety	4	.78
Social Influence	4	.82
Self-efficacy	5	.73
Feeling of using functional food	9	.92
Functional food Environment	3	.72

4.6 Descriptive Analyses

4.6.1 Major Variables

Table 4.17 showed the results of descriptive statistics for the final list of variables of the study. For ease of interpretation, the range of the five-point Likert scale was grouped into similar sized categories of low, moderate and high. In which, scores of below than 2.33 [4/3 + lowest value (1)] are reflected as low, scores of 3.67 and above [highest value (5) – 4/3] are reflected as high, and those in between are reflected as moderate (Nor Azila et al., 2012).

From Table 4.17, the mean values for consumer-behavioural intention, self-efficacy, feeling of using functional food and functional food environment fall in the range of 3.72 and 4.34. Clearly, the respondents exhibit a high level of consumer-

behavioural intention towards consuming functional food, and their internal forces are responsive to change towards healthy eating in order to be healthy. It also reveals that they have used functional foods before and are pleased about the product. For the variable social influence, the mean score is at the moderate level. This indicates that the society around them has moderately influenced the respondents to consume functional foods.

The mean values for attitude are generally high. Only one of its dimensions, that is, safety, falls in the moderate range (2.87), while the other three are in the high range falling in the range of 3.76 to 3.98. Although the attitude among respondents is generally high towards functional foods, it explains that the respondents have doubts in trusting the safety of such food. For the consumer-consumption behaviour variable, with a mean score of 4.14, generally, the respondents rate themselves at the higher level of behaviour towards functional food consumption in their everyday life. Refer to Appendix 15.

Table 4.17
Descriptive Statistics for all of the Variables

Dimension (Variables)	Mean	Std. Deviation
Consumer-behavioural Intention	4.34	.52
Attitude		
Reward	3.87	.61
Necessity	3.98	.87
Confidence	3.76	.64
Safety	2.87	.73
Social Influence	3.53	.80
Self-efficacy	3.87	.57
Past Experience		
Feeling of using functional food	3.99	.56
Functional Food Environment	3.72	.70
Consumer-consumption Behaviour	4.14	.55

4.6.2 Level of Consumer-behavioural Intention

To answer the first research question - What is the level of consumer-behavioural intention towards functional food consumption among consumers in Malaysia? – The mean score of 4.34 on five-point Likert scale as shown in Table 4.17, indicated that the respondents show very high behavioural intention to consume functional foods, but the variations of intention among consumers are moderate as shown by the value of standard deviation of .52.

It is also interesting to know that if the level of consumer intention differs across demographic profiles. Therefore, further analysis was conducted to understand

the differences in the level of consumer-behavioural intention towards functional food consumption among Malaysian consumers.

To compare the differences of gender and familiarity towards functional food, an independent t-test was applied. The results in Table 4.18 revealed a significant difference in terms of consumer-behavioural intention between males and females. It was found that females tend to have higher consumer-behavioural intention than males (mean value for females= 4.38; mean value for males= 4.27; $p< .05$). The results also show the significant differences in terms of consumer-behavioural intention between respondents who are familiar and who are not familiar with functional foods. The results reveal that respondents who are familiar with functional foods tend to have higher consumer-behavioural intention to consume such food (mean value for respondents who are familiar with functional foods= 4.37; mean value for respondent who are not familiar with functional foods= 4.05; $p< .05$). Refer to Appendix 16.

Table 4.18
Consumer-behavioural Intention by Gender and Familiarity with Functional Food (N=452)

Independent Variable	Mean	SD	F- value	p-value
Female	4.38	.52	-2.05	.04*
Male	4.27	.50		
Familiar	4.37	.49	3.48	.001*
Not familiar	4.05	.69		

Note: *p< .05

To compare the differences of other demographic items (age, marital status, ethnicity, religion, level of academic achievement, and monthly household income)

towards functional food, an analysis of variance (ANOVA) is used. The scores for each demographic item are grouped into three categories - low, medium and high - using percentiles. Moreover, the results were summarised as in Table 4.19. It was found that the level of consumer-behavioural intention to consume functional foods among respondents did not vary by ethnicity (F= .10; p= .96), religion (F= 1.41; p= .23), level of academic achievement (F= .40; p= .76), or monthly income (F= 1.70; p= .15). However, the level of consumer-behavioural intention to consume functional foods was found to be different by marital status (F= 3.40, p= .03) and age (F= 5.40, p= .001).

With regards to age, the post-hoc analysis shows that respondents aged 41-50 have a higher level of intention to consume functional foods than those of 18-30 years old (Mean difference= .26; p= .00). In terms of marital status, the post-hoc analysis reveals that those who are married shows high level of consumer-behavioural intention to consume functional foods compared to a single person (Mean difference= .14; p= .03). Refer to Appendix 17.

To summarise, the level of consumer-behavioural intention towards functional food consumption among Malaysian consumers is encouraging. Respondents of different ethnicity, religion, level of academic achievement and income was found to perform a similar level of intention to consume functional foods. The levels of consumer intention towards functional foods were found to be high amongst female and the familiarity towards functional food. Where as, age and marital status were found to exhibit differences in the level of consumer-behavioural intention to consume functional foods.

Table 4.19

Analysis of Variance (ANOVA) on Consumer-behavioural Intention

Independent Variable	Categories	Mean	F-value (p value)
Age	18-30 years old	4.25	5.40 (.001)*
	31-40 years old	4.35	
	41-50 years old	4.50	
	More than 50 years old	4.28	
Marital Status	Single	4.25	3.39 (.034)*
	Married	4.39	
	Divorce/Widowed	4.40	
Ethnicity	Malay	4.35	.098 (.961)
	Chinese	4.34	
	Indian	4.29	
	Others	4.40	
Religion	Islam/Muslim	4.34	1.41 (.231)
	Buddhism/Taoism	4.30	
	Hinduism	4.33	
	Christianity	4.70	
	Others	4.00	
Level of academic achievement	Primary/Secondary School	4.36	.397 (.756)
	Certificate/Diploma	4.35	
	Degree	4.32	
	Masters/Doctorate	4.38	
Monthly income	RM3000 or less	4.25	1.70 (.150)
	RM3001-RM5000	4.38	
	RM5001-RM7000	4.33	
	RM7001-RM9000	4.34	
	More than RM9000	4.47	

Note: *p< .05

4.7 Correlation Analysis

Correlation analysis was performed to enquire an understanding of the relationship among variables and the correlation coefficient values demonstrated the strength of the relationship. The result in Table 4.20 indicated that the overall values of the correlation among variables were between .05 and .56, thereby indicating weak and moderate associations between these variables.

Firstly, the correlations within the attitude dimension were examined. As shown in Table 4.20, the correlations amongst the measures of reward, necessity, confidence and safety indicate weak associations between those variables with correlation values ranging from .10 to a high of .56. The results show that safety is significantly correlated with necessity and confidence with correlation values of .34 and .16, respectively. Reward is also significantly correlated with confidence (r= .56) and necessity. However, the association with necessity is very weak (r= .10). On the other hand, it was found that both reward and safety, and necessity and confidence were significantly not related. Generally, this suggested that those variables does not lead to each other and should be addressed independently. For example, perceived reward does not have any relationship with safety towards functional food or vice-versa.

With regards to the consumer-behavioural intention and consumer-consumption behaviour relationship, the correlation is positively significant and moderate (r= .42). This indicates that consumer-behavioural intention is one of the variables influencing consumer-consumption behaviour towards functional food. On the other hand, all of the antecedents except safety are statistically significantly correlated with consumer-behavioural intention with correlation values ranging from

.23 to a high of .54. The results of these correlations indicate that higher consumer-behavioural intention is mostly associated with higher antecedent scores.

As for the relationship between consumer-consumption behaviour and self-efficacy, the correlation is positively significant and moderate (r= .54). This indicates that self-efficacy influences the consumer-consumption behaviour towards functional food. Finally, the correlation between the dimension of past experience (Feeling of using functional food and functional food environment) with consumer-behavioural intention and consumer-consumption behaviour were also examined. As shown in Table 4.20, the correlations among these variables are significantly positively correlated with correlation values ranging from .31 to .57. Refer to Appendix 18.

Table 4.20
Pearson Correlations of Study Variables

	Consumer-consumption Behaviour	Consumer-behavioural Intention	Reward	Necessity	Confidence	Safety	Social Influence	Self-efficacy	Feelings of using FF	FF Environment
Consumer-consumption Behaviour	1.0									
Consumer-behavioural Intention	.42**	1.0								
Reward	.53**	.54**	1.0							
Necessity	.18**	.23**	.10*	1.0						
Confidence	.40**	.37**	.56**	.08	1.0					
Safety	.10	.05	.05	.34**	.16**	1.0				
Social Influence	.31**	.26**	.48**	.07	.41**	.06	1.0			
Self-efficacy	.54**	.49**	.52**	.20**	.50**	.11*	.36**	1.0		
Feelings of using FF	.57**	.54**	.32**	.25**	.31**	.15**	.45**	.36**	1.0	
FF Environment	.41**	.31**	.41**	.07	.54**	.15**	.37**	.48**	.30**	1.0

Note: *p< .05; **p< .01

FF-Functional Food

4.8 Hypotheses Testing

4.8.1 Re-statement of Hypotheses

Based on factor analysis results, the re-statement of hypotheses is needed. The new hypotheses are

(i) Relationships between consumer-behavioural intention and consumer-consumption behaviour

Hypothesis 1: *Consumer-behavioural intention is positively related to consumer-consumption behaviour towards functional foods.*

(ii) Relationships between antecedent factors and consumer-behavioural intention

-Attitude dimensions:

Hypothesis 2a: *Reward from using functional is positively related to consumer-behavioural intention to consume such food*

Hypothesis 2b: *Necessity for functional food is positively related to consumer-behavioural intention to consume such food.*

Hypothesis 2c: *Confidence in functional food is positively related to consumer-behavioural intention to consume such food.*

Hypothesis 2d: *Safety of functional food related to consumer-behavioural intention to consume such food.*

-Social Influence factor:

Hypothesis 3: *Social influence is positively related to consumer-behavioural intention to consume functional food.*

-Self-efficacy factor:

Hypothesis 4: *Self-efficacy is positively related to consumer-behavioural intention to consume functional food.*

(iii) Relationships between self-efficacy and consumer-consumption behaviour towards functional food.

Hypothesis 5: *Self-efficacy is positively related to consumer-consumption behaviour towards functional food.*

(iv) The effect of past experience as moderator on the relationship between consumer-behavioural intention and consumer-consumption behaviour towards functional food.

Hypothesis 6a: *The feeling of using functional food moderates the relationship between consumer-behavioural intention and consumer-consumption behaviour.*

Hypothesis 6b: *The functional food environment moderates the relationship between consumer-behavioural intention and consumer-consumption behaviour.*

4.9 Regression Analysis – Assumptions

Regression analysis was performed in order to answer the second, third, forth and fifth research questions that related to the relationship between consumer-consumption behaviour towards functional food; the influence of attitude dimensions (reward, necessity, confidence and safety), social influence and self-efficacy related factors on consumer-behavioural intention; the influence of self-efficacy on consumer-consumption behaviour; as well as the effect of past experience dimensions (feeling of using functional food and functional food environment).

Before the regression analysis can be performed, the data were analyses to discover any serious violations from the basic assumption of regression analysis, in terms of linearity, normality and homoscedasticity (Hair et al., 1998). Linearity can be examined using partial plots. The visual inspection of the plot as in Appendix 19, demonstrated that there was no clear U-shaped or other curvilinear relationship. Thus, explained that the assumption of linearity was fulfilled.

For normality assumption, it can be analysed using a normal probability-plot (P-P) of the residuals. Appendix 20 showed that the values of normal p-p plot distributed alongside of the diagonal line with no noticeable divergence, which meeting the assumption of normality of the residuals. Finally, with regard to the assumption of homoscedasticity, the existence of homoscedasticity can be examined through the residuals (studentised) plot against the predicted dependent values and comparing them to the null plot. In Appendix 21, the scatter plots showed no noticeable pattern, therefore, indicating homoscedasticity in the multivariate case.

In general, the examination of the data, demonstrated that there was no serious violations from the basic assumption of regression analysis, in terms of linearity, normality and homoscedasticity. Consequently, subsequent regression analysis was performed. The standardised coefficient beta (ß) and R-square (R^2) from the results of regression analysis explained whether to accept or to reject the hypotheses stated in this study. For the purposed of this study, the regression was done in two stages. In stage one, consumer-consumption behaviour was treated as the dependent variable, and in stage two, consumer-behavioural intention was treated as the dependent variable.

4.9.1 Regression Analysis on the Influence of Consumer-behaviour Intention on Consumer-consumption Behaviour towards Functional Food

In order to answer the second research question - Does behavioural intention among consumers in Malaysia influence the consumption behaviour towards functional food? – Regression analysis was performed to answer the hypothesis 1. The independent variable in this analysis was consumer-behavioural intention, and consumer-consumption behaviour was treated as the dependent variable. From the casewise diagnostics, observation numbers 69, 81, 255 and 430 were detected as outliers, and were removed in the next analysis of the regression. Table 4.21 shows the relationship between consumer-behavioural intention and consumer-consumption behaviour. Refer to Appendix 22.

Table 4.21

The Influence of Consumer-behavioural Intention on Consumer-consumption Behaviour

Independent Variable	B	SEB	ß
Consumer-behavioural Intention	.66	.04	.65**

Note: R^2= .42; F= 322.442; Sig. F= .00; **p< .01
B= Unstandardised coefficient beta;
SEB= Standard error of regression coefficient;
ß= Beta coefficient

Results in Table 4.21 explained that the consumer-consumption behaviour was significantly influence by consumer-behavioural intention (F= 322.442; p= .00). The result of R-square revealed that the behavioural intention account for 42 percent of the variation in consumer-consumption behaviour. Furthermore, this study noted that consumer-behavioural intention positively influences consumer-consumption behaviour (ß= .65). Therefore, hypothesis 1 is supported.

4.9.2 Multiple Regression Analysis on Factors Influencing Consumer-behaviour Intention

As a means to answer the third research question – What are the factors relating to attitude, social influences and self-efficacy that influence the consumer-behavioural intention to consume functional food? - Multiple regression analysis was undertaken on the antecedent factors and consumer-behavioural intention. The results of regression analysis revealed that the observations number 362 and 442 were outliers. These outliers were removed in the next regression run.

Table 4.22 showed that the relationship between independent variables (consumer-behavioural intention) and dependent variable (antecedent factors) was significant ($F= 55.169$; $p< .01$). The model showed a moderate relationship with antecedent variables explained only 43 percent of the variation in consumer-behavioural intention towards functional foods. The regression equation comprises six variables, and three of them were appeared as significant predictors of consumer-behavioural intention - reward, necessity and self-efficacy. The results indicated that reward, necessity and self-efficacy were positively influenced consumer-behavioural intention to consume functional food. Therefore, hypotheses 2a, 2b and 4 were accepted. Where as, confidence, safety and social influence have no significant influence on consumer-behavioural intention, and, leads to the conclusion that hypotheses 2c, 2d, and 3 were not supported.

The results also explained which significant variables have the strongest influence on consumer-behavioural intention, through the examination of beta values. Thus, it was found that reward (ß= .48) was the strongest predictor of the consumer-behavioural intention, followed by self-efficacy (ß= .26), and necessity (ß= .14).

Table 4.22
Factors Influencing consumer-behavioural intention (N=450)

Independent Variables	B	SE B	ß
Reward	.44	.05	.48**
Necessity	.08	.02	.14**
Confidence	-.03	.04	-.03
Safety	-.04	.03	-.06
Social Influence	-.03	.03	-.05
Self-efficacy	.24	.04	.26**

Note: R^2= .43; F= 55.17; Sig. F= .00; **p< .01
B= Unstandardised coefficient beta;
SEB= Standard error of regression coefficient;
ß= Beta coefficient

To identify the existence of multicollinearity, the tolerance values, the variance inflation factor (VIF) and the condition index for all of the independent variables were investigated. Pallant (2011) stated that VIF value of close to 1.00 indicated little or no multicollinearity, and the cut off value of 10.00 is an acceptable VIF (Hair et al., 1998). The output of the regression of independent variables on behavioural intention demonstrated that the tolerance and VIF values reveal no multicollinearity effect (reward, VIF=2.007, self-efficacy, VIF=1.578, necessity, VIF=1.173). Refer to Appendix 23.

4.9.3 Regression Analysis on the Influence of Self-efficacy on Consumer-consumption Behaviour towards Functional Food

In order to answer the fourth research question - Does the self-efficacy of consumers have a direct relationship with the consumer-consumption behaviour towards functional food? - Regression analysis was performed to test hypothesis 5. For the purpose of this analysis, self-efficacy was treated as the independent variable, and consumer-consumption behaviour was treated as the dependent variable. Through the regression analysis procedure, consumer-consumption behaviour is regressed on self-efficacy. Table 4.23 shows the relationship between self-efficacy and consumer-consumption behaviour. Refer to Appendix 24.

Table 4.23
The Influence of Self-efficacy on Consumer-consumption Behaviour.

Independent Variable	B	SE B	ß
Self-efficacy	.53	.04	.54**

Note: R^2= .30; F= 189.294; Sig. F= .00; **p< .01
B= Unstandardised coefficient beta;
SEB= Standard error of regression coefficient;
ß= Beta coefficient

As showed in Table 4.23, the F value of 189.294 (p= .00) indicates that self-efficacy significantly influences consumer-consumption behaviour. However, the model is rather weak with self-efficacy explaining only 30 percent of the variation in consumer-consumption behaviour towards functional foods. This study note that self-efficacy positively influences consumer-consumption behaviour (ß= .54). Therefore, hypothesis 5 is supported.

4.9.4 Hierarchical Regression Analysis on the Influence of the Moderator of the Past Experience's dimensions

Baron and Kenny (1986) suggested that hierarchical regression could be used to examine whether one variable has a moderating effect on the relationship between two other variables. Therefore, to answer the fifth research question – Do the past experience dimensions moderate the relationship between consumer-behavioural intention and consumer-consumption behaviour towards functional food? – The three-step hierarchical regression analyses procedure proposed by Sharma et al. (1981) was conducted to test hypotheses 6a and 6b. The moderator of the past experience dimensions of feeling of using functional food and functional food environment were analysed separately.

Firstly, the hierarchical regression was performed to determine the effect of feeling of using functional food as moderator. In this analysis, the direct effect of the independent variable (consumer-behavioural intention) was measured in step 1. In step 2, the moderator variable (feeling of using functional food) was included to test the significant direct effect of moderator on the dependent variable (consumer-consumption behaviour). Finally, in step 3, the interaction terms (independent variable and moderator variable) were included to examine the additional variance explained. The effect of moderator is present, if in step 3, it demonstrated a significant R-square (R^2) increase with significant F change value.

Table 4.24 reported the results. In model 1, consumer-behavioural intention emerged as a predictor of consumer-consumption behaviour towards functional food, explaining 37.8 percent of the variance. After including feeling of using functional food in step 2, Model 2 showed an improvement with a significant increase in R-square by

45.5 percent. In model 3, a significant value of R-square is increased (R^2= .464) with a significant F change value (R^2 change= .009, p< .01).

This indicated that the feeling of using functional food explained an increase of 0.9 percent of the variance in consumer-consumption behaviour after controlling for consumer-behavioural intention. The result showed that the feeling of using functional food was statistically significant (ß= 1.082, p< .01) and moderates the relationship between consumer-behavioural intention and consumer-consumption behaviour. Therefore, hypothesis 6a is accepted.

Table 4.24
Hierarchical Regression using Feeling of Using Functional Food as a Moderator in the Relationship between Consumer-behavioural Intention and Consumer-consumption Behaviour (N=452)

Independent Variable	**Model 1** ß	**Model 2** ß	**Model 3** ß
Intention	.615**	.436**	-.112
Moderating Variable			
Feeling		.331**	-.347
Interaction Terms			
Feelings x Intention			1.082**
R^2	.378	.455	.464
Adj R^2	.377	.453	.461
R^2 change	.378	.077	.009
Sig. F change	.000	.000	.007
Durbin Watson	1.869	1.869	1.869

**p< .01
Intention= Consumer-behavioural intention, Feeling= Feeling of using Functional food

Secondly, by using the same steps as above, hierarchical regression analysis was performed to determine the moderation effect of functional food environment, and the results were reported as in Table 4.25. In model 3, the value of R^2 is increased very slightly from .432 to .433 with no significant F change value (R^2 change= .001, p> .01). This shows that functional food environment does not explain any additional increase in the variance in consumer-consumption behaviour after controlling for consumer-behavioural intention. Thus, this study concludes that the functional food environment was statistically not significant (ß= .333, p< .395) and does not moderate the behavioural intention and consumption behaviour relationship. Therefore, hypothesis 6b is not supported.

Table 4.25
Hierarchical Regression using Functional Food Environment as a Moderator in the Relationship between Consumer-behavioural Intention and Consumer-consumption Behaviour (N=452)

Independent Variable	Model 1 ß	Model 2 ß	Model 3 ß
Intention	.615**	.540**	.388
Moderating Variable			
Environment		.243**	-.008
Interaction Terms			
Environment x Intention			.333
R^2	.378	.432	.433
Adj R^2	.377	.429	.429
R^2 change	.378	.053	.001
Sig. F change	.000	.000	.395
Durbin Watson	1.898	1.898	1.898

**p< .01
Intention= Consumer-behavioural intention, Environment= Functional food Environment

The Durbin-Watson statistic was needed for hierarchical multiple regression analysis, in order to examine the supportability of the assumption of independent error. Field (2005) recommended that the value of Durbin-Watson should be between 1 to 3, and the nearer the value to 2, the better. The value of Durbin-Watson for feeling of using functional food and functional food environment were 1.869 and 1.898, respectively. Thus, the assumption has clearly been met.

In conclusion, the hierarchical regression analyses showed that feeling of using functional food moderates the relationship between behavioural intention and

consumption behaviour, where as, functional food environment does not moderate the relationship between behaviour intention and consumption behaviour of the consumer towards functional food. Refer to Appendix 25.

4.10 Summary of Results

With regard to the issue of non-response bias, the results indicated no statistically significant differences between early and late responses. Consequently, it would not significantly affect the generalisability of the findings in present study. In general, the Malaysian respondents demonstrated a high level of consumer-behavioural intention. Nonetheless, the standard deviation showed that the variation of consumer-behavioural intention among Malaysian respondents was moderate.

In order to investigate the relationship between consumer-behavioural intention and consumer-consumption behaviour among Malaysians, the antecedent factors that influence consumer-behavioural intention to consume functional foods, and self-efficacy and consumer-consumption behaviour, regression analyses were conducted. The results revealed that consumer-behavioural intention positively affects the level of functional food consumption behaviour among consumers in Malaysia. Among the antecedents, only reward, necessity and self-efficacy significantly influence consumer-behavioural intention to consume functional foods. Self-efficacy also has a direct affect towards consumer-consumption behaviour.

To determine the effect of moderators (feeling of using functional food and functional food environment) on the relationship between consumer-behavioural intention and consumer-consumption behaviour towards functional food, hierarchical multiple regression was conducted. The statistical findings showed that feeling of using

functional food among Malaysian consumers moderates the intention-behavioural gap. In contrast, functional food environment does not moderate the relationship between intention and functional food consumption behaviour.

With regards to Malaysian consumers demographic profiles, older people, married consumers, and females showed a higher level of intention to consume functional foods. Finally, the modified TPB model in this study was found to be a good model to explain and predict the behaviour intention and consumption behaviour towards functional food among Malaysian consumers. Presented below in Table 4.26 are the results of hypotheses testing:

Table 4.26
The Summary of Findings for Hypothesis Testing

	Hypothesis	Accept/Reject
Hypothesis 1:	Consumer-behavioural intention is positively related to consumer-consumption behaviour towards functional foods.	Accept
Hypothesis 2a:	Reward from using functional food is positively related to consumer-behavioural intention to consume such food	Accept
Hypothesis 2b:	Necessity for functional food is positively related to consumer-behavioural intention to consume such food.	Accept
Hypothesis 2c:	Confidence in functional food is positively related to consumer-behavioural intention to consume such food.	Reject
Hypothesis 2d:	Safety of functional food is positively related to consumer-behavioural intention to consume such food.	Reject
Hypothesis 3:	Social influence is positively related to consumer-behavioural intention to consume functional food.	Reject
Hypothesis 4:	Self-efficacy is positively related to consumer-behavioural intention to consume functional food.	Accept
Hypothesis 5:	Self-efficacy is positively related to consumer-consumption behaviour towards functional food.	Accept
Hypothesis 6a:	The feeling of using functional food moderates the relationship between consumer-behavioural intention and consumer-consumption behaviour.	Accept
Hypothesis 6b:	The functional food environment moderates the relationship between consumer-behavioural intention and consumer-consumption behaviour.	Reject

4.11 Summary

The normality test and reliability test on the data gathered have allowed the study to proceed with the statistical analysis decided. The results of analysis showed that consumer-behavioural intention positively influences consumer-consumption behaviour towards functional food. The results support that reward, necessity and self-efficacy are significantly and positively related to behavioural intention to consume functional food. Self-efficacy is also positively related to consumer-consumption behaviour towards functional food.

The results also showed that the feeling of using functional food moderates the relationship between consumer-behavioural intention and consumer-consumption behaviour. The level of consumer-behavioural intention towards functional food consumption among Malaysian consumers is encouraging and with regards to demographic factors, older people, married consumers and female showed a high level of behavioural intention to consume more of functional food.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter restates the findings and pursued with a discussion. Followed by a discussion on theoretical and managerial implications, as well as the limitation of the study. This chapter ends with recommendation for future research and the conclusion.

5.2 Recapitulation of the Study Findings

This study investigated the antecedents of consumer-behavioural intention and its relationship with consumer-consumption behaviour. This study consists of five objectives and the first objective was to determine the level of consumer-behavioural intention towards functional food consumption performed by the consumers. The second objective was to examine whether behavioural intention among consumers influence their functional food consumption behaviour. The third objective was to identify the antecedent factors that influence consumer-behavioural intention to consume functional food. The fourth objective was to examine whether the self-efficacy of the consumer has a direct relationship towards their functional food consumption behaviour. Finally, the fifth objective was to examine the moderating effect of past experience on the relationship between consumer-behavioural intention and consumption behaviour of the consumers.

Based on the research objectives, this study was conducted to fulfil five research questions: (i) What is the level of consumer-behavioural intention towards functional food consumption among consumers in Malaysia? (ii) Does behavioural intention

among consumers influence their functional food consumption behaviour? (iii) What are the factors relating to attitude, social influences and self-efficacy that influence the consumer-behavioural intention to consume functional food? (iv) Does the self-efficacy of consumers have a direct relationship towards functional food consumption behaviour? (v) Does past experience moderate the relationship between consumer-behavioural intention and the consumer-consumption behaviour towards functional food?

As noted in Chapter 3, data were gathered from Malaysian consumers aged 18 and above who went for household food shopping at shopping malls in the Klang Valley. Out of 800 questionnaires that have been distributed, 486 were returned, representing 60.8 percent participation. However, only 452 were useable and used for the analysis, which explained the response rate of 56.5 percent.

In this study, the exploratory principal component factor analysis was applied to test the factorability of the measures. Then, the analysis of reliability coefficient was conducted to verify the internal consistency of the measures. The findings of the analyses created some dimensions of the antecedent factors and moderators. Thus, the hypotheses were developed based on these new dimensions. Lastly, to test the hypotheses of the study, the data were examined using regression analysis, and the significance level of $p < .05$ was utilized as critical level for hypothesis testing.

Finding for the first research question reported that Malaysian consumers performed a high level of behavioural intention to consume functional food. Respondents of different ethnicity, religion, level of academic achievement and income exhibited similar levels of consumer-behavioural intention. Significant differences in the level of consumer-behavioural intention were found among respondents of different gender, level of familiarity towards functional foods, age and marital status.

Responding to the second research question, regression analysis performed showed that the hypothesis relating to consumer-behavioural intention and consumer-consumption behavioural relationship was supported, and a positive association was found. Despite the positive relationships, the explanatory power of consumer-behavioural intention to predict consumer-consumption behaviour was moderate, indicating that other variables were also important in predicting the consumer-consumption behaviour to consume functional food among Malaysian consumers.

With regards to the third research question, this study found that out of the six hypotheses tested, three hypotheses were accepted, in other words, three antecedents were positively related to consumer-behavioural intention. These antecedents include: reward, necessity and self-efficacy. The hypotheses formulated for the relationship between consumer-behavioural intention and confident in functional food, safety of functional food and social influences did not appear to be supported.

As for the fourth research question, the results showed that the hypothesis relating to the relationship between self-efficacy and consumer-consumption behavioural was supported, and a positive association was found. Despite the positive relationship, the predictive power of self-efficacy towards consumer-consumption behaviour was moderate, indicating that other variables were also important in explaining the consumer-consumption behaviour.

To answer the fifth research question, regarding the hypotheses relating to the moderator variables between consumer-behavioural intention and consumer-consumption behavioural relationship, the findings showed that one hypothesis was supported with a positive association and the other hypothesis was not supported. The hierarchical moderated regression analyses revealed that the feeling of using functional

food positively moderated the relationship between consumer-behavioural intention and consumer-consumption behaviour. However, the functional food environment did not moderate the behavioural intention and consumption behaviour relationship of the consumers.

5.3 Discussion

This section discusses in further detail concerning the level of consumer-behavioural intention in Malaysian consumers, the influence of consumer-behavioural intention on consumer-consumption behaviour, the influence of antecedent factors on consumer-behavioural intention, the influence of self-efficacy on consumer-consumption behaviour and the effect of moderators on the relationship between consumer-behavioural intention and consumer-consumption behaviour.

5.3.1 Level of Consumer-behavioural Intention among Malaysian Consumers

With regards to the first research question, this study indicated that the level of behavioural intention towards functional food consumption among Malaysian consumers is encouraging. This result is equivalent to Rezai et al. (2012) and Teng et al. (2012), who reported that the majority of the consumers in Malaysia have a positive perception towards the intention to use functional foods and is willing to pay for such food.

Consequently, this leads to a higher percentage of Malaysian consumers who are familiar with functional food products (92.5 percent) of whom 37.4 percent consume functional foods more than 8 times in a month and only 12.2 percent who consume them less than 3 times per month. This is comparable to Landstrom et al. (2007), whose

findings revealed that 84 percent of the consumers in Sweden are familiar with functional foods and that the majority of them have consumed or purchased such products. This is supported by Steptoe et al. (1995), Poulsen (1999), and Urala and Lahteenmaki (2003), whose findings reported that consumers choose functional foods because familiar with such food.

This study also discloses that familiarity towards functional food differentiates the level of behavioural intention among Malaysian consumers. Significant differences exist between consumers who are familiar and who are not familiar with functional food in Malaysia. Consumers who are familiar with functional food are found to perform a higher intention to consume functional food than consumers who are not familiar with functional food. The possible reason to describe the result is due to the strong consumer belief towards functional foods among Malaysian; that is, functional foods are healthy, contain nutrition, health-enhancing food, non-toxic in nature and can prevent certain diseases, which will motivate a positive and strong interest to consume such foods. This is comparable with Rezai et al. (2012) and Verbeke (2005) who found that consumer's belief in the health benefits and positive rewards from functional food consumption is the important factors of acceptance towards such food.

Consistent with the definition of consumer-behavioural intention, it can be interpreted that, Malaysian consumers tend to consume more healthy food if they have a strong effort to perform the behaviour together with the internal motivational factors they have, such as feeling rewarded with a healthy life due to functional food consumption and a strong sense of self-efficacy towards functional food consumption. This is supported by Rezai et al. (2012) who reported that Malaysian consumers showed

positive attitude towards functional food and they believed such food are beneficial to their health and well-being.

The present study found that the level of behavioural intention among Malaysian consumers varies significantly by gender. Females are reported as having higher consumer-behavioural intention to consume functional food compared to males. One of the plausible explanations is because in Malaysian culture, females are assumed to be responsible for household purchase, childcare and day-to-day family matters (Childs, 1997; Poulsen, 1999; Frewer et al., 2003; Urala, 2005; Bech-Larsen & Scholderer, 2007). The motherly-role of females may shape them to become more concerned about family health, safety, and welfare especially in terms of food choice. Therefore, they are more sensitive and more willing to change their current lifestyle to be healthier for them as well as for their family members.

Another plausible reason is that, normally, females were known to be more perceptive and vigilant about eating certain food and health issues compared to men (Childs, 1997; Urala, 2005). This result is consistent with Bech-Larsen and Grunert (2003), Bech-Larsen and Scholderer (2007), Landstrom et al. (2007), and Teng et al. (2012) who demonstrated that significantly more female respondents are willing to pay and consume functional food than males.

The finding of this study also discovered that the level of consumer-behavioural intention among Malaysian consumers does differ by age. Older consumers aged 41 and above tend to have a higher level of intention to consume functional food compared to younger consumers. One reason for this finding may be because of the older respondents' own experience with illness and/or experience of taking care of sick family members. This is supported by Kashima et al. (1993), and Sheeran and Orbell (1998),

who stated that older people own experience with illness and risk behaviour may increase the probability of acceptance of functional food among them. They suggested that this is a reflection of differences in experience. Thus, with experience and maturity the intention towards what one can and will do in the future will also grow (Pomery et al., 2009).

In addition, Frewer et al. (2003) indicated that middle-aged and elderly consumers are more conscious concerning their health because they have a higher probability of being diagnosed with some disease than those who are younger (Frewer et al., 2003). Therefore, among Malaysians, older people are more attentive and careful concerning food choice due to the potential association with higher food risks. This is consistent with Verbeke (2005), who claimed that the relationship between older age and higher intention of older consumers to consume healthy food is explained by their own experience with health problems. This is in contrast with Childs and Poryzees (1997), and Rezai et al. (2012) who reported that younger consumers are more aware and interested in functional food than older people. Similarly, younger consumers among Dutch population are more willing to use functional food (de Jong et al., 2003).

Likewise, in this study, marital status was found to be significantly different in relation to the level of behavioural intention to perform by the Malaysian consumers. Consumers who are married are found to perform higher consumer-behavioural intention to consume functional food than single consumers in Malaysia. This is compatible with the findings of Poulsen (1999) and Verbeke (2005) in their study in Europe. Usually, couple or married people are more drawn to anticipate of how unhealthy food can have a negative impact on health and well-being, not only for themselves but also their family, especially their kids. Therefore, among Malaysian

consumers, married people would have a strong motivation to buy and consume functional foods in order to stay healthy and prevent the risk of certain diseases.

The present study discovered that among Malaysian consumers, the extent of consumer-behavioural intention does not vary by ethnicity or religion. This is plausible due to the dominance of the Malay ethnicity and Islamic religion in Malaysia. Our sample consisted of about 75.7 percent Malays and 76.8 percent were Muslim. This enormous majority would lead to statistical invariance, which explained why the intention to consume functional food does not differ by ethnicity.

Another plausible reason may be due to the massive economic and sociological development that is affecting Malaysia's social structure and values, especially in terms of lifestyle, social interaction, and shared values among different cultural in Malaysia. Thus, Malaysians are exposed to each other's culture and value systems. Supported by Hassan (2011), the author stated that social interaction among Malaysians from different ethnic group and religions encourages mutual understanding, respect and the acceptance of functional food among cultures. The present study indicates that all consumers from different ethnic groups and religions in Malaysia perform a similar level of intention to consume functional food. In fact, all of them are reported to have a high degree of consumer-behavioural intention towards functional food.

Similarly, in this study, it was found that the level of academic achievement and income among Malaysian consumers are not significantly related to the level of consumer-behavioural intention. This result is similar to Poulsen (1999) who mentioned that, no differences were detected concerning the income and educational level among respondents. Supported by Urala and Lahteenmaki (2007), they stated that, both higher

and lower education level among consumers in Finland were positively related to willingness to use functional food.

The plausible reason to justify the result is because of the higher health consciousness among consumers in Malaysia, as well as strong consumer belief towards the positive health effects of functional food products. Another plausible reason may relate to the prevention effect of functional foods towards certain chronic diseases, such as cancer and heart disease, which have significant implications in respect of huge healthcare and treatment costs, as well as long-term sickness care to cure. Therefore, Malaysian consumers are willing to spend money to buy functional foods for a healthy life rather than spending on buying drugs and medication to cure the diseases.

Verbeke (2005) reported that, the willingness to use functional food among consumers in Belgium was due to their belief in health benefits of functional food and the existence of sickness among family members. However, this is in contrast to Hilliam (1996) who stated that consumers in Europe from a higher socio-economic group (high income and education) are willing to purchase functional food due to their ability to pay and better knowledge compared to low income consumers.

5.3.2 The Influence of Consumer-behavioural Intention on Consumer-consumption Behaviour

The second research question concerns the relationship between consumer-behavioural intention and consumer-consumption behaviour among Malaysians. This research reveals that consumer-behavioural intention only explains 42 percent of the variation in consumer-consumption behaviour. This indicates that consumer-behavioural intention has moderate explanatory power to predict consumer-consumption behaviour

and that there are other variables not considered in this study, such as lifestyle (Urala & Lahteenmaki, 2007), self-identity (Armitage & Conner, 2001), convenience and product attribute such as taste (Bech-Larsen et al., 2001).

This may indicate the inconsistency between what respondents say they intend to do and what they actually do. Ajzen and Fishbein (2005) referred to the issue of poor behavioural intention in predicting consumption behaviour as a literal inconsistency, which is the tendency for an individual not to do what they said they were going to do. As shown in Table 4.17, standard deviation of .52 explains that the data were quite similar, which is likely owing to the low variation in behavioural intention among respondents in Malaysia. The low variation in consumer-behavioural intention does not allow for consumer intention to discriminate between the consumption behaviour of the Malaysian consumers even if consumer-behavioural intention does have an influence on consumer-consumption behaviour. According to Armitage and Conner (2001), they stated that the low amount of variation explained should be presumed with larger R-square value. Other studies conducted in the food context also produced a small contribution of behavioural intention on consumption behaviour. This is consistent with the meta-analyses study in health related behaviours by Armitage and Conner (2001), and Conner and Sparks (2005) who reported that the variance explained in intention were between 20 to 30 percent.

The analysis undertaken demonstrates that consumer-behavioural intention has a positive relationship with consumer-consumption behaviour among Malaysians. This explains that consumers have a positive impression towards functional food and that their consumption is due to a strong belief that functional foods are beneficial for their wellness and health as a preventive measure to certain diseases, longevity and healthy

lifestyle. Therefore, consumer awareness and knowledge towards the beneficial health effect from functional food consumption has changed Malaysian consumers towards a healthy diet. Hippocrates, the father of medicine, once said "Let food be thy medicine and medicine be thy food".

5.3.3 The Influence of Antecedent Factors on Consumer-behavioural Intention.

The third research question involves six antecedent factors of consumer-behavioural intention, which are, reward, necessity, confidence, safety, social influence and self-efficacy. The result from regression equation shows that among six antecedents, only three factors appeared as significant predictors of consumer-behavioural intention among Malaysian consumers, which are, reward, necessity and self-efficacy. The most important predictor is reward, followed by self-efficacy and necessity. Another three antecedents, which are, confidence, safety and social influence, appear to have no significant relationship with consumer-behavioural intention.

As hypothesised, reward, self-efficacy and necessity have a positive significant influence on consumer-behavioural intention among Malaysians. Thus, marketers and the government of Malaysia can use this information in promoting functional food buying and consumption, as well as practicing healthy diet and healthy lifestyle among Malaysians by focusing on those personal factors of the consumers.

The results showed that two major influences of consumer-behavioural intention could be found in the attitude dimensions, as illustrated in Figure 2.1. To be specific, these dimensions are, reward and necessity. This shows that Malaysian consumers perceive the consumption of functional food as personally rewarding, thus, it is necessary for them to consume functional food in order to maintain and promote good

health and well-being. This result is congruent with Urala and Lahteenmaki (2007), Landstrom et al. (2007) and Chen (2011), who reported that consumers showed a positive attitude towards functional food and regarded the foods as rewarding in terms of healthy benefits, health promoting and necessary to be consumed. This is supported by Barcellos and Lionello (2011), who reported that perceived reward was one of the predictors for intention to consume functional food among Brazilian consumers.

The other two dimensions of attitude - confidence and safety - were reported to be of no significance. This maybe due to the lack of confidence and trust among Malaysian consumers in the food safety and benefit claims by the manufacturers of functional foods. For example, if a certain food claims it can reduce the risk of diseases or possible improved well-being, unfulfilled promises and undetectable effects could create dissatisfaction and lack of confidence towards such food.

Another plausible reason could be due to skeptical feeling towards functional food among Malaysian consumers, in which skeptical is frequently the key reason why consumers do not consume such food. Normally, in Malaysian culture, individuals are difficult to convince and they will always have doubt whether new product such as functional foods will be worth of their effort to buy and consume because the price of functional foods are more expensive compared to conventional foods. The lack of trust and confidence among Malaysian consumers towards health related product especially concerning the health claims and side effect might hinder them from buying and consuming functional food products. Malaysian consumers who are skeptical about functional foods are still mulling whether to accept it as true or not and they are tending to have negative stance towards such food.

Thus, Malaysian consumers impression in functional food safety and benefits claims would not determine the consumption of such food. This is in line with Landstrom et al. (2007) who noted that safety for functional food and confidence in functional food seems to fail to have an impact on consumer-behavioural intention towards such food. In addition, Chen (2011) reported that perceived safety towards possible harmful effects of functional food appears to be unsuccessful to make an influence on the consumption of functional food in general.

However, the result contradicts with the findings of previous studies. For example, Chen (2011) reported that confidence in functional foods has been found to be a crucial factor to consume such food among Taiwanese consumers. This is consistent with Urala and Lahteenmaki (2004, 2007) who found that confidence in functional foods significantly influences the intention to use functional foods after perceived reward. Likewise, Verbeke (2005) reported that confidence in functional food that were said to have positive health effects, demonstrated a positive relationship with consumers' intention to consume functional food.

From these results, it can be argued that reward drives the confidence variable influence on consumer-behavioural intention among Malaysian consumers. Therefore, the impact of confidence on consumer-behavioural intention is subsumed under the reward from using functional food. This is further evident from the correlational analysis where significant correlation exists between reward and confidence (Table 4.20). Similarly, necessity drives the safety variable, and, therefore, the impact on the consumer-behavioural intention is subsumed by the impact of the necessity on consumer-behavioural intention among Malaysians. Again, correlational analysis supports this.

Likewise, in this study, the necessity for functional food among Malaysian consumers was reported to have a positive significant relationship with consumer-behavioural intention to consume functional food. Therefore, it can be said that Malaysian consumers perceive that functional foods are essential in promoting a healthy lifestyle, and believe that people need to consume more functional food to stay healthy and ward off diseases. Landstrom et al. (2007) stated that consumers who had perceived both clinically and placebo effects from using the functional food have demonstrated a positive attitude towards such foods. Thus, this shows that Malaysian consumer's acceptance of functional food is linked to the strong beliefs and positive perceptions relating to the positive effects and benefits from functional food consumption.

The present study demonstrated that Malaysian consumers' self-efficacy have a positive relationship with their behavioural intention to consume functional food, although the ability of self-efficacy to influence consumer-behavioural intention was weak compared to reward. Thus, an increase in consumers' self-efficacy would enhance the behavioural intention to consume functional food among Malaysians. This result is comparable to Cox et al. (2004) who reported that self-efficacy seems to be the most important factors in consumers' intention to consume functional food. Likewise, this is consistent with Armitage and Conner (1999) who reported that self-efficacy independently predicted the behavioural intention to consume healthy foods among consumers in United Kingdom and this may confirm an addition to the TPB model. This results also comparable to previous studies in different contexts such as fruits and vegetables diet (Brug et al., 1995; Povey et al., 2000), physical exercise (Terry & O'Leary, 1995; Weinberg & Daniel, 2007), alcohol use (Armitage et al., 1999a) and the intention to get a mammogram screening (Rutter, 2000; Tolma et al., 2006) that

explained the important of self-efficacy as a significant predictor towards consumer-behavioural intention.

One plausible reason is because generally individuals with high level of self-efficacy are more expected to make an effort to switch their behaviour towards a healthy diet because they believe they can succeed (Strahan et al., 2002). This indicates that individuals with strong self-efficacy (i.e. those driven by the internal motivation to perform the behaviour) have a higher tendency to consume functional foods in their everyday life in order to stay healthy.

The significant influence of self-efficacy on consumer-behavioural intention is probably due to the nature of the strong internal self-motivation that the individual has. Thus, when people are internally motivated to be healthy, they are driven to seek for healthy food, for instant functional food, which they believe by consuming such food can lead to health benefits and healthy well-being, rather than just following what people around them influence them to do (rather than be influenced by people around them). Furthermore, Malaysian consumers have shown that they are certain in their own ability to stick to their diets due to a strong belief that consuming functional foods is beneficial to their health, wellness, longevity and healthy lifestyle.

Other than confidence and safety, another antecedent that appears to have no significant relationship with consumer-behavioural intention is social influence. This indicates that the personal considerations to consume functional food for one's own better health are better predictors of intentions than the social influence. It appears that social influence; such as parents, relatives, friends and the government do not have any impact on the level of consumer-behavioural intention to consume functional food among Malaysian consumers.

Two plausible explanations can be suggested for this discrepancy. One of the possible explanations is that individuals with a high level of health consciousness and strong self-efficacy are more incline to participate in activities related to health in order to maintain good health and excellent well-being, for instants to consume healthy diet (such as functional food, fruits and vegetables) and physical exercises. Thus, the influence of others would be insignificant or less. Another reason for the lack of a significant influence by the social influence on consumer-behavioural intention is more likely due to the human nature of health survival, where, in general, individuals make decisions on food choice based on their liking, ability and suitability with their own body. This may be due to the beliefs that consumers' own behaviour can directly affect their health (Rezai et al., 2012). Thus, individuals will only consume foods that they think will satisfy their wants and needs as well as can provide benefits in terms of good health and well-being.

The result of this study was found to be inconsistent with previous studies. Brug et al. (1995), Cox et al. (1998), and Annunziata and Vecchio (2011), who generally found that significant others influence an individual towards healthy food consumption, such as functional foods, fruits and vegetables. However, it is consistent with Brewer et al. (1999) who noted that consumer's attitude was found to be a crucial predictor towards behavioural intention, where as social influences did not have any correlation with behavioural intention for healthy food.

Even though three of the hypothesised relationships were not supported in this study (despite the support they have had in some prior works), the results are extremely meaningful because they focus on only the most salient effects. In addition, the results showed that concurrent analysis of antecedents cause some of the antecedents to be less

important. In this study, the results demonstrated that only three of the antecedents, i.e. reward, self-efficacy and necessity, were found to have a positive significant relationship with behavioural intention to consume functional food among Malaysian consumers. Where as, another three factors of antecedents (i.e., confidence, safety and social influence) did not performed any correlation with consumer-behavioural intention. However, the results showed important consequences, that is, some antecedents may react as replacement for other antecedents in influencing behavioural intention. For instant, the reward may outweigh the confidence in influencing consumer-behavioural intention.

From the results, this study concludes that the reward from using functional food is a major driver for the influence of other attitude dimensions on consumer-behavioural intention among Malaysian. This is also demonstrated by the significant correlations between reward and each of the other attitude dimensions (necessity, confidence and safety). Furthermore, this study also reveals that the reward from using functional food has the highest positive influence on the level of consumer-behavioural intention, and the strongest predictor of behavioural intention performed by the Malaysian consumers. This means that the stronger the consumers' belief in the rewards (for example, promote their well-being, performance, health and mood) they will receive from using functional food, the greater their behavioural intention would be. This is consistent with Urala and Lahteenmaki (2007) who found that, the perceived reward is the most important dimension of attitude in influencing behavioural intention to use functional food among Finnish consumers.

To summarise, apart from the strong belief among Malaysian consumers in the necessity to consume functional food in order to stay healthy as well as getting

beneficial health rewards, the behavioural intention to consume functional food is also effected by the beliefs in individual self-efficacy, in other words, the belief that they can perform the behaviour. Therefore, they are more responsive and motivated to consume functional foods for better health, promoting well-being and a higher achievement in life.

5.3.4 The Influence of Self-efficacy on Consumer-consumption Behaviour

The fourth research question pertains to the direct relationship between self-efficacy and consumer-consumption behaviour. The analysis undertaken demonstrates that the self-efficacy of Malaysian consumers has a positive significant influence on consumer-consumption behaviour directly. Thus, an increase in the self-efficacy of consumers would enhance the consumption behaviour to consume functional food among them. However, the model is rather weak with self-efficacy only explaining 30 percent of the variation in consumer-consumption behaviour towards functional foods among Malaysian. This indicates that self-efficacy alone has weak explanatory power to predict consumer-consumption behaviour and that another 70 percent would be explained by other variables.

The plausible reason is likely due to the lack of variation in self-efficacy among Malaysian consumers, that is, the data would be almost identical. Table 4.15 revealed that standard deviation of self-efficacy is low, .57. Low variation does not allow for self-efficacy to differentiate clearly between the consumption behaviour of the consumers even though it does have an influence on consumer-consumption behaviour. The other reason for this finding is probably due to the nature of the strong consumer perception of

internal facilitators that motivate them to consume functional foods in their diet in order to be healthy. A strong self-efficacy will urge them to search for foods they believe can provide health benefits. In this study, it shows that the strong self-efficacy that Malaysian consumers have does translate into healthy behaviour, i.e. the consumption of functional food. Self-efficacy demonstrates the perceived confidence of consumers in their ability to consume functional food, especially their ability to cope with obstacles that occur during executing the behaviour. This means that in order for the behaviour to be performed, it is really up to the individual's internal self-efficacy, supported by other external variables, such as the capability to purchase and the availability of functional foods in the market.

Locke and Latham (1990) stated that individuals who have strong self-efficacy would tend to aim for higher goals and committed to involve in the intended behaviour. Therefore, the higher the self-efficacy of Malaysian consumers would raise the consumption of functional foods in the their diet, which is also due to the strong positive perception of the benefits of such food towards a healthy life. Furthermore, these results highlight to the marketers and Government the important of strong self-efficacy among Malaysian consumers by introducing them the personal skills to overpower the barriers to consume functional food.

The result of this study was found to be consistent with Brug et al. (1995) and Povey et al. (2000) who reported that self-efficacy of consumers positively influence the consumption of healthy food (Fruits and vegetables) in adults. This is supported by Conner and Norman (2005), and Armitage and Conner (1999), whose study on health-related behaviour revealed that self-efficacy was often found to be the most crucial predictor of both intention and behaviour in the TPB model.

5.3.5 The Effect of the Moderator on the Relationship between Consumer-behavioural Intention and Consumer-consumption Behaviour

Another interesting finding in the current study involves the effect of the moderator on the behavioural intention and consumption behaviour relationship among Malaysian. Recalling in Chapter 4, that the factor analysis on 15 items of past experience produced two factors, these factors are, feeling of using functional food and functional food environment, which can be separated as intrinsic and extrinsic experience, respectively. Schmitt (1999) argued that customer experience could be explained in terms of the internal and external excitement felt by the consumers after observing or participating in an event or consuming the products that motivates their purchase behaviour.

Even though individuals may originally want to continuously participate in healthy eating, many not succeed to achieve this target. Past experience has been known to be an effective factor for repetitive behaviour (Schmitt, 1999; Pomery et al., 2009; Cooke & Sheeran, 2004). Consequently, this study explored the intention-behaviour gap by analysing, the feeling of using functional food as an intrinsic experience approach and, the functional food environment as an extrinsic experience approach.

Thus, the fifth research question concerned the effect of the feeling of using functional food and the functional food environment as moderators between consumer-behavioural intention and consumer-consumption behaviour relationship. In the earlier part of this study, the results demonstrate that consumer-behavioural intention explained 42.0 percent of the variation in consumer-consumption behaviour among Malaysian consumers. This study introduced a moderator to determine any changes to the strength

of the relationship between behavioural intention and consumption behaviour among Malaysian.

The result of hierarchical regression on the moderator of feeling of using functional food shows a significant increase in R-square (R^2= 46.4 percent) when the feeling of using functional food was added to the model. This explains that the effect of a moderation variable is present. Thus, the feeling of using functional food moderates the intention-behaviour gap. This result demonstrates that the intrinsic experience occurs when the individual feels the rewards and advantage from the using of functional food, thus, the chances of them consuming functional food would increase. The rewards and benefits that consumers receive and feel could be feeling happy, feeling good and healthy, and energetic. Consequently, the predictive power of behavioural intention towards functional food consumption will also increase.

In other words, the findings explain that when consumers have a strong behavioural intention to increase their healthy food consumption, the formation of a feeling of using functional food is associated with functional food consumption. Therefore, forming a feeling of using functional food benefits consumers who determined to raise their healthy foods consumption. Where as, consumers who have weak behavioural intention to consume functional food, forming a feeling of using functional food is not related with functional food consumption.

In contrast, the moderator of functional food environment does not strengthen the relationship between behavioural intention and functional food consumption behaviour among Malaysian consumers. This indicates that the extrinsic experience of functional food environment does not have any effect on the intention-behaviour relationship. Accordingly, the functional food environment, such as price and availability seems to

function separately. Moreover, this study concludes that the feeling of using functional food (such as feeling happy and healthy) is important to motivate the Malaysian consumers in initiating a desired healthy eating behaviour.

5.4 Contributions of the Research

The results that have emerged from this study have provided significant theoretical and methodological contribution as well as managerial implications, as discussed below.

5.4.1 Theoretical Contribution

This study contributes to the literature by examining the questions related to healthy consumption behaviour among adult consumers in Malaysia. The findings from this research give evidences and guidance of how marketers and government can persuade consumers towards the consumption of healthy food. In terms of theoretical perspective, this study contributed in determining various approaches of which attitude dimensions, social influence and self-efficacy elements influence on consumer-behavioural intention to consume healthy food (i.e. functional food).

The proposed research framework for this study was based on the TPB model by Ajzen (1991). The results demonstrate that the modified TPB model proposed in this study predicts and explains the intention to consume healthy food (i.e. functional foods) among adult consumers in Malaysia. Thus, this research contributes to the theoretical perspective by which the TPB model can be used in different contexts and settings concerning consumer behaviour studies.

In terms of finding out which antecedents are the most powerful in predicting and explaining the behavioural intention to consume functional food in the contexts of Malaysian consumers, the findings confirm the importance of reward, self-efficacy and necessity in influencing consumer-behavioural intention. The existence of reward and the necessity are crucial to exert the consumer-behavioural intention rather that the other factors. Furthermore, when people have a high level of self-efficacy (i.e. they have a strong belief that they can succeed in performing the behaviour), they will have a higher tendency to consume functional foods in their everyday life in order to stay healthy. Based on prior works that conducted in Western countries on the antecedent variables of consumer-behavioural intention to consume functional food, this study demonstrates that these factors be in effect in Malaysian context. Consequently, it revealed that the research findings from Western countries could also be generalised to other setting such as Malaysia, therefore, providing plausibility to the efforts to examine Western findings by utilising local samples.

However, no significant influence of social influence, confidence and safety on consumer-behavioural intention was found in this study. In addition, the mean values for attitude dimensions are generally high except for safety that falls in the moderate range. Thus, it explains that the Malaysian consumers have doubts in trusting the safety of functional foods. Consequently, this becomes a barrier for them to consume functional food although they believed that functional foods are beneficial to their health and well-being. These evidence have strengthens the statement by Brewer et al. (1999), and Urala and Lahteenmaki (2007) who stated that the antecedents factors of behavioural intention may not be compatible across consumers in different settings.

The findings in the current study also involve the relationship between consumer-behavioural intentions with consumer-consumption behaviour among Malaysian. Although the contribution of behavioural intention of the consumers on their functional food consumption behaviour is moderate, the results of this research contribute to the theoretical relationship between intention and consumption behaviour among Malaysian consumers. This is meaningful because it enhances the empirical knowledge of healthy eating behaviour by establishing that a positive significant relationship occurs between behavioural intention and consumption behaviour.

Another interesting finding involves the direct relationship between self-efficacy of the Malaysian consumers and functional food consumption behaviour, in which, the results support the theoretical relationship between these two variables. Therefore, the significant influence of self-efficacy on consumer-behavioural intention and consumer-consumption behaviour found in this study strengthens the assertions of Armitage and Conner (1999), and Conner and Norman (2005), who reported that self-efficacy is a significant contributor in the TPB model, and that it is often the most important predictor of both intention and behaviour.

From the perspective of Malaysian consumers, present study revealed that the variable of feeling of using functional food moderates the relationship between behavioural intention and consumption behaviour among them. Thus, it explains that intrinsic experience performs a crucial function in strengthening the intention-behaviour gap. On the other hand, the functional food environment does not strengthen the relationship between behavioural intention and functional food consumption behaviour among Malaysian. Thus, the moderator effect of functional food environment does not exist.

5.4.2 Methodology Contribution

This study also provides contribution from the methodological perspective. In this study, the notion of experiential marketing proposed by Schmitt (1999), which overlaps with Pine and Gilmore (1999), and Brakus et al. (2009), was utilised in present study to formulate the measurement for the construct of past experience from the perspective of functional food consumption in general.

Although the concept of experiential marketing proposed by Schmitt (1999) has gained acceptance in research measuring past experience behaviour, Caru and Cova (2003) raised the issue of cultural bias towards the North American vision of experience. They proposed that different meanings are associated with the concept of "experience" and "consumption experience" in different scientific disciplines and behaviour settings. They also recommended that future researchers to develop a modified scale measuring past experience attributed to the concept of consumption experience in various contexts and settings, as well as to cross-validate the scale to verify its generalisability. Therefore, this study contributes to the methodological part by developing a modified scale measuring past experience specifically towards functional food consumption (i.e. the example of healthy food) in an Asian setting, besides showing the validity and reliability of the scale.

This study verifies that the significant modified scale measuring past experience in different contexts and settings is distinctly acceptable and be a useful scale for future research.

5.4.3 Managerial Implications

Apart from the contributions discussed above, a number of managerial implications were suggested from the findings of the present study. The results propose a few implications concerning how the policy maker (government), the manufacturers and marketers in the functional foods industry can formulate an effective healthy lifestyle campaign and marketing communication strategies to encourage Malaysian citizens towards healthy consumption.

The research findings show that feeling rewarded from the consumption of functional foods, belief in the necessity for functional food to be consumed in order to be healthy, and having strong self-efficacy are important in influencing the behavioural intention towards functional food consumption among Malaysian consumers. Therefore, to formulate effective marketing promotions, marketers should emphasise the rewards that consumers will obtain from the consumption of functional foods, for example, lowering the cholesterol and blood pressure levels, and many other health advantages. Therefore, individuals will be more incline to rise their consumption of functional foods, if they can appreciate more rewards from consuming functional foods.

The results also demonstrated that Malaysian consumers are lacking in confidence and trust towards food safety and benefit claims by the manufacturers of functional foods and this could be due to skeptical feeling towards functional food among them. The lack of trust and confidence among Malaysian consumers towards health related product especially concerning the health claims and side effect might hinder them from buying and consuming functional food products. Thus, marketers should provide an encouraging testimony and scientifically proven messages about health claims of functional food products.

This study suggests that marketers should persuade individuals that functional food consumption is important for improving bodily functions and needed to maintain healthy life. Therefore, the advertising and promotional strategies of functional food products should focus more on the health benefits of such products and the well-being of the users. For example, some people are more concerned about their body weight and image rather than the prevention of diseases. Therefore, marketers should promote functional foods as a necessary product to maintain good health as well as to increase a good bodily image.

Many studies have shown that, if individual have a strong self-efficacy, they will be more confidence in performing the behaviour (Ajzen, 1991; Tolma et al., 2006), and associated to good health, better social integration and higher performance (Schwarzer & Fuchs, 1995). Therefore, government campaigns, community-based and social marketing programmes should also focus on strategies that can increase the level of self-efficacy of individuals towards healthy consumption.

Bandura (1986) reported that, indirect monitoring, and verbal encouragement and reinforcement can increase an individual's self-efficacy. For example, when applied to healthy consumption behaviour, an individual could be coached the steps required in avoiding NCDs through a healthy diet, such as consuming more functional foods, fruits and vegetables and avoiding eating oily and fatty food. In addition, campaigns and advertisements relating to the benefits of consuming a healthy diet or the negative effects of not consuming a healthy diet should be continuously exposed to the target population. Furthermore, in the planning of tailored health communication interventions towards a healthy lifestyle through functional food consumption, marketers and the government can develop the right messages in the advertisement and media campaign

(for example: eating functional food can prevent heart diseases) to be delivered by the appropriate sources such as nutritionists, dieticians, physicians and celebrities. Thus, this may contribute to strong self-efficacy on the part of the individual towards consuming functional food and a healthy diet.

Other than that, the government, particularly the Ministry of Health, can use the results from this study to develop educational campaigns and design behavioural change models aimed at improving dietary behaviour and the health of Malaysians, as well as to reduce the number of NCD patients in Malaysia. The understanding of consumer attitudes, perceptions, motivations and behaviours will help to tailor the diffusion of health information and promotional campaigns, so that it will motivate Malaysian citizens to achieve optimal health through a balanced diet and a healthy lifestyle.

The interest in losing weight, to maintain the ideal body figure and a captivating self-image among individuals becomes more important than being healthy when making a decision about food choice. Therefore, for the target group that has less experience with functional food consumption, attempts to change their behaviour may include health reminder interventions and modifying social images. Therefore, the government should also emphasise programmes that promote healthy body images and ideal weight rather than focusing on preventing diseases, especially for women and schoolgirls.

In addition, Glynn and Clemens (1995) reported that strategies that increase the awareness of knowledge and skills in the selection of functional foods, combined with the availability of such foods, would help the consumers in obtaining them. Thus, the Malaysian government can play its part in initiating policies to ensure that healthy food including functional food is available, accessible and affordable for Malaysians to buy

because this will facilitate and encourage consumers towards practicing healthy consumption.

Additionally, the results reveal that older people, married consumers, and females demonstrate a higher level of intention to consume functional foods among Malaysian. Consequently the decision-making process towards functional food consumption and the effect of intervention can be different based on these factors. Thus, marketers can understand the factors that may predict healthy eating behaviour among people of a different age, marital status, and gender, as well as in the ethnically diverse populations in Malaysia, so that the information can be used to develop the right functional food products and the ideal messages in the advertisement and media campaign targeted to relevant market segments.

5.5 Limitations and Future Research Directions

In the previous chapter, it has been discussed that this research explored the Malaysian consumers' behaviour towards functional food in general. Therefore, questions referring to all the constructs in this study referred to the general concept of functional food without focusing on different functional food categories. However, Poulsen (1999) argued that functional foods should be examined as different food categories and not as one homogeneous group. Therefore, for future research, the study should focus on specific functional food categories with separate unique components that could cure different health problems or reduce the risk of different disease, because when consumers are making a choice towards functional foods, their reasons are dissimilar within the separate food categories (Urala & Lahteenmaki, 2004).

Consequently, different categories of functional food may have a different effect on the behavioural consumption of the consumers.

From a methodological standpoint, the limitations of this study may include the selection of samples. The collection of data was confined to only one area, the Klang Valley. These features may not be reflective of the overall population in Malaysia. Thus, the results cannot be used to generalise to the whole population of Malaysia. Future studies should therefore be extended with data collection in other part of states to portray the real picture of functional food consumption in Malaysia. Moreover, the data in this study were obtained randomly from adult consumers (aged 18 and above) who went shopping in selected supermarkets in the area of Klang Valley. For future research, it would be practical to attain a wider sample of adult consumers, teenagers and/or college/university students.

With the assumption of stable determinants, this research involved cross-sectional design and the variables relied on subjective self-reporting measured by the past behaviour of the consumers. Although, cross-sectional designs may effects questionnaires to be more liable to consistency bias that may escalate the relationship between the variables (Budd, 1987), nevertheless, in this study, the well-established and reliable scale was adopted for most variables, and pilot study was conducted to confirm the reliability of the questionnaires and no replicating between variables.

The efficacy of the modified TPB model in this study in predicting behavioural intention towards functional food in a Malaysian sample may provide a useful framework for further research in this behavioural domain. For example, the results of this study have revealed that different constructs had a different impact on the behavioural intention to consume functional food. Thus, the constructs that explain a

minimal amount of the behaviour variance should be replaced with other constructs for future research. Baron and Kenny (1986) stated that the mediation effect is of interest to many social science researchers. Therefore, for future research, it is interesting to investigate if consumer-behavioural intention in this model plays a role as mediator between the independent variables and consumer-consumption behaviour.

Despite the limitations discussed above, the results and recommendations are important to consumer behavioural domain of functional food, functional food industry and academic perspective.

5.6 Conclusion

The study was conducted to examine the influence of reward, necessity, confidence, safety, social influence and self-efficacy on behavioural intention to consume functional foods among Malaysian consumers, to examine the relationship between behavioural intention and consumption behaviour, and at the same time to examine the moderating effect of past experience on the relationship between behavioural intention and consumption behaviour towards functional food. The SPSS was applied to test all of the hypotheses in this study.

The results of the present study suggest that behavioural intention towards functional food among Malaysians has a positive influence on the consumer-consumption behaviour of such food and it is compatible with prior research. Therefore, it should be noted that behavioural intention of Malaysian consumer in this study is positively linked to consumer-consumption behaviour.

With regards to the factors influencing behaviour intention among Malaysian consumers, it was found that the reward, self-efficacy and the necessity are the

antecedents that influence the consumer-behavioural intention to consume functional food in their daily diet. It can be concluded that consumer-behavioural intention appears to be facilitated by the perceived reward and necessity. In other words, Malaysian consumers believe it is necessary and important for them to consume functional foods in order to obtain the positive reward in terms of good health, well-being and healthy lifestyle. In addition, a strong self-efficacy that internally motivate consumers to be healthy drives them to seek for healthy food, such as functional foods, which they believe are associated with health benefits, wellness and longevity.

Apart from being an antecedent that affects the behavioural intention to consume functional food, self-efficacy was also appeared to have a direct positive correlation with consumer-consumption behaviour of functional food among Malaysian. This reveals that the strong self-efficacy that Malaysian consumers have does translate into healthy consumption (i.e. the consumption of functional food). The study concludes that self-efficacy was a good predictor towards consumer-behavioural intention and consumer-consumption behaviour in this model.

It appears that the relationship between behavioural intention and the functional food consumption behaviour of Malaysian consumers is improved with the presence of the feeling of using functional food (a dimension of past experience) as a moderator. This shows that intrinsic factors of past experience, such as feeling recompense (for example feeling healthy, happy, good and energetic) by using functional food, are relevant in enhancing the consumption of functional food behaviour. In other words, the moderator of feeling of using functional food has helps to bridge the gap between the intention and behaviour construct in this study.

Finally, the findings demonstrated that the modified TPB model in this study was found to be a good framework to explain and predict behavioural intention and consumption behaviour towards functional food among Malaysian consumers.

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