Factors Influencing Purchase Intention towards Dietary Supplement Products among Young Adults

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Abstract

This study aimed to explore the factors affecting young adults' purchase intention towards dietary supplement products. These factors included attitude towards consuming dietary supplements, subjective norms, perceived behavioral control, as well as demographic characteristics such as gender, income, and residential area. 300 respondents were equally recruited from the internet and also UTAR, Kampar campus to complete the questionnaire. Findings concluded that perceived behavioral control, subjective norms, and attitude significantly predicted the purchase intention of dietary supplement products. Among these variables, subjective norms was the strongest predictor. Besides that, demographic characteristic such as gender difference was found significant in purchase intention of dietary supplement products. In contrast, there was no significant difference found between types of residential area in purchase intention of dietary supplement products. A significant and positive relationship between income and purchase intention was discovered. The findings strengthened the Theory of Planned Behavior (TPB) of predicting purchase intention of dietary supplement products among young adults. Subjective norms, being the most significant predictor of purchase intention could also be constructive for marketers to effectively publicize dietary supplement use.

Keywords: young adults, purchase intention, dietary supplement products, attitude, subjective norms, perceived behavioral control

Chapter 1 Introduction

1.1 Background of study

Health care related issues, ranging from increasing rates of chronic diseases, reduced life expectancy and growing health care expenses are common globally. This phenomenon could be seen in both developing and well developed societies. Our community is gradually aware that the progression of chronic diseases is highly associated with the sedentary lifestyles that we possess now. There are increasing number of evidence connecting the dots between nutrition and health which has motivated many consumers to take up self-treatment using dietary supplements, aimed to build up their immune system and prevent disease (Rajamma & Pelton, 2010; Ren, Chung, Stoel, & Xu, 2011). Therefore, dietary supplement products are gaining their popularity in the marketplace and are of interest for knowledgeable consumers (Blendon, DesRoches, Benson, Brodie, & Altman, 2001).

In Malaysia, the trend of health and well-being is also catching up with the global pace. Health care products are often perceived to be easy alternatives to support and sustain their general health (Greger, 2001). Dietary supplements market in Malaysia is enormous and it is estimated to get bigger substantially along with its vast contribution to the country's economy. In 2006, the expenditure of health care products and medical services in Malaysia gone up greater than 231%, arriving at RM8.4 billion in 2007 (Euromonitor, 2009). As a result, consumption of dietary supplements shows clear importance on maintaining health and well-being, as well as market prospect and even national health policy.

Young adults' health conditions are particularly important for the nation as they are worthy assets of human capital. Furthermore, as the nation's future leaders, young adults' attitudes and beliefs will possibly impose an influential impact on the society norms and values regarding health (Leslie, Sparling, & Owen 2001). However, young adults who are

already healthy will not be easily convinced to practice precautionary behavior towards health and wellness especially when outcomes could not be experienced immediately. Above all, health interventions are vital component that need major highlights towards young adults as dietary habits are expected to persist as they become older (Kelder, Perry, Klepp, & Lytle, 1994; Birch & Fisher, 1998).

Knowing that dietary supplements' popularity is on the rise and young adults are adhering to this health revolution, there is a necessity to explore the underlying purchase intentions for this expanding market. According to Brown (2003), possessing buying intention towards certain products leads to higher chances of actual buying behaviour as compared to possessing no buying intention. Therefore, consumer's intention of buying dietary supplements is the beginning of building demand for dietary supplement products. This relatively important piece of information could help to understand consumer actual needs and motivation, in order to fulfil them and retain market competitiveness.

Numerous psychological theories have been widely served to describe the course of buying decision of consumers for various categories of products. In particular, the Theory of Planned Behaviour (TPB) is a rather advantageous context for handling the sophisticated human behaviour (Ajzen, 1991). Therefore, TPB is integrated in this study to predict the buying intentions of young adults on dietary supplements based on their attitudes towards consuming dietary supplements, subjective norms and perceived behavioural control.

Recently, there are many researches done regarding dietary supplement consumption, but there is less literature discussing about the motives behind the usage of dietary supplements among young adult. Therefore this gap provides with an aim for this research.

1.2 Problem statement

The development of technology, economics and science brings a big change to the world which improves the quality of living. However, this change may be potential threats to the society especially health, which is a result of diseases and malnutrition in processed food. In order to prevent diseases and replenish lacking nutrients in food, people tends to consume dietary supplement (Ooi, 2009). Thus, understanding the purchasing intention of dietary supplement will be an important element which contributes to the growth of the dietary market in future.

Unfortunately, dietary supplements may have potential problem to people so it is not always beneficial to our health (Woo, 2007). In addition, the use of dietary supplement products may possess excessive dosage of chemical and nutrient substances that exceed normal requirement (Zeisel, 2000). Therefore, the safety issues of dietary supplements are often questioned by people. Other than that, previous research has indicated that an optimal health can be achieved and several diseases can be prevented by enrolling a healthy diet instead of consuming dietary supplements (Auechotpanich, 2008). However, the global consumption of dietary supplements is continuously increasing till present (Radimer, Bindewald, Hughes, Ervin, Christine, & Picciano, 2004). Hence, it is crucial to determine the reasons people intent to buy dietary supplements even it may put them in risk.

The increased popularity of dietary supplements has impacted the amount of dietary supplements consumed by young adult to gradually increase (Bailey et al., 2011). Furthermore, past studies suggested that rates of herbal and dietary supplements consumption in young adults are highest among those who are involved in risky behavior such as smoking and drinking alcohol (Gardiner, Kemper, Legedza, & Phillips, 2007). Numerous studies also found that young adults who are involved in sports have a higher prevalence of using dietary supplements (Gardiner et al., 2007). For example, athletes who participate in weight class-

controlled sports such as rowing or boxing are involved in weight loss practices and restriction of daily calories intake in order to achieve standard weight for competition (Oppliger, Case, Horswill, Landry, & Shelter, n.d.). Therefore, dietary supplements are to ensure that athletes' balanced nutrition needs are met (Petraszko, 2013). Due to this, the factor or intention of young adults in purchasing dietary supplements is diverse. Thus, understanding the intention of young adults buying dietary supplement products would be effective to promote healthier lifestyle in this age group.

Gender difference was found to exist in purchasing dietary supplement products. A study conducted in Beijing, China has stated that the proportion of old females taking dietary is 60% higher than males (Chen, Liu, & Sun, 2006). In addition, few studies have stated that females are the main population of dietary supplement users (Brownie, 2006; Chen, Lin, Kao, & Hang, 2005; Slesinski, Subar, & Kahle, 1996). The reason why females consume more dietary supplements is because females are more concerned with their physical appearance so they consume dietary supplement to fight against aging problem. They pay more attention to maintain their health as compared to males as well (Ren, 2009). Although it was clear that gender difference exists in the behavior of buying dietary supplements, there is less research to examine the gender difference in purchasing intention of dietary supplement products.

Moreover, many studies have discovered that people who received high monthly income are more likely to consume dietary supplement (Chen et al., 2005; Jong, Ocke, Branderhorst, & Friele, 2003; Slesinski et al., 1996). For example, the proportion of consuming dietary supplements within people who have strong economic abilities is three times more than people who have difficult economic situation (Chen et al., 2006). This shows that there is a positive relationship between income and the proportion of dietary

supplements consumption. However, there is little research on the study of the relationship between income and purchase intention of dietary supplement.

Last but not least, research discovered that people who live in the urban area may not have time to prepare nutritional food, making them more prone to have malnutrition problems. Due to this, they tend to seek for solution by using dietary supplements to replenish the nutrients their body needs (Chowtanapanich & Chaipoopirutana, 2014). On the other hand, people who are living in rural area may have sufficient time to prepare food on their own, causing them to less likely take dietary supplements (Regmi & Dyck, 2001). Limited research has been conducted to explore the relationship between the purchase intention of dietary supplement and residential area.

1.3 Research Objective

Several research objectives were proposed for achieving the primary goal of our study. The main objectives of this study are:

1. To discover the effect of attitude towards purchase intention of dietary supplement products among young adults.
2. To discover the effect of subjective norms towards purchase intention of dietary supplement products among young adults.
3. To discover the effect of perceived behavioral control towards purchase intention of dietary supplement products among young adults.
4. To discover the unique predictor among attitude, subjective norms, and perceived behavioral control of affecting purchase intention of dietary supplement products among young adults.
5. To discover the effect of demographic characteristic (gender, income, residential area) towards purchase intention of dietary supplement products among young adults.

1.4 Research Question

Several research questions were developed based on the research objectives. The research questions are as follow:

1. Which is the unique predictor among attitude, subjective norms, and perceived behavioral control of affecting purchase intention of dietary supplement products among young adults?
2. Does gender difference exists in purchase intention of dietary supplement products among young adults?
3. Is there a difference between income variable towards purchase intention of dietary supplement products among young adults?
4. Is there a difference between types of residential area towards purchase intention of dietary supplement products among young adults?

1.5 Research Hypothesis

H_1: At least one of the predictor among attitude, subjective norms, and perceived behavioral control do predict purchase intention of dietary supplement products among young adults.

H_2: There is a significant difference between male and female towards purchase intention of dietary supplement products among young adults.

H_3: There is a significant difference between income variable towards purchase intention of dietary supplement products among young adults.

H_4: There is a significant difference between types of residential area towards purchase intention of dietary supplement products among young adults.

1.6 Significance of study

This study will be a significant endeavour in raising the awareness of the public regarding the rationale of purchasing dietary supplements in the mist of unguaranteed benefits. The greater demand for health-benefitting dietary supplements justified the need for understanding underlying purchasing behavior's encouragement, so that consumer will be educated about the fundamental of their action in buying. Moreover, recognizing the intention of buying dietary supplements can provide policy makers and associated authorities with insights in promoting health interventions to the public. By understanding the reasons why young adults involve in purchasing dietary supplements, manufacturers and providers could effectively confront the emerging dietary markets with appropriate marketing strategies. They can also be benefitted from the results derived from this study to revise their approach in this particular market, considering gender, income and residential area differences exists in purchasing dietary supplements. Other than that, our research could provide insight on the appropriateness of Theory of Planned Behavior to specifically identify factors affecting purchase intention towards dietary supplement products among young adults.

1.7 Definitions

Purchase intention. Intention refers to an individual's conscious drive or decision to put effort on executing the behaviour (Ooi, 2009). In the current study, purchase intention is defined by a person's subjective view as how possible that the buying behavior will happen which eventually determine one's purchase behaviour of dietary supplement product.

Attitude. Attitude has been characterized by Mitchell and Ring (2010) as having negative, neutral, or positive evaluations towards either objects or performing particular behaviours. Here, attitude refers to evaluating a specific behavior which is buying dietary supplement products as negative, neutral, or positive.

Subjective norms. Subjective norms are the common social strains that may take place from executing or not executing a behaviour (Mitchell & Ring, 2010). In the study, subjective norms denote one's subjective view on social pressure of whether to buy or not to buy dietary supplement products.

Perceived behavioral control. Perceived behavioral control signifies how an individual comprehend the simplicity or difficulty of engaging in a behavior of interest (Ajzen, 1991). Thus, a person with perceived behavioral control shows that he/she is capable and confidence of taking control over purchasing the dietary supplement products.

Dietary supplement products. Dietary supplement products are targeted to complement the diet with dietary ingredient such as vitamins, minerals, herbs or other botanicals, and other substances, which exist in various forms like tablets, capsules, liquids or powders (FDA, 2006).

Young Adults. According to Erikson's eight developmental stages, young adulthood is characterized as people in 19 to 40 years old (Sacco, 2013). Therefore, we define young adults as an age group comprising people from 19 to 40 years old.

Gender. American Psychology Association (2011) defined gender as the attitudes, feelings, and behaviors that a certain culture relates with one's biological sex. In this study, we refer it as the status of being a male or female.

Income. Income has been described as the greatest amount that can be used in a certain period while having actual wealth unchanged (Ruser, Pilot, & Nelson, 2004). Here we define income as the money accepted by individuals for the contribution in production from government and business transfer payments.

Residential Area. Residential area can be categorized into two areas: Rural and Urban. Rural refers to towns outside the zone of urban centre which has less population and large amount of undeveloped land (Rothwell, 2010). The job availability is less, lacking of high-tech system, and the distance between houses is bigger than the urban. On the other hand, urban has large population, incorporates the elements of economic organization, social and the transformation of natural environment to a built environment (Weeks, 2010). It is well developed, full of job availability, and has good connection of transport.

Chapter 2 Literature Review

2.1 Theoretical Framework

Nowadays, the usage of dietary supplements is growing as compared to the past and the reasons that people use dietary supplements are complex and wide. According to Petraszko (2013), psychological, social and knowledge factors have been shown to affect the decision of an individual to use dietary supplements. In this research, Theory of Planned Behavior (TPB) will be used to determine the reasons behind wellness behaviors and the use of dietary supplements.

The Theory of Planned Behavior (TPB) was invented by Ajzen in 1991 to explain that human behavior is predictable by psychosocial components (Klama, 2013). Theory of Planned Behavior is derived from the Theory of Reasoned Action which was introduced by Fishbein and Ajzen in 1975, suggesting that attitude and subjective norms will determine individuals' intention to perform the given behavior and it also assumed that social behaviors of human is under volitional control, thus it can be predicted from intention alone (Fishbein & Ajzen, 1975). However, people may sometimes lack complete volitional control over the behavior (Hasbullah, Mahajar & Salleh, 2014). For instance, a person who intends to apply a position in a company, even he has done everything in his power to apply the position, it is not guaranteed that he will get the position. The lack of control in this case revealed that getting a position requires actions not only in the part of the applicant but it also depends on the action of other individuals. Due to this, Theory of Planned Behavior was created that broadened TRA to deal with the situations which people may lack complete volitional control over the behavior, in other words, it is used to predict non-volitional behaviors by incorporating the construct of perceived behavioral control which is an additional predictor of intentions and behavior in the model (Ajzen, 2002; Visintin, Crovato, Falvo, Ravarotto, &

Capozza, 2012). There is no difference in the ultimate goal between TPB and TRA which is served to predict behavior. However, both theories only predict the behavior rather than explain the behavior (Conner & Sparks, 2005).

The most important element in TPB is the person's intention to perform the behavior. Intention is the motivation and willingness of an individual to perform behavior which involves how hard a person is willing to try, how much effort a person is planning to utilize in order to perform the given behavior. In general, when the intention is stronger, the more likely the actual behaviors are performed (Ajzen, 1991). TPB consists of three constructs: attitude toward the behavior, subjective norms and perceived of behavioral control that impact an individual behavioral intention (Ajzen, 1991). Thereafter, the intention of the person would influence their behaviors (Krzeski, Zoellner, Chen, Estabrooks, & Ozanne, 2011).

First of all, attitude toward the behavior is defined as the degree to which an individual's evaluation of the given behavior and the consequences of engaging in that particular behavior (Petraszko, 2013). The evaluation of behavior and its outcome can be favorable (beneficial, pleasant) and unfavorable (harmful, unpleasant) (Hasbullah, Mahajar, & Salleh, 2014). TPB suggest that if an individual perceives that the outcome of the particular behavior to be positive or beneficial and places a high value to the consequence of the particular behavior, then his attitude toward the behavior is favorable. The favorable thought will then influence the person's intention to perform the particular behavior, and eventually the person's decision to engage in particular behavior (Ajzen, 1991). For instance, if an individual evaluate that having a balanced diet will reduce risk of obesity, and he/she places high value on reducing the risk of getting obesity, then TPB would state that the individual's attitude toward having balanced diet is favorable which in turn influences the

intention of the individual to have balanced diet, and therefore the decision to enrol in having balanced diet.

The second construct of TPB is subjective norms which are described as pressures of social to perform or not to perform the given behaviors. If a person believes that the behavior is to be considered acceptable by others, then the person is more likely to have an intention to perform that behavior (Azjen, 1991). In addition, TPB stated that individuals will engage in behavior if the people who are important (which describe as "salient referents" like peers or family members) to them expect them to do the given behavior (Klama, 2013). For instance, if a person's wife encouraged him to take balanced diet and the person valued their relationship, the person's subjective norms would then affect his intention to take balanced diet. However, individuals who have positive attitude toward certain object or behavior, when pressured by important people such as wife, children or peers not to do it, individuals would then have unfavorable attitude towards the behavior which in turn will reduce the intention of individuals to perform that behavior (Hasbullah, Mahajar, & Salleh, 2014).

The third construct of TPB is perceived behavioral control (PBC) which refers to one's perceived ease and difficulty of performing behavior, in other words, PBC is an evaluation of perceived control over the given behavior like how easy or difficult displaying the certain behavior will be (Ajzen, 1991). It also refers to a person's reflection of the availability of resources and opportunities that his/her has in order to perform the behavior (Ajzen, 1991; Taylor & Todd, 1995). For example, if a person is going to buy a product, he/she will find more resources such as time, knowledge of the product, the price and etc., before committing to buy that product. Moreover, PBC is important in explaining the individuals' behavior especially when they do not have complete volitional control over the behavior due to external factors (such as opportunities, barriers or dependence on other

people) or internal factors (information, skill, emotions and personal deficiencies) which inhibit them to perform certain behavior (Chiou, 1998). For instance, the lacking of knowledge about preparing a balanced diet, and lacking of chance to take balanced diet could influence the perceived behavioral control and this would then affect the intention to take a balance diet (Ajzen, 1991). A person who has high perceived behavioral control of performing given behavior will have high intention in performing that behavior and thereafter perform that behavior (Ajzen, 1991). However, PBC possess a direct influence on the behavior (see Figure 1). People that engage in a behavior not only rely on the motivation or intention, but also depend on the person's control of behavior. If the person has limited control over the behavior, the person would not decide to engage the behavior, even if there is strong motivation or intention (Krzeski, Zoellner, Chen, Estabrooks, & Ozanne, 2011).

In general, the more positive the attitude of a person has, the more favourable subjective norms with the given behavior, and the greater perceived behavioral control of given behavior, the greater the individuals' intention to perform the given behavior (Ajzen, 1991; Gracia & Magistris, 2007). Overall, these three constructs, attitude, perceived behavioral control and subjective norm, affect the intention of an individual in performing a behavior, which subsequently influence the behavior (see Figure 1).

In addition, Theory of Planned Behavior has used in more than 1000 empirical studies in different areas (Urban, Zvěřinová, & Ščasnýurban, 2012). For instance, these areas were inclusive of consumption behavior, social deviance, school performance, and etc. but the greatest part of studies has been revealed in the area of health-related behavior (Ajzen, 2012). Besides, several studies had also used TPB to explain the purchasing of organic food (Gracia & Magistrics, 2007; Thøgersen, 2009; Yazdanpanah & Forouzani, 2015; Arvola et al., 2008; Irianto, 2015; Saleki, Seyedsaleki, & Rahimi, 2012; Dean, Raats, & Shepherd, 2008). Some

of these studies focused on the prediction of purchase behavior (Gracia & Magistrics, 2007; Thogersen, 2009; Saleki, Seyedsaleki, & Rahimi, 2012) whereas the other tended to explain intention of buying organic food and other health related products. However, there were only few studies which applied Theory of Planned Behavior to explain people's purchase intention in buying dietary supplement products.

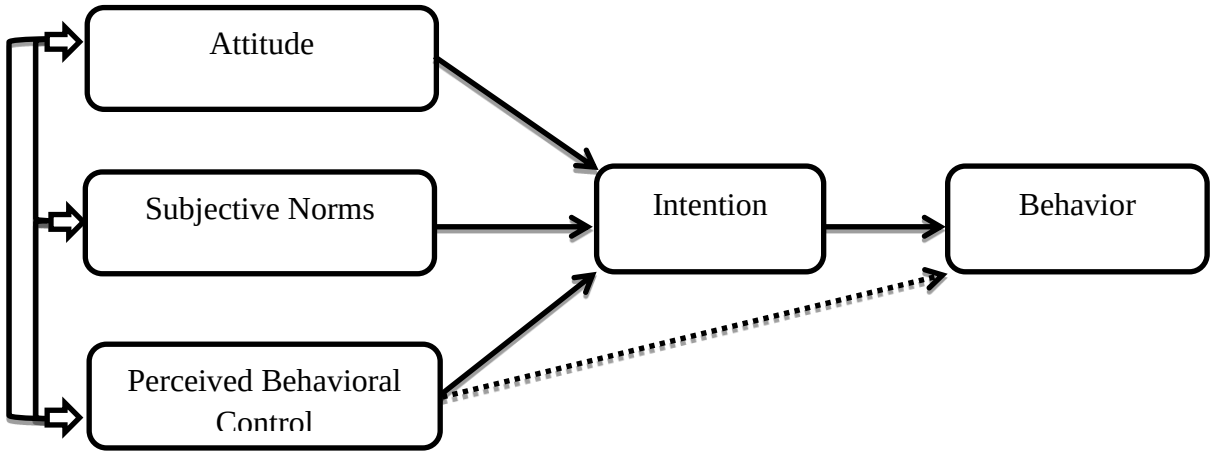


Figure 1. Theory of Planned Behavior. Adapted from "The Theory of Planned Behavior" by I. Ajzen, 1991, *Organizational Behavior and Human Decision Process, 50,* 179-211. Copyright C 1991 by Academic Press. Inc.

2.2 Purchase intention

Intention is defined as an individual's motivation or willingness to perform or not to perform any given behaviors (Klama, 2013). In the Theory of Planed Behavior, intention refers to the antecedent of behaviors, in other words, intention is a predictor of behavior which indicates that if a person has stronger intention to engage in a behavior, he would then more likely to perform that behavior (Ajzen, 1991). Besides, intention has been applied and studied frequently by researchers in the marketing field and was found that the purchase behavior is affected by intention (Ismail & Mokhtarb, 2015).

In our study, we are interested to find out the factors that influence purchase intention of dietary supplement products. According to Eide (2013), purchase intention refers to the preference of people to buy the services or product. It plays an essential role to the actual purchase behavior and is also an important predictor of purchasing behavior of consumers (Gomes & Neves, 2011). Nowadays, many companies tend to use purchase intention to predict repeat purchasing of existing product and selling of new products (Ali, Khan, & Ahmed, 2011). Determining the factors that affect purchase intention of consumer would then help the company to have a better prediction on their sales performance.

Several factors were determined to be influencing the purchase intention of consumers towards health-related products. First of all, environmental concern has significantly predicted the consumer's purchase intention. Environmental concern refers to the degree to which individuals realize the present issue of environment and also their willingness to solve the environmental problem (Alibeli & Johnson, 2009). According to Lasuin and Ng (2014), environmental concern has significantly affected the green purchase intention of university students in Kota Kinabalu. In other words, the more people concern about environmental issues, the higher the intention of them to buy greens product. In addition, environmental knowledge which is certain understanding about environment or recycles has an impact on consumers' green purchasing intention (Haron, Paim, & Yahaya, 2005). A studied also revealed that environmental knowledge has significantly predicted the green purchasing intention (Azizan & Suki, 2013).

Moreover, the safety of products may influence consumers' purchase intention. A study found that safety of products has a larger effect on the consumers' intention to purchase organic food (Chiew, Ariff, Zakuan, & Tajudin, 2014). Other studies related to products safety and purchase intentions by Michaelidou and Hassan (2008) in United Kingdom,

discovered that product safety plays an important role on affecting purchase intention. Furthermore, Pino, Peluso, and Guido (2012) confirmed that product safety has significantly influenced occasional consumers' attitudes toward organic food, and then influenced purchase intention. On the other hand, a study conducted in Malaysia indicated that consumers in Malaysia place less importance on concern of product safety (Shaharudin, Pani, Mansor, Elias, & Sadek, 2010).

Other than that, purchase intention of consumers may be contributed by health consciousness. Health consciousness is the extent to which people have a sense of caution about their wellness. For instance, health conscious consumers are concerned about their wellness and aspired to maintain or improve their health and also to avoid disease in life (Newsom, McFarland, Kaplan, Huguet, & Zuni, 2005). A study related to health consciousness towards purchase intention of organic food found that consumers who placed high level on health consciousness have higher organic food purchase intention (Abdul Wahid & Rahbar, 2011; Shaharudin, Pani, Mansor, & Elias, 2010). However, Michaelidou and Hassan (2008) stated that there was no relationship between intention to purchase organic food and health consciousness, in other words, health consciousness cannot predict the purchase intention toward organic food of consumer.

Last but not least, other factors such as celebrity endorsement and product packing may possess an influence on the purchase intention of consumers. According to Younus, Rasheed, and Zia (2015), there was a positive relationship among celebrity endorsement, product packing and purchase intention. This is because the product used or endorsed by celebrity will increase the value of products and also give consumer a sense that the particular product is reliable. Likewise, packaging of product like colorful packing or grotesque shape affects purchase intention as it attracts the attention of consumers.

2.3 Attitude

The Theory of Planned Behavior proposed that the more positive one's attitude towards engaging in certain behaviour, the more possible that he/she will execute the behaviour (as cited in Yap, Noor, Marshall, & Liew, 2014). In agreement with this well-examined proposition, attitude was found to be positively influencing behavioural intention in various health-related contexts.

In a study conducted by Petraszko (2013) utilizing Theory of Planned Behaviour to predict multivitamin/mineral supplements use, attitude has predicted behavioral intention towards purchasing multivitamin/mineral supplements. Participants with positive attitudes had higher chance to report intention towards using multivitamin/mineral supplements. Moreover, Mitchell and Ring (2010) has discovered that attitude is the best predictor of purchase intentions towards functional food among three elements of Theory of Planned Behavior which are attitude, subjective norms and perceived behavioural control. In line with the findings, Yazdanpanah and Forouzani (2015) explored that attitude was the main determinant of consumer's intentions towards buying organic food among Iranian undergraduates.

Besides that, Mitchell and Ring (2010) found out that attitude may be the result of behavioural beliefs, which are characterized as one's beliefs about the possible positive or negative outcomes of conducting certain behaviour. Positive behavioural beliefs towards functional food such as providing health benefits, decreasing the impact of health related illnesses and convenient to improve the health had led to positive attitudes towards purchasing functional food. Pawlak et al. (2008) supported the findings as well in determining the predictors of the Caucasian college females' consumption of multivitamin supplements. Behavioural beliefs such as taking multivitamin supplement everyday would

help to feel better and get nutrients we are unable to get in diet, had influence behavioural intention to buy multivitamin supplements significantly.

Chung, Stoel, Xu, and Ren (2012) confirmed that there was a positive relationship between attitudes and the intention of purchasing soy-based Dietary Supplements in Chinese consumer context. It has also been discovered that consumer attitude positively affect behavioural intention towards consuming dietary supplements among undergraduates in Malaysia (Yap, Noor, Marshall, & Liew, 2014).

2.4 Subjective norms

Some studies had been conducted to examine the influence of subjective norms towards purchase intention and showed dissimilar results. In a study of discovering the strongest predictor of purchase intention towards green food products in Indonesia women context, Sudiyanti (2009) has determined subjective norms to be the most considerable predictor. Corresponding to the finding, there was significant association between subjective norms and purchase intention towards functional food among Swedish consumer (Mitchell & Ring, 2010). The researchers also found out the underlying construct of subjective norms to be normative beliefs. Normative beliefs refer to one's evaluation of how likely that significant others will approve or disapprove a particular behaviour. In the study, people would behave consistently with doctor's and family's opinion regarding the buying of functional food (Mitchell & Ring, 2010).

Chung, Stoel, Xu, and Ren (2012) discovered that subjective norms have a positive effect towards purchase intention of soy-based Dietary Supplements in China as well. Furthermore, they found a significant influence of subjective norms on perceived behavioral control. This finding has revealed the Chinese collectivistic cultural features as one has more

confidence in his/her capability of managing the buying of dietary supplements if the significant ones around the person suggest him/her to consume the dietary supplements.

However, Petraszko's (2013) finding was differed from the above as he observed no significant correlation between subjective norms and intention to purchase multivitamin/mineral supplements among female collegiate lightweight rowers. Subjective norms were also found to be an insignificant predictor of purchase intention towards multivitamin supplements among the Caucasian college females (Pawlak et al., 2008). In addition, Yadav and Pathak (2016) reported that subjective norms had failed to reveal significant effect on the purchase intention of young adults in India towards organic food. This may imply that purchasing organic food has not become a social norm in developing country like India yet.

2.5 Perceived Behavioral Control

Perceived behavioral control (PBC) is an important variable known as the ability of an individual to take on the behavior in concern, under the assumption that he/she is rational in considering the consequences of his/hers actions (Ramayah, Lee, & Lim, 2012) and is found to be positively associated with behavioral intention.

For example, a study conducted by Petraszko (2013) concluded that female collegiate lightweight rowers who are high in PBC were more likely to have the intention in consuming multivitamin and minerals supplements. Study done by Pawlak et al. (2008) further supported the fact that greater PBC over taking multivitamin and minerals supplements were positively related to stronger behavioral intention for consumption among Caucasian college females.

PBC is linked towards attitude formation (Chung, Stoel, Xu, & Ren, 2010). Researchers found out that the novelty of soy-based dietary supplements in the Chinese market has strengthened perception of behavioral control. In such situation, consumers tend to be dependent more on perception of behavioral control when they think about making a purchase as their perceptions are likely to reveal their beliefs about accessing the products and their subsequent capability of controlling the behavior, and their attitude would be more positive if they are in control. In addition, PBC has a substantial effect on consumer attitude, supporting the fact that higher perceptions of behavioral control brings about more constructive attitudes towards dietary supplement purchases (Yap, Noor, Marshall, & Liew, 2014).

It was discovered that PBC significantly predicted purchase intention of organic food in Chinese context (Zhou, Thogersen, Ruan, & Huang, 2013). However, researchers added that the attempt of executing the research outside a supermarket that sells organic food might eventually weaken the effect of perceptions regarding the availability of organic products. In addition, consumers who participate appeared to base their intentions to purchase organic products on their attitudes while only making small modifications for perceived social expectation. Moreover, PBC was found to be reinforced by self-transcendence values such as being reliable and helpful (Zhou, Thogersen, Ruan, & Huang, 2013).

2.6 Gender

Various literatures have reflected inconsistent results in determining gender differences in purchase intention. For instance, Irianto (2015) discovered gender difference of purchase intention towards organic food, which female had stronger intention to purchase organic food compared to male. This was probably because female has more concern on environmental and health issues.

Chiew, Ariff, Zakuan, and Tajudin (2014) attempted to explore consumer's behaviour towards organic food products in Malaysia and demonstrated that gender differences exist in consumer purchase intention towards organic food products. In particular, women tend to possess higher intention to buy organic food products compared to men. This might be due to them being the main food shoppers of a household and thus have more awareness about organic food issues. Consistenly, Yazdanpanah and Forouzani (2015) discovered that male and female students had considerable difference in purchase intention towards organic foods which female tend to have higher purchase intention than male.

Nevertheless, some results were in contrast with the findings above. Male and female did not have significant difference in purchase intention of Blackmores products like vitamin, dietary, and herb supplement among non-Blackmores consumers in Bangkok (Chowtanapanich & Chaipoopirutana, 2014). Ren (2009) also discovered gender variable to be an insignificant predictor of purchase intention towards soy-based Dietary Supplements in Chinese context.

2.7 Income

Income has been an important demographic characteristic to consider in the attempt to discuss about intention as monetary status is often emphasized when considering making a purchase. Therefore, numerous studies have been conducted to examine the relationship within.

In southern Italy, income is positively affecting final organic food purchases which consumers with higher income have higher likelihood of purchasing organic food products; consumers with lower income are less likely to purchase organic products (Gracia & Magistris, 2007). According to Wu (2015), consumers' average monthly income positively influence purchase intention of sports food which higher income leads to more buying

intention. In addition, their intention is found to be eager to increase quality of life. Furthermore, researchers stated that household income has significant relationship with intention to purchase organic goods, especially in countries such as Europe, Canada and Australia (Aertsens, Verbeke, Mondelaers, & Huylenbroeck, 2009).

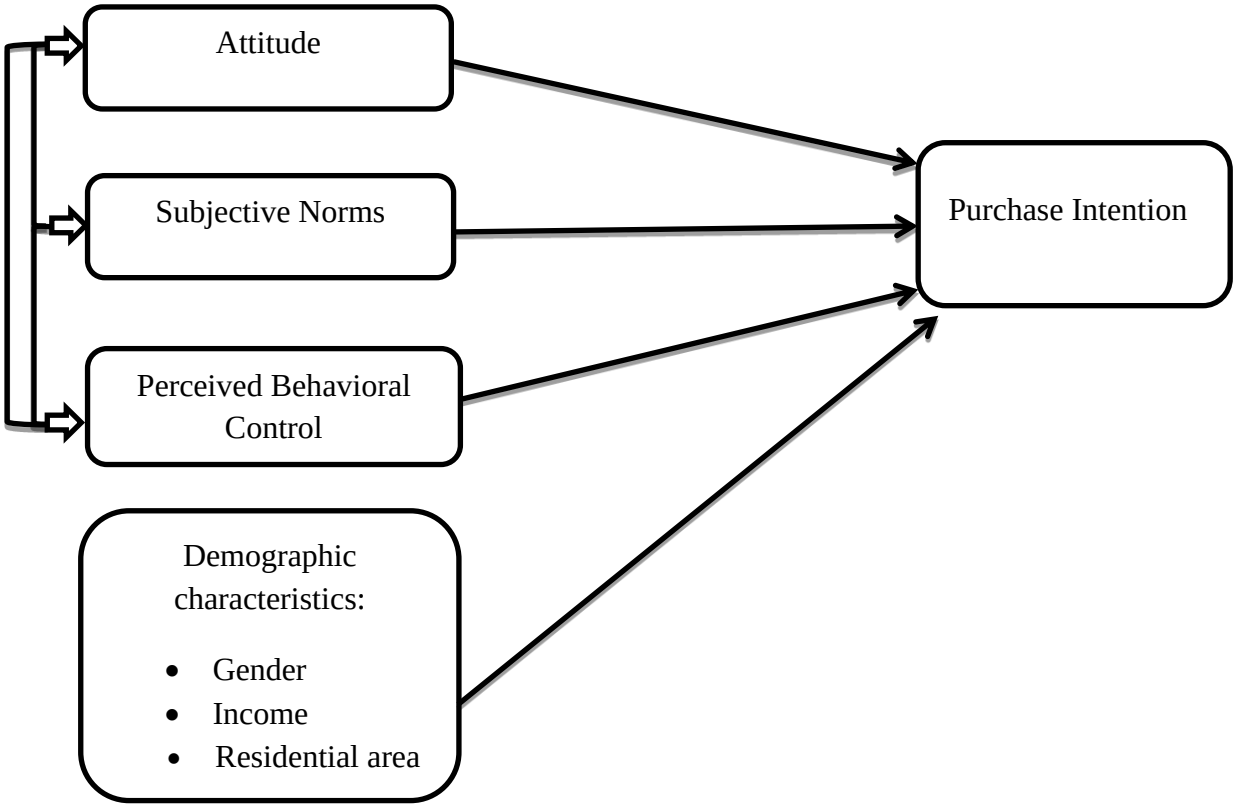
However, researchers suggested that there was no significant relationship between income and purchase intention of Blackmores product such as vitamin, dietary, and herb supplements (Chowtanapanich & Chaipoopirutana, 2014).

2.8 Residential area

A number of studies have been done to investigate the influence of residential areas: rural and urban, towards purchase intention of health related products, and showed similarities in their findings. Researchers concluded that there was a significant difference on purchase intention between rural and urban residential areas in Malaysia where urbanites are expected to be buying organic food products than those who were in the rural area (Chiew, Ariff, Zakuan, & Tajudin, 2014).

Meanwhile in Taiwan's northern urban area, it was found that participants have positive purchase intentions towards buying organic food. This may be due to the fact that they have higher educational background which eventually cause them to have the tendency to prefer natural produce, concern about food safety and are relatively health conscious (Hsu, Chang, & Lin, 2016). Moreover, in Iran, research showed that there was a significant difference between rural and urban students on the subject of purchase intention of organic foods (Yazdanpanah & Forouzani, 2015).

2.9 Conceptual framework



In conclusion, this research aims to study the effect of attitude, subjective norms, perceived behavioral control and demographic characteristics (gender, income, residential area) on purchase intention of dietary supplement products among young adults.

Chapter 3 Methodology

3.1 Research Design

Quantitative research design was utilized in this research to quantify the relationship between independent variable (perceived behavioral control, subjective norms, and attitude) and dependent variable (purchase intention). A structured questionnaire was used to collect response from a greater amount of people in a quicker and a cost-effective way.

3.2 Participants

Young adults aged from 19 to 40 were recruited as participants. There were two reasons that we focused on this particular age group. Firstly, they are the potential consumers of dietary supplement products and have the financial capability as compared to children and adolescent. Therefore, focusing on this age group will provide a better understanding about the factors contributing to the purchase intention towards dietary supplement products and helps to determine the product consumption pattern in the future. The second reason is that young adults would have some basic knowledge regarding dietary supplement products, so misinterpretation of the survey question can be avoided which may ultimately influence the outcome.

300 participants were selected as the sample in this research which about half of them were recruited through an online survey and the rest were recruited from UTAR, Kampar campus's library and lecture halls through paper-and-pencil questionnaire. The participants were consisted of 193 female and 107 male with the percentage of 64% and 36% respectively. The age of the participants were from 19 to 39, with a mean age of 22.81 years (SD = 3.07). Moreover, the participants were consisted of 283 Chinese (94.34%), 15 Indians (5%), one Malay and Punjabi which hold for 0.33% respectively. 236 of the participants were from the

urban area (78.67%) while 64 participants were from the rural area (21.33%). In terms of income, the average was RM937.58 (*SD* = RM1786.34). However, 183 (61%) of the 300 participants had no income because most of them were university students.

3.3 Sampling Technique

The sampling method utilized in this study was non-probability sampling. Convenience sampling was used to collect responses that were easy to access, which were through the internet and also distributing to students in UTAR, Kampar. Besides that, snowball sampling was also utilized through getting referrals from the initial respondents that answered the online questionnaire.

There was only one questionnaire for all of the participants. The participants were not direct representation of the general population as they were not randomly selected but were acquired mainly through easy accessible respondents from UTAR as well as the internet, especially through the researchers' personal social media circle and the referrals that they provided them with.

3.4 Data Analysis

Three statistical techniques had been used in this research to analyze the data that were collected. First, the presence of a relationship between income and purchase intention of dietary supplement products was assess through a Pearson Correlation Test. Second, independent sample t-test was carried out to test whether gender differs in purchase intention towards dietary supplement products; and to test if there is a difference between types of residential area towards purchase intention of dietary supplement products. Lastly, multiple regression was used to see whether the predictors (perceived behavioral control, subjective norms, and attitude) can predict the purchase intention of dietary supplement products; and to

determine which predictor is important to predict the purchase intention of dietary supplement products.

3.5 Instrument

The key variables in this study were measured using a self-administered, online and paper-and-pencil questionnaire. The questionnaire consisted of two sections: A) Demographic information such as age, gender, residential area, monthly income; B) Behavioral statements regarding perceived behavioral control, attitude, subjective norms, and purchase intention towards dietary supplement products. Following are the four key variables in research hypotheses that were assessed in the questionnaire.

Intention: Six items measuring respondents' purchase intention towards dietary supplement products were constructed grounded on the studies of Pawlak et al. (2008) and Francis et al. (2004). Participants responded on their agreement with statements about purchase intention towards dietary supplement products next month by a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). One of the sample items was "It is very likely that I will purchase dietary supplement products next month". The total score of intention was calculated by averaging the response on the six items.

Attitude: Five items for assessing respondents' attitude towards purchasing dietary supplement were adapted from Ren (2009). Participants evaluated their attitude on purchasing dietary supplement products on a semantic differential scale by utilizing a seven-point Likert scale. The items included usage of bipolar adjectives which are evaluative. For instance, "For me to purchase dietary supplement products next month for my health would be: Risky/Healthy". A value of "1" is given to "Risky" and "7" to "Healthy". Negative items such as item 13 and item 17 were reversed to ensure that higher numbers always reveal

a positive attitude to the aimed behavior. The overall score of attitude was then calculated by averaging the rating on five items.

Subjective norms: Five items to assess subjective norms were adapted from Pawlak et al. (2008) and Francis et al. (2004). Participants rated on their agreement with statements regarding their social pressure of purchasing dietary supplement products with a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). One sample item was "Most people who are important to me think that I should purchase dietary supplement products next month". The mean was calculated to obtain the total score of subjective norms from five items.

Perceived Behavioral Control: This construct was measured by four items that adapted from Francis et al. (2004). Participants are required to indicate their agreement with statement reflecting their confidence on purchasing dietary supplement products using a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). For instance, "I am confident that I could purchase dietary supplement products next month". Item 5 required reverse scoring as higher score showed higher perceived behavioral control towards the behavior. The total score of perceived behavioral control is then found by calculating the mean of four item scores.

A pilot test was conducted to identify whether the items are suitable to be used in the context. 30 data were collected using the same procedure as the main questionnaire. Respondents included 30 young adults (mean age=25.7). Reliability test was conducted and showed that the Cronbach's Alpha for the questionnaire items was acceptable, which was 0.96.

Francis et al. (2004) suggested that the items in the questionnaire to be mixed up, which means that the ordering of the questions should not be in accordance to the variables. Hence, the items were ordered randomly in the questionnaire as shown in Table 1.

Variable	**Total Number of Items**	**Statement**
Intention	6	1. I expect to purchase dietary supplement products next month. 2. It is very likely that I will purchase dietary supplement products next month. 4. I will purchase dietary supplement products next month. 7. I plan to purchase dietary supplement products next month. 14. I intend to purchase dietary supplement products next month. 18. I want to purchase dietary supplement products next month.
Attitude	5	For me to purchase dietary supplement products next month for my health would be: 6. Harmful/ Beneficial 10. Difficult/ Easy 13. Valuable/ Worthless 17. Good/ Bad 20. Risky/Healthy

Subjective norms	5	3. I feel under social pressure to purchase dietary supplement products next month. 8. My family (e.g. parents, siblings) thinks that I should purchase dietary supplement products next month. 15. Most people who are important to me think that I should purchase dietary supplement products next month. 16. It is expected of me that I purchase dietary supplement products next month. 19. My peers think that I should purchase dietary supplement products next month.
Perceived Behavioral Control	4	5. The decision to purchase dietary supplement products next month is beyond my control. 9. I am confidence that I could purchase dietary supplement products next month. 11. Whether I purchase dietary supplement products next month or not is entirely up to me. 12. It would be easy for me to purchase dietary supplement products next month.

Table 1: Measurement Items of the Questionnaire

3.6 Procedure

After constructing the questionnaire, it was then formulated in Google Drive and also in the form of paper and pencil questionnaire. A pilot test was then run through with 30 participants to obtain a reasonable reliability score before proceeding to finalizing the

questionnaire and towards the actual data collection. Next, half of the participants were given the link for the online questionnaire either personally or through an already established social media groups. They would then fill up the questionnaire accordingly, submit and forward to their friends (if they are willing to). In addition, we recruited another half of participants from UTAR, Kampar campus's library and lecture halls who completed the paper-and-pencil questionnaire. They were more accessible for us as we could not acquire enough from the internet. These participants voluntarily participated in the study and were not given compensation in any form. Final data were retrieved from Google Drive and the printed questionnaire, and then were analyzed in SPSS.

Chapter 4 Findings and Analysis

4.1 The effect of attitude, subjective norms, and perceived behavioral control in predicting purchase intention of dietary supplement products

H_1: At least one of the predictor among attitude, subjective norms, and perceived behavioral control do predict purchase intention of dietary supplement products among young adults.

To address whether perceived behavioral control, attitude, and subjective norms were correlated to purchase intention of dietary supplement products, a Pearson correlations test among these four variables were computed. It was found that attitude (M = 4.35, SD = 1.28) was positively correlated to purchase intention of dietary supplement products ($r(298) = .65$, $p < .001$), perceived behavioral control ($r(298) = .47$, $p < .001$), and subjective norms ($r(298) = .51$, $p < .001$) respectively. Furthermore, subjective norms (M = 2.90, SD = 1.36) was positively correlated to purchase intention of dietary supplement products ($r(298) = .82$, $p < .001$) as well as to perceived behavioral control ($r(298) = .29$, $p < .001$). In addition, perceived behavioral control (M = 4.00, SD = .89) was positively correlated to purchase intention of dietary supplement products ($r(298) = .51$, $p < .001$). These correlations were summarized in Table 2.

Furthermore, analysis of multiple regression was conducted to see whether perceived behavioral control, subjective norms, and attitude can predict the purchase intention of dietary supplement products. It was found that a linear combination of perceived behavioral control, subjective norms, and attitude was significantly correlated to intention of purchasing dietary supplement products $F(3, 296) = 344.67$, $p < .001$. The multiple correlation coefficient was .88, indicating that approximately 78% of the variance of the purchase intention can be accounted for by the combination of perceived behavioral control, subjective norms, and attitude. It was found that subjective norms ($\beta = .64$, $P < .001$), perceived

behavioral control (β = .22, P < .001) and attitude (β = .22, p < .001) had significantly predicted purchase intention of dietary supplement products. Subjective norms play an important contribution to the prediction in purchase intention of dietary supplement products (β = .64, $t(298) = 19.90$, p < .001) as compared to perceived behavioral and attitude. In other words, subjective norms was an unique predictor in predicting the purchase intention of dietary supplement products. These multiple regressions analysis was summarized in Table 3.

In short, $H_1$was supported which the independent variables (attitude, subjective norms and perceived behavioral control) do predict the dependent variable (purchase intention of dietary supplement products among young adults). We also found that subjective norms was the strongest predictor among the three predictors in the prediction of purchase intention of dietary supplement products among young adults.

Table 2

Correlation, Mean, and Standard Deviation for Regression of Purchase Intention of dietary supplement products (N= 300)

	1	2	3	4	*M*	*SD*
1. Purchase Intention	__	.65***	.82***	.51***	3.04	1.75
2. Attitude		__	.51***	.47***	4.35	1.28
3. Subjective Norms			__	.29***	2.90	1.36
4. Perceived Behavioral Control				__	4.00	.89

Note. ***p < .001.

Table 3

Variables Predicting the purchase intention of dietary supplement products (*N= 300)*

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	*t*	Sig.
Constant	-2.39	.23		-10.53	.000
Attitude	.30	.05	.22	6.38	.000
Subjective Norms	.82	.04	.64	19.90	.000
Perceived Behavioral Control	.44	.06	.22	7.16	.000

Note. Dependent variable: purchase intention of dietary supplement products; B = unstandardized beta; *t* = *t* statistic; $R = .88$; $R^2 = .78$.

A positive relationship exist between attitude and purchase intention of dietary supplement products which supported the TPB theory, showing that one factor that determined purchase intention was attitude (Ynag, Sarah Al-Shaaban & Nguyen, 2014). It presented that part of people's purchase intention was determined by the attitude they had towards the items (Chen, 2007). In addition, the result was consistent with previous researches which studied the antecedents of purchase intention for organic food, discovering that attitude had a significant positive effect on purchase intention (Saba & Messina, 2003; Chen, 2009; Tarkiainen & Sundqvist, 2005). Other than that, previous studies also found that people who reported to have positive attitude had higher intention to use dietary supplement which would then encourage them to buy dietary supplement products (Petraszko, 2013; Ren, 2009). The findings revealed that the more positive attitude people have toward the products, the higher the intention of people to purchase the products (Ajzen, 1991). The reason behind

these findings was that people who had a positive attitude towards health related products such as dietary supplement and organic food ,believed that these products were healthier, and benefitted to their body (Ynag, Shaaban & Nguyen, 2014).

Furthermore, the findings for perceived behavioral control (PBC) were consistent with previous studies that collectively reported that PBC can significantly predict intention of conducting health related behavior, such as purchasing dietary supplement products (Petraszko, 2013; Pawlak et al., 2008; Yap, Noor, Marshall, & Liew 2014; Zhou, Thogersen, Ruan, & Huang, 2013). This result may be due to the fact that dietary supplement products were unique products for young adults so they were likely to depend more on their views of behavioral control when they consider purchasing them. Their perceptions were to be the manifestation of their beliefs towards accessing the products and their subsequent capability to regulate the behavior, their ability to control were to be the consequent manifestation of their intention (Chung, Stoel, Xu, & Ren, 2010). Moreover, a study from Chiou (1998) had reinforced the fact that when a person has a lower self-confidence in evaluating a product, which in other words being not familiar with it, perceived behavioral control will then significantly affects his or her behavioral intention. This could briefly conclude why young adults' PBC could greatly predict their intention to purchase dietary supplement products in the study.

It was remarkable that the result showed that subjective norms was the strongest predictor out of the three construct in the prediction of purchase intention towards dietary supplement products. In other words, people were more likely to be influenced by the social context, their peers and family members on purchasing dietary supplement products which aimed to promote health as compared to attitude and perceived behavioral control. Therefore, the finding was in line with numerous studies on TPB which indicated that subjective norms

was the most important predictor of people's intention to conduct health-related behavior (Conner, Kirk, Cade & Barrett, 2001; Huchting, LaC & LaBrie, 2008; Sudiyanti, 2009). However, these findings were incongruent with several findings which stated that subjective norms did not significantly predict the purchase intention towards multivitamin/mineral supplements (Petraszko, 2013; Pawlak et al., 2008).

The reasons for these dissimilar findings might be that these studies were conducted in different cultural context. Eastern and western countries have different cultural characteristics where the eastern are collectivistic and the western are individualistic. The eastern were more sensitive to social pressure and emphasized more on interpersonal relationships. They were more tend to maintain group harmony and agreeable to comply with others' opinion. Thus, they would have higher purchase intention towards dietary supplement products if the important people (such as family members or friends) asked them to purchase. For example, a study in China had shown that 37 percent of people consumed dietary supplement products as a result of suggestions from family members and friends (Zhang, 2005). Findings of subjective norms as the most significant predictor of purchase intention had also been discovered in Indonesia, a collectivistic country (Sudiyanti, 2009). Thus, the finding revealing that purchase intention was best predicted by subjective norms can be explained by the context of the study which was in Malaysia, a collectivistic country.

On the other hand, the western emphasized more on achievement and personal freedom, believing that one should take care of himself rather than being loyal to a group. Furthermore, they perceived the media's (in the form of books and magazines) manipulation as an important role on the influence of purchase intention towards dietary supplement products rather than the people who were important for them (Conner et al., 2001). For instance, the repeated advertising will make people aware of the benefits of dietary

supplements, which in turn encourage them to buy dietary supplement products. Researches done among Americans, Canadian, and Caucasian which were from individualistic countries had also discovered that subjective norm was not a significant predictor of purchase intention towards multivitamin/mineral supplements (Petraszko, 2013; Pawlak et al., 2008). To conclude, subjective norms was vital in the prediction of health-related behavior such as purchase dietary supplement products, organic food and functional food that were claimed to improve health, and prevent health related diseases, especially in a collectivistic country. However, it was not certain to what extent such norms would influence the purchase intention in different cultural context.

4.2 Gender difference in purchase intention of dietary supplement products

H_2: There is a significant difference in gender towards purchase intention of dietary supplement products among young adults.

An independent sample t-test was conducted to examine whether a significant difference exist in gender on purchase intention of dietary supplement product. Male (M = 3.15, SD = 1.91) had significant greater purchase intention than female (M = 2.98, SD = 1.65), $t(298) = .80$, $p = .042$. This showed that male and female differ in purchase intention of dietary supplement products. Hence, H_2 was supported. The independent t-test result was shown in Table 4.

Table 4

Gender Difference in Purchase Intention of Dietary Supplement Products (N= 300)

	Male		Female				95% CI	
Variable	*M*	*SD*	*M*	*SD*	*t*(298)	*p*	LL	UL
Purchase Intention	3.15	1.91	2.98	1.65	.80	.042	-.25	.58

Note. Cl = confidence interval; LL = lower limit; UL = upper limit.

The findings on gender difference in purchase intention of dietary supplement products was in lined with previous studies which discovered significant gender difference in purchase intention of organic food products (Yazdanpanah & Forouzani, 2015; Irianto, 2015). However, it was interesting to note that these previous researches findings stated that female had stronger purchase intention as compared to male. We discovered different findings that male had a greater purchase intention of dietary supplement products than female. This can be reasoned by males who had more physical activity than females, were more tend to purchase dietary supplement products. Gardiner, Kemper, Legedza, and Phillips (2007) had discovered that young adults with moderate and high physical activity level were more prone to use dietary supplement products. Several studies had then confirmed that males were more physically active and involved in more sports activities than females (Azevedo et al., 2007; Lenhart et al., 2012; Deaner et al., 2012). It has explained why males were more likely to use dietary supplement products than females, leading to have higher purchase intention of dietary supplement products.

4.3 The effect of income towards purchase intention of dietary supplement products.

H_3: There is a significant relationship between income variable and purchase intention of dietary supplement products among young adults.

A Pearson correlation coefficient was computed to discover the relationship between income and purchase intention of dietary supplement products among young adults. Based on Table 5, it was found that the two variable are positively related to each other, $r(298) = .37$, $p < .001$. In general, there was a moderate, positive correlation between income and purchase intention of dietary supplement products among young adults. An increase in income was correlated with increases in purchase intention of dietary supplement products among young adults. Thus, H_3 was supported.

Table 5

Relationship between Income and Purchase Intention of dietary supplement products (N=300)

Variable	M	SD	1	2
1.Purchase Intention	3.04	1.75	--	
2.Income	931.33	1786.34	.37**	--

Note. ***$p < .001$.

Furthermore, income ($M = 931.33$, $SD = 1786.34$) was positively correlated to purchase intention ($r(298) = .37$, $p < .001$), perceived behavioral control ($r(298) = .30$, $p < .001$), attitude ($r(298) = .26$, $p < .001$), and subjective norms ($r(298) = .25$, $p < .001$). These correlations are summarized in Table 6.

Table 6

Correlation for Regression of Purchase Intention of dietary supplement products (N= 300)

	1	2	3	4	5
1. Purchase Intention	__	.65***	.82***	.51***	.37***
2. Attitude		__	.51***	.47***	.26***
3. Subjective Norms			__	.29***	.25***
4. Perceived Behavioral Control				__	.30***
5. Income					__

Note. ***$p < .001$.

An analysis of multiple regression was then conducted to test whether perceived behavioral control, subjective norms, attitude, and income do predict the purchase intention of dietary supplement products. It was shown that a linear combination of perceived behavioral control, subjective norms, attitude, and income was significantly correlated to purchase intention of dietary supplement products $F(4, 295) = 271.35$, $p < .001$. The multiple

correlation coefficient was .89, and showing that approximately 79% of the variance of the purchase intention can be accounted for by the combination of perceived behavioral control, subjective norms, attitude, and income. It was found that subjective norms (β = .62, P < .001), attitude (β = .21, p < .001), perceived behavioral control (β = .20, P < .001) and income (β = .10, p = .001) had significantly predicted purchase intention of dietary supplement products. These multiple regressions analysis was summarized in Table 7.

Table 7

Variables Predicting the purchase intention of dietary supplement products (*N= 300)*

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	*t*	Sig.
Constant	-2.21	.23		-9.50	.000
Attitude	.29	.05	.21	6.24	.000
Subjective Norms	.80	.04	.62	19.62	.000
Perceived Behavioral Control	.40	.06	.20	6.48	.000
Income	.00	.00	.10	3.50	.001

Note. Dependent variable: purchase intention of dietary supplement products; B = unstandardized beta; t = t statistic; R = .89; .R^2 = .79.

The multiple correlation coefficient (R) changed from .88 to .89, indicating that the variable of income combined with subjective norms, perceived behavioral control and attitude had strengthened the positive relationship among the independent variables and dependent variable. Besides, when income was added into the existence set of predictors, it contributed to the change of R square (R^2) from .78 to .79 which indicated that perceived

behavioral control, subjective norms, and attitude combined with income had improved the overall capacity to predict the purchase intention of dietary supplement products.

This result for income variable was found to be in lined with findings from Gracia and Magistris (2007), Wu (2015), Aertsens, Verbeke, Mondelaers, and Huylenbroeck (2009) which reported that income was positively related to purchase intention of health related products. A persuasive reasoning would be due to the fact that living standards and health consciousness are increasing, people are more likely to focus on food quality hence have higher purchase intention towards dietary supplement products (Sheng, Shen, Qiao & Yu, 2009). Other than that, higher income also indicated higher purchase intention due to having more disposable income (Prasitphol, 2002). Income was also an utmost important determining element for purchase intention, ultimately purchase behavior (Dorota, 2013). This is further supported by a study which reported that organic food purchasers had relatively higher income (Thøgersen & Zhou, 2012). However, the relationship between income and purchase intention was fairly moderate in this research which may be the result of the income characteristics of the respondents, which 61% of them had no income due to the fact that they were still studying in the university.

4.4 Difference between types of residential area towards purchase intention of dietary supplement products

H_4: There is a significant difference between types of residential area towards purchase intention of dietary supplement products among young adults.

To discover the difference between types of residential area towards purchase intention of dietary supplement products, an independent t-test was performed. There was no significant difference found between urban area (M = 3.03, SD = 1.78) and rural area (M = 3.09, SD = 1.62) in purchase intention, $t(298) = -.22$, $p = .317$. The result indicated that types

of residential area did not differ significantly in purchase intention of dietary supplement products. Thus, H_4 was rejected. The independent t-test result was shown in Table 8.

Table 8

Difference between Types of Residential Area towards Purchase Intention of Dietary Supplement Products (N= 300)

	Urban Area		Rural Area				95% CI	
Variable	*M*	*SD*	*M*	*SD*	*t*(298)	*p*	LL	UL
Purchase Intention	3.03	1.78	3.09	1.62	-.22	.317	-.54	.43

Note. Cl = confidence interval; LL = lower limit; UL = upper limit.

This finding was inconsistent with previous studies which indicated that people from urban areas had higher purchase intention towards organic foods than those from rural areas (Hsu, Chang, & Lin, 2016; Chiew, Mohd Shoki Md. Ariff, Norhayati Zakuan, & Muhammad Naquib Mohd Tajudin, 2014). The researches stated that urban consumers were more educated about dietary supplement products and more affected by the media (Madahi, & Sukati, 2012). Thus, a possible reason for the findings that people from urban and rural area did not differ significantly in purchase intention of dietary supplement products was, not only urbanities were educated but people from rural areas were also attaining more education as compared to the past (USDA Economic Research Service, 2016). The use of social media in rural areas also had a 50% increase in the past ten years (Perrin, 2015). This had shown that people from rural areas were gaining more access to the media, which in turn increased the impacts they got from the media about dietary supplement products. In short, people from rural areas were receiving more education and greater influences from the media than the past. This made people from the rural areas to not having any significant difference on purchase intention towards dietary supplement products as compared to those from urban areas.

Chapter 5 Discussion and Conclusion

This research had identified a range of factors that might influence the purchase intention of dietary supplement products among young adults. Results indicated that intention to purchase dietary supplement products was significantly predicted by the three constructs which were subjective norms (β = .64, P < .001), perceived behavioral control (β = .22, P < .001) and attitude (β = .21, p < .001) of Theory of Planned Behavior (TPB) with overall 78% of variance explained, while stating subjective norms as the most significant predictor. The findings had revealed that the TPB model was effective in exploring the determinants of purchase intention towards dietary supplement products among young adults. Besides that, demographic characteristic such as gender difference was found significant in purchase intention of dietary supplement products. In contrast, there was no significant difference found between types of residential area in purchase intention of dietary supplement products. Besides, a significant and positive relationship between income and purchase intention was discovered.

5.1 Implication

The findings contributed to the existing studies of Theory of Planned Behavior (TPB) particularly towards purchase intention of dietary supplement products in the young adult context. They further reinforced the power of TPB to predict behavioral intention, which the three constructs: perceived behavioral control, subjective norms, attitude were found to be significantly related to and predicted the purchase intention of dietary supplement products among young adults. Besides, the findings suggested subjective norms being the most significant predictor of purchase intention towards dietary supplement products can be very useful to guide marketing strategies. Strategies such as involving individual who has large impact on the society in publicity of dietary supplement use would be more effective, such as

celebrities, organization leaders and teachers as many people seek to have similar quality of life. Moreover, it could also be beneficial to highlight the increase of dietary supplement products use of the general population as individual will be more likely to follow the social trend.

5.2 Limitations

This study used a convenience sampling method which the respondents were selected because of their availability and proximity. Therefore, the findings could not be generalized to all young adults ranging from age 19 to 40. For instance, half of the questionnaires were restrictedly distributed only to students in UTAR, Kampar campus. Moreover, most of the students also yet to have any income which may ultimately affect the result on purchase intention. In addition, some respondents provided feedback regarding misunderstanding of questions in the survey due to being not familiar with English which was the language used in the survey, as majority of them were Chinese (94.34%). This misinterpretation of questions may generate incorrect data.

5.3 Recommendations

Future researches are recommended to enlighten the part which this paper does not offer. Firstly, random sampling method is suggested to ease the generalization of the findings to the general population of young adults in Malaysia though sufficient time and resources are required. Second, translation of the questionnaire to Mandarin could be included to avoid misapprehension of questions. Lastly, the study focused on Malaysia young adults' purchase intention of dietary supplement products in general but did not specify in any product category. Future study could consider narrowing down towards specific categories such as fatty acids (omega 3 and 6), vitamins (A, B_1- B_{12}, C, D, E, and K), Mineral (Calcium, Iron, Magnesium, Potassium and Zinc) and etc.

References

Abdul Wahid, N., & Rahbar, E. (2011). Investigation of green marketing tools 'effect on consumers' purchase behavior. *Business Strategy Series, 12*(2), 73-83.

Aertsens, J., Verbeke, W., Mondelaers, K., & Huylenbroeck, G. V. (2009). Personal determinants of organic food consumption: a review. *British Food Journal, 111*(10), 1140 – 1167. Retrieved from http://dx.doi.org/10.1108/00070700910992961

Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behavior and Human Decision Processes, 50*, 179-211. Retrieved from http://www.cas.hse.ru/data/816/479/1225/Oct%2019%20Cited%20%231%20Manage%20THE%20THEORY%20OF%20PLANNED%20BEHAVIOR.pdf

Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology, 32*, 665-683.

Ajzen, I. (2012). The Theory of Planned Behavior: a bibliography. Retrieved from http://people.umass.edu/aizen/tpbrefs.html

Ali, A., Khan, A. A., & Shahzad, W. (2011). Determinants of Pakistani consumers' green purchase behavior: some insight from a developing country. *International Journal of Business and Social Science, 2*(3), 217- 226.

Alibeli, M., & Johnson, C. (2009). Environmental concern: A cross national analysis. *Journal of International and Cross-Cultural Studies, 3*(1), 1-10.

American Psychology Association. (2011). Guidelines for Psychological Practice with Lesbian, Gay, and Bisexual Clients. Retrieved from http://www.apa.org/pi/lgbt/resources/guidelines.aspx

Auechotpanich, S. (2008). *A study of factors on buying decision of customers towards dietary supplement food products.* Retrieved from http://thesis.swu.ac.th/swuthesis/Bus_Eng_Int_Com/Sudarin_A.pdf

Azevedo, M. R., Araújo, C. L. P., Reichert, F. F., Siqueira, F. V., da Silva, M. C., & Hallal, P. C. (2007). Gender differences in leisure-time physical activity. *International Journal of Public Health, 52*(1), 8-15. Retrieved from http://doi.org/10.1007/s00038-006-5062-1

Azizan, S. A. M., & Suki, N. M. (2013). Consumers' intention to purchase green product: Insights from Malaysia. *World Applied Sciences Journal, 22*(8), 1129-1134. doi: 10.5829/idosi.wasj.2013.22.08.616

Bailey, R. L., Gahche, J. J., Lentino, C. V., Dwyer, J. T., Engle, J. S., Thomas, P.R, . . . Picciano, M. F. (2011). Dietary supplement use in the United States, 2003-2006. *The Journal of Nutrition, 141*(1), 216-266.

Birch, L. L. & Fisher, J. O. (1998). Development of eating behaviours among children and adolescents. *Pediatrics, 101*(3), 539–549.

Blendon, R. J., DesRoches, C. M., Benson, J. M., Brodie, M., & Altman, D. E. (2001). Americans' views on the use and regulation of dietary supplements. *Archives of Internal Medicine, 161*(6), 805-10.

Brown, M., Pope, N., & Voges, K. (2003). "Buying or browsing?". *European Journal of Marketing, 37*(11/12), 1666 – 1684. doi: 10.1108/03090560310495401

Brownie, S. (2006). Predictors of dietary and health supplement use in older Australians. *Australian Journal of Advanced Nursing, 23*(3), 26-31.

Chen, G., Liu, J., & Sun, Y. (2006). *A microscopic analysis about dietary supplement consumption of senior citizens in Beijing.* Retrieved from http://www.bjpopss.gov.cn/bjpssweb/n8426c27.aspx

Chen, M. F. (2007). Consumer attitudes and purchase intentions in relation to organic foods in Taiwan: moderating effects of food-related personality traits. *Food Quality and Preference, 18*(7), 1008-1021.

Chen, M. F. (2009). Attitude toward organic foods among Taiwanese as related to health consciousness, environmental attitudes, and the mediating effects of a healthy lifestyle. *British Food Journal, 111*(2), 165-178.

Chen, SY., Lin, JR., Kao, MD., & Hang, CM. (2005). The usage of dietary supplements among elderly individuals in Taiwan. *Asia Pac J Clin Nutr, 14*(3), 230-237.

Chiew, C. S., Mohd Shoki Md. Ariff., Norhayati Zakuan., & Muhammad Naquib Mohd Tajudin. (2014). Consumers Perception, Purchase Intention and Actual Purchase Behavior of Organic Food Products. *Review of Integrative Business & Economics Research, 3*(2), 378-397. Retrieved from http://sibresearch.org/uploads/2/7/9/9/2799227/riber_b14 173_378-397.pdf

Chiou, J. S. (1998). The effects of attitude, subjective norm, and perceived behavioral control on consumers' purchase intentions: the moderating effects of product knowledge and attention to social comparison information. *Proc. Natl. Sci. Counc. ROC (C), 9*(2), 298-308.

Chowtanapanich, S., & Chaipoopirutana, S. (2014). *Identifying Factors influencing Purchase Intentions of Non-Blackmores Users.* Retrieved from http://icehm.org/siteadmin/upload/1632ED0814094.pdf

Chung, J., Stoel, L., Xu, J., and Ren, J. (2012). Predicting Chinese consumers' purchase intentions for imported soy-based dietary supplements. *British Food Journal, 114*(1), 143-161. Retrieved from http://dx.doi.org/10.1108/00070701211197419

Conner, M., & Sparks, P. (2005). The theory of planned behaviour and health behaviour. In M. Conner, & P. Norman (Eds.), *Predicting health behaviour: Research and practice with social cognitive models* (pp. 170-222). Buckingham, England: Open University Press.

Conner, M., Kirk, S.F.L., Cade, J.E., & Barrett, J.H. (2001). Why do women use dietary supplements? The use of the theory of planned behaviour to explore beliefs about their use. *Social Science and Medicine, 52*(4), 621-33.

Dean, M., Raats, M. M., & Shepherd, R. (2008). *Moral concerns and consumer choice of fresh and processed organic foods.* Retrieved from http://epubs.surrey.ac.uk/764005/1/Dean%20et%20al%20%282008%29%20Moral%20cncerns%20and%20consumer%20choice%20of%20fresh%20and%20processed%20orgac%20foods.%20J%20Appl%20Soc%20Psych.pdf

Deaner, R. O., Geary, D. C., Puts, D. A., Ham, S. A., Kruger, J., Fles, E, … Grandis, T. (2012). A Sex Difference in the Predisposition for Physical Competition: Males Play Sports Much More than Females Even in the Contemporary U.S. *PLoS ONE, 7*(11). doi:10.1371/journal.pone.0049168

Dorota, R. –H. (2013). Determinants of consumer purchasing behavior. *Management, 17*(1), 333-345. doi: 10.2478/manment-2013-0023

Eide, B. (2013). *Consumer Behavior Theories-Purchasing organic food.* Retrieved from http://pure.au.dk/portal-asbstudent/files/53767745/Bachelor_Thesis_Consumer_Behavior_Theories_Purchasing_Organic_Food.pdf

Euromonitor. (2009). *Vitamins and dietary supplements- Malaysia, Global Market Information Database.* Retrieved from http://www.euromonitor.com

Faryabi, M., Sadeghzadeh, K., & Saed, M. (2012). The effect of price discounts and store image on consumer's purchase intention in online shopping context case study: Nokia and HTC. *Journal of Business Studies Quarterly, 4*(1), 197-205.

FDA. (2006). Dietary Supplements. *What You Need to Know.* Retrieved from http://www.fda.gov/downloads/Food/DietarySupplements/UCM240978.pdf

Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research.* Retrieved from http://people.umass.edu/aizen/f&a1975.html

Francis, J., Eccles, M. P., Johnston, M., Walker, A. E., Grimshaw, J. M., Foy, R., … Bonetti, D. (2004). *Constructing questionnaires based on the theory of planned behaviour: A manual for health services researchers.* Retrieved from http://openaccess.city.ac.uk/1735/1/TPB%20Manual%20FINAL%20May2004.pdf

Gardiner, P., Kemper, K. J., Legedza, A., & Phillips, R. S. (2007). Factors associated with herb and dietary supplement use by young adults in the United States. *BMC Complementary and Alternative Medicine, 7*(39), 1-7.

Gomes, D. & Neves, J. (2011). Organizational attractiveness and prospective applicants' intention to apply. *Personnel Review, 40*(6), 684-699. doi:10.1108/00483481111169634

Gracia, A., & Magistris, T. (2007). Organic food product purchase behaviour: a pilot study for urban consumers in the South of Italy. *Spanish Journal of Agricultural Research, 5*(4), 439-451. Retrieved from http://www.inia.es/gcontrec/pub/439-451-Organic_1195812950906.pdf

Greger, J. L. (2001). Dietary supplement use: Consumer characteristics and interests. *Journal of Nutrition, 131,* 1339-1343.

Haron, S. A., Paim, L., & Yahaya, N. (2005). Towards sustainable consumption: an examination of environmental knowledge among Malaysians. *International Journal of Consumer Studies, 29*(5), 426-436.

Hasbullah, N., Mahajar, A. J., & Salleh, M. I. (2014). Extending the Theory of Planned Behavior: Evidence of the arguments of its sufficiency. *International Journal of Humanities and Social Science, 4*(14), 101-105.

Hsu, S. Y., Chang. C. C., & Lin, T. T. (2016). An analysis of purchase intentions toward organic food on health consciousness and food safety with/under structural equation modeling. *British Food Journal, 118*(1). Retrieved from http://dx.doi.org/10.1108/BFJ-11-2014-0376

Huchting, K., Lac, A., & LaBrie, J.M. (2008). An application of the Theory of Planned Behavior to sorority alcohol consumption. *Addictive Behaviors, 33*(4), 538-551.

Irianto, H. (2015). Consumers' Attitude and Intention towards Organic Food Purchase: An Extension of Theory of Planned Behavior in Gender Perspective. *International Journal of Management, Economics and Social Sciences, 4*(1), 17 – 31. Retrieved from http://www.ijmess.com/volumes/volume-IV-2015/issue-I-03-2015/full-2.pdf

Ismail, S., & Mokhtar, S. S. M. (2015). The antecedents of herbal product actual purchase in Malaysia. *Management Science Letters, 5*, 771–780. doi: 10.5267/j.msl.2015.5.011

Jong, N., Ocke, M. ., Branderhorst, H. A., & Friele, R . (2003). Demographic and lifestyle characteristics of functional food consumers and dietary supplement users. *The British Journal of Nutrition, 89*(2), 273-281.

Ren, J. B. E. (2009).*The determinants for Chinese consumers' intention to use soy-based dietary supplements: An application of the Theory of Planned Behavior.* Retrieved from https://etd.ohiolink.edu/!etd.send_file?accession=osu1237909867&disposition=inline

Kelder, S. H., Perry, C. L., Klepp, K. I., & Lytle, L. L. (1994). Longitudinal tracking of adolescent smoking, physical activity and food choice behaviors. *Am. J. Public Health, 84* (7), 1121–1126.

Klama, J. (2013). *Predicting fruit and vegetable intake with the Theory of Planned Behavior: A literature review.* Honors Theses. Retrieved from http://diginole.lib.fsu.edu/cgi/viewcontent.cgi?article=1151&context=uhm

Krzeski, E., Zoellner, J. M., Chen, Y., Estabrooks, P. A., & Ozanne, J. L. (2011). *Using the Theory of Planned Behavior to understand drink choices in Southwest Virginians.* Retrieved from http://scholar.lib.vt.edu/theses/available/etd-05062011 102253/unrestricted/Krzeski_E_T_2011.pdf

Kumar, B. (2012). Theory of Planned Behaviour Approach to Understand the Purchasing Behaviour for Environmentally Sustainable Products. *Indian Institute of Management.* Retrieved from http://www.iimahd.ernet.in/assets/snippets/workingpaperpdf/10260621182012-12-08.pdf

Lasuin, C. A., & Ng, Y. C. (2014). Factors influencing green purchase intention among university students. *Malaysian Journal of Business and Economics, 1*(2), 1-14.

Lenhart, C. M., Hanlon, A., Kang, Y., Daly, B. P., Brown, M. D., & Patterson, F. (2012). Gender Disparity in Structured Physical Activity and Overall Activity Level in Adolescence: Evaluation of Youth Risk Behavior Surveillance Data. *ISRN Public Health, 2012*, 1-8. doi:10.5402/2012/67493

Leslie, E., Sparling, P. B., & Owen, N. (2001). University campus settings and the promotion of physical activity in young adults: lessons from research in Australia and the USA. *Health Educ, 101*(3), 116–125.

Madahi, A., & Sukati, I. (2012). The Effect of External Factors on Purchase Intention amongst Young Generation in Malaysia. *International Business Research, 5*(8), 153-159. doi:10.5539/ibr.v5n8p153

Michaelidou, N., & Hassan, L. M. (2008). *The role of health consciousness, food safety concern and ethical identity on attitudes and intentions towards organic food*. Retrieved from http://www.storre.stir.ac.uk/bitstream/1893/828/1/IJCS_Michaelidou%20%20Hassan%Role%20of%20health%20consc.pdf

Mitchell, C. & Ring, E. (2010). *Swedish Consumers' Attitudes and Purchase Intentions of Functional Food. A study based on the Theory of Planned Behavior*. Master's thesis, Umeå School of Business, Sweden. Retrieved from http://www.diva-portal.org/smash/get/diva2:327547/FULLTEXT01.pdfSwedish

Newsom, J. T., McFarland, B. H., Kaplan, M. S., & Huguet, N. (2005). The health consciousness myth: implications of the near independence of major health behaviors in the North American population. *Social Science & Medicine, 60*(2), 433-437. doi:10.1016/j.socscimed.2004.05.015

Oppliger, R. A., Case, S. H., Horswill, C. A., Landry, G. L., & Shelter, A. C. (n.d.). *Weight loss in wrestlers.* Retrieved from http://longislandwrestling.org/liwa/sportsmedicine/WeightLossinWrestlers.pdf

Ooi, S. K. (2009). *Factors Influencing Consumer Purchase Intention of Dietary Supplement Products in Penang Island*. Master's thesis, Universiti Sains Malaysia, Penang. Retrieved from http://eprints.usm.my/id/eprint/28883

Pawlak, R., Brown, D., Meyer, M. K., Connell, C., Yadrick, K., Johnson, J. T., & Blackwell, A. (2008). Theory of Planned Behavior and Multivitamin Supplement Use in Caucasian College Females. *J Primary Prevent, 29*, 57–71. Retrieved from http://www.ars.usda.gov/SP2UserFiles/Place/60260500/Services/215487.pdf

Perrin, A. (2015). Social Media Usage: 2005-2015. *Pew Research Centre.* Retrieved fro http://www.pewinternet.org/2015/10/08/social-networking-usage-2005-2015/

Petraszko, H. (2013). *Theory of Planned Behavior to predict multivitamin / mineral use* (Master's thesis). Retrieved from http://commons.emich.edu/cgi/viewcontent.cgi?article=1968&context=theses

Pino, G., Peluso, A. M., & Guido, G. (2012). Determinants of regular and occasional consumers' intention to buys organic food. *The journal of Consumers Affairs, 46*(1), 157-169. doi: 10.1111/j.1745-6606.2012.01223.x

Prasitphol, W. (2002). *Market segmentation in the automobile market: A cross-cultural investigation of consumer behavior in Japan, Thailand, and the United States.* San Diego, CA: Alliant International University

Radimer, K., Bindewald, B., Hughes, J., Ervin, B., Christine, S., & Picciano, M. F. (2004). Dietarysupplement use by US adults: Data from the National Health and Nutrition Examination Survey, 1999-2000. *American Journal of Epidemiology, 160*(4), 339-349.

Rajamma, R. K., Pelton, L. E. (2010). Choosing non-conventional treatments: consumers' attempt at controlling health care. *J. Consum. Mark. 27*(2), 127–138.

Regmi, A. & Dyck, J. (2001). Effects of urbanization on global food demand. *Economic research service, U.S. Department of Agriculture.* Retrieved from http://www.who.int/dietphysicalactivity/publications/f&v_africa_economics.pdf?ua=1

Ramayah, T., Lee, J. W. C., & Lim, S. (2012) Sustaining the environment through recycling: An empirical study. *Journal of Environmental Management, 102,* 141-147. Retrieved from http://dx.doi.org/10.1016/j.jenvman.2012.02.025.

Ren, J. (2009). *The Determinants For Chinese Consumers' Intention To Use Soy-Based Dietary Supplements: An Application Of The Theory Of Planned Behavior* (Master's thesis). Retrieved from https://etd.ohiolink.edu/!etd.send_file?accession=osu1237909867&disposition=inline

Ren, J., Chung, J. E., Stoel, L., & Xu, Y. J. (2011). Chinese dietary culture influences consumers' intention to use imported soy-based dietary supplements: an application of the theory of planned behaviour. *Int. J. Consum. Stud., 35*(6), 661–669.

Rothwell, N. (2010). Rural and small town Canada analysis bulletin. *Statistic Canada, 3*(3), 1-17.

Ruser, J., Pilot, A., & Nelson, C. (2004). *Alternative Measures of Household Income: BEA Personal Income, CPS Money Income, and Beyond*. Retrieved from http://www.bls.gov/bls/fesacp1061104.pdf

Saba, A., & Messina, F. (2003). Attitudes towards organic food and risk/benefit perception associated with pesticides. *Food Quality & Preference, 14,* 637-645.

Sacco, R. G. (2013). Re-Envisaging the Eight Developmental Stages of Erik Erikson: The Fibonacci Life-Chart Method (FLCM). *Journal of Educational and Developmental Psychology, 3*(1). doi: 10.5539/jedp.v3n1p140

Saleki, Z. S., Seyedsaleki, S. M., & Rahimi, M. R. (2012). Organic purchasing behavior in Iran. *International Journal of Business and Social Science, 3*(13), 278-285.

Shaharudin, M., Pani, J. J., Mansor, S. W., & Elias, S. J. (2010). Factors affecting purchase intention of organic food in Malaysia's Kedah State. *Cross-Cultural Communication, 6*(2), 105-116.

Shaharudin, M.. R., Pani, J. J., Mansor, S. W., Elias, S. J., & Sadek, D. M. (2010). Purchase intention of organic food in Kedah, Malaysia; A Religious Overview. *International Journal of Marketing Studies, 2*(1), 96-103.

Sheng, J., Shen, L., Qiao, Y., Yu, M., & Fan, B. (2009). Market trends and accreditation systems for organic food in China. *Trends in food science & technology, 20*(9), 396-401. doi:10.1016/j.tifs.2009.01.053

Slesinski, M. J., Subar, A. F., & Kahle, L. L. (1996). Dietary intake of fat, fiber and other nutrients is related to the use of vitamin and mineral supplements in the United States: the 1992 National Health Interview Survey. *The Journal of Nutrition, 126*(12), 3001-3008.

Sudiyanti, S. (2009). *Predicting Women Purchase Intention For Green Food Products in Indonesia.* Retrieved from http://brage.bibsys.no/xmlui/bitstream/handle/11250/135342/Sudiyanti%20Sudiyanti.pdf?sequence=1

Tarkiainen, A., & Sundqvist, S. (2005). Subjective norms, attitudes and intentions of Finnish consumers in buying organic food. *British Food Journal, 107*(11), 808-822. doi:dx.doi.org/10.1108/00070700510629760

Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: a test of competing models. *Information System Research, 6*(2), 144-176.

Thøgersen, J. (2009). *Consumer decision-making with regard to organic food products.* Retrieved from http://mfile.narotama.ac.id/files/Economics/Traditional%20Food%20Production%20an%20Rural%20Sustainable%20Development/Chapter%2011%20%20Consumer%20Deciion-Making%20With%20Regard%20To%20Organic%20Food%20Products.pdf

Thøgersen, J., & Zhou, Y. (2012). Chinese consumers adoption of a 'green' innovation -The case of organic food. *Journal of Marketing Management, 28*(3), 313–333. doi: 10.1080/0267257X.2012.658834

Urban, J., ZVĚŘINOVÁ, I., & ŠČASNÝ, M. (2012). What motivates Czech consumers to buy organic food? *Czech Sociological Review, 48*(3), 709-736.

USDA Economic Research Service. (2016). *Rural Education.* Retrieved from http://www.ers.usda.gov/topics/rural-economy-population/employment-education/ruraleducation.aspx

Visintin, E. P., Crovato, S., Falvo, R., Ravarotto, L., & Capozza, D. (2012). Consuming traditional food products of one's province: A test of Planned Behavior Theory. *TPM, 19*(1), 49-64.

Weeks, R. J. (2010). *Defining urban areas.* Retrieved from https://www.google.com/?gws_rd=ssl#q=urban+definition+pdf+weeks

Woo, J. Y. (2007). Adverse event monitoring and multivitamin-multimineral dietary supplements. *The American Journal of Clinical Nutrition, 85*(1), 323-324.

Wu, F. (2015). Analysis on the Impact Factors of Consumers' Purchase Intention of Sports Food. *Advance Journal of Food Science and Technology, 8*(9), 642-645. Retrieved from http://maxwellsci.com/print/ajfst/v8-642-645.pdf

Yadav, R., Pathak, G. S. (2016). Intention to purchase organic food among young consumers: Evidences from a developing nation. *Appetite, 96*, 122-128. Retrieved from http://www.sciencedirect.com/science/article/pii/S0195666315300283

Yap, S., Noor, N. A. M., Marshall, R., & Liew, K. (2014) Promoting preventive health behaviour among young Malaysian consumers: toward an integrated conceptual framework. *Australasian Marketing Journal, 22,* 268-278. Retrieved from http://dx.doi.org/10.1016/j.ausmj.2014.08.011

Yazdanpanah, M., & Forouzani, M. (2015). Application of the Theory of Planned Behaviour to predict Iranian students' intention to purchase organic food. *Journal of Cleaner Production, 107*, 342-352. Retrieved from http://www.sciencedirect.com/science/article/pii/S095965261500195X

Ynag, M., Sarah Al-Shaaban., & Nguyen, T. B. (2014). *Consumer attitude and purchase intention towards organic food* (Master's thesis). Retrieved from https://www.diva portal.org/smash/get/diva2:723474/FULLTEXT01.pdf

Younus, S., Rasheed, F., & Zia, A. (2015). Identifying the factors affecting customers purchase intention. *Global Journal of Management and Business Research: A administration and Management, 15*(2), 9-14.

Zeisel, S. H. (2000). Is there a metabolic basis for dietary supplementation? *The American Journal of Clinical Nutrition, 72*(2), 507-511.

Zhang, F. (2005). *Expense consciousness and purchase psychology - healthy product for the elderly expense "invisible hand".* Retrieved from http://www.horizonkey.com

Zhou, Y., Thogersen, J., Ruan, Y., & Huang, G. (2013).The moderating role of human values in planned behavior: the case of Chinese consumers' intention to buy organic food. *Journal of Consumer Marketing, 30*(4), 335 – 344. Retrieved from http://dx.doi.org/10.1108/JCM-02-2013-0482

Appendix

Correlation, Mean, and Standard Deviation for Regression of Purchase Intention of dietary supplement products

Descriptive Statistics

	Mean	Std. Deviation	N
Attitude	4.3540	1.27697	300
Subjective Norms	2.9013	1.35908	300
Perceived Behavioral Control	3.9783	.89121	300
Purchase Intention	3.0428	1.74547	300
Income	931.3333	1786.33841	300

Correlations

		Attitude	Subjective Norms	Perceived Behavioral Control	Purchase Intention	Income
Attitude	Pearson Correlation	1	.512**	.471**	.652**	.261**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	300	300	300	300	300
Subjective Norms	Pearson Correlation	.512**	1	.290**	.815**	.254**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	300	300	300	300	300
Perceived Behavioral Control	Pearson Correlation	.471**	.290**	1	.512**	.295**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	300	300	300	300	300
Purchase Intention	Pearson Correlation	.652**	.815**	.512**	1	.373**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	300	300	300	300	300
Income	Pearson Correlation	.261**	.254**	.295**	.373**	1

	Sig. (2-tailed)	.000	.000	.000	.000	
	N	300	300	300	300	300

**. Correlation is significant at the 0.01 level (2-tailed).

Variables Predicting the purchase intention of dietary supplement products (without income variable)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.882[a]	.777	.775	.82760

a. Predictors: (Constant), Perceived Behavioral Control, Subjective Norms, Attitude

b. Dependent Variable: Purchase Intention

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	708.214	3	236.071	344.673	.000[b]
	Residual	202.735	296	.685		
	Total	910.948	299			

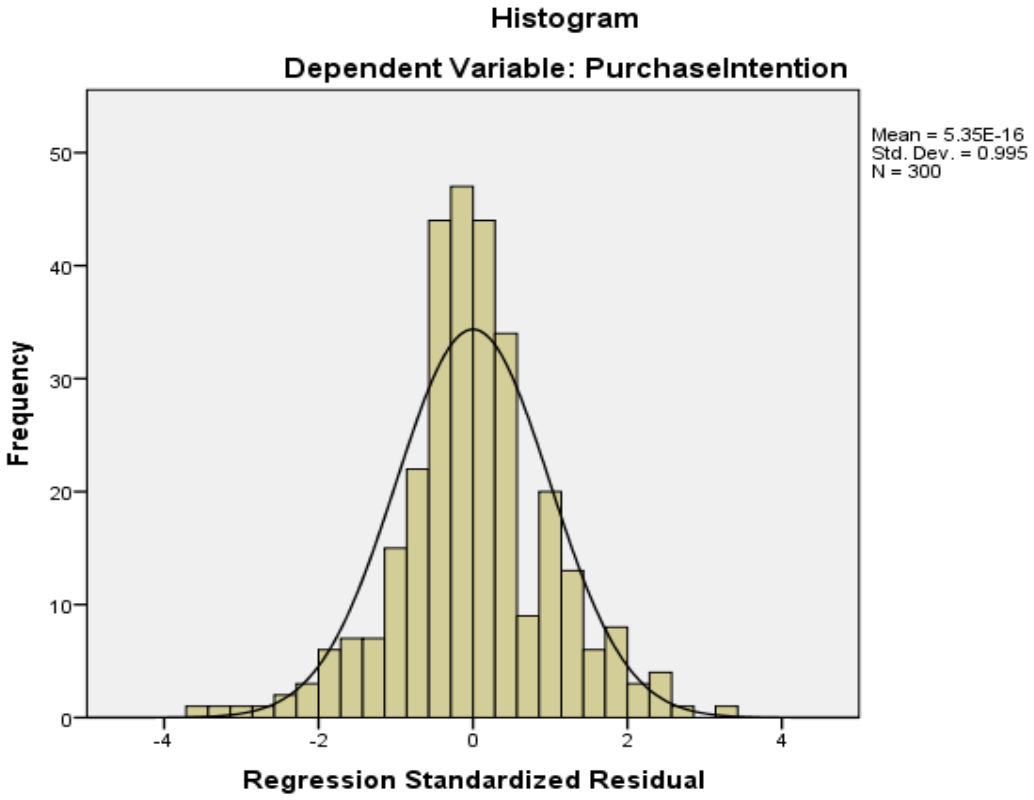
a. Dependent Variable: Purchase Intention

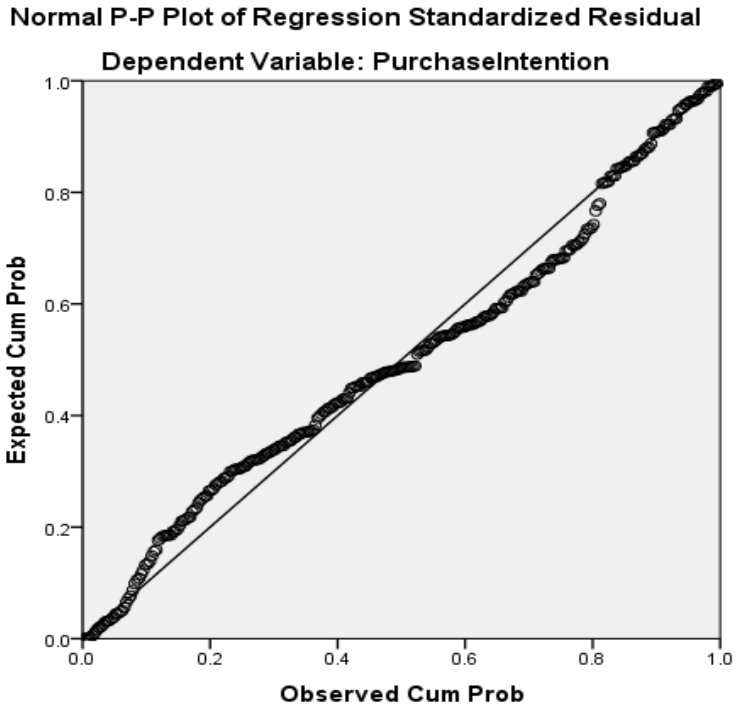
b. Predictors: (Constant), Perceived Behavioral Control, Subjective Norms, Attitude

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.386	.230		-10.353	.000
	Attitude	.303	.047	.221	6.383	.000
	Subjective Norms	.818	.041	.637	19.900	.000
	Perceived Behavioral Control	.437	.061	.223	7.161	.000

a. Dependent Variable: Purchase Intention


Histogram
Dependent Variable: PurchaseIntention
Mean = 5.35E-16
Std. Dev. = 0.995
N = 300
Frequency
50
40
30
20
10
0
-4
-2
0
2
4
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: PurchaseIntention
Expected Cum Prob
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
Observed Cum Prob

Variables Predicting the purchase intention of dietary supplement products (with income variable)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.887[a]	.786	.783	.81235

a. Predictors: (Constant), Income, Subjective Norms, Perceived Behavioral Control, Attitude
b. Dependent Variable: Purchase Intention

ANOVA[a]

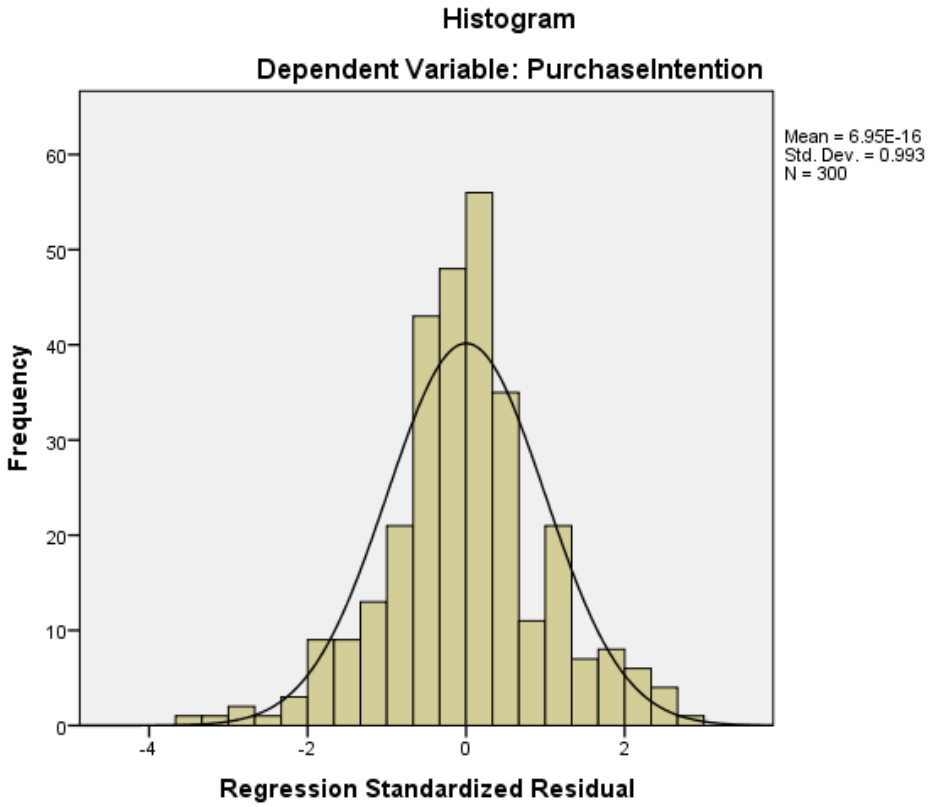
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	716.275	4	179.069	271.353	.000[b]
	Residual	194.674	295	.660		
	Total	910.948	299			

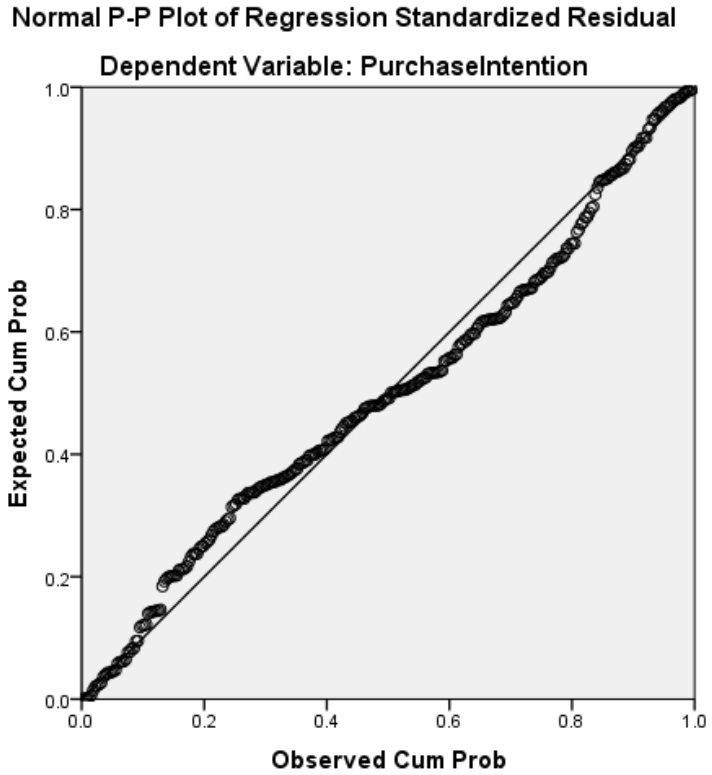
a. Dependent Variable: Purchase Intention
b. Predictors: (Constant), Income, Subjective Norms, Perceived Behavioral Control, Attitude

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.205	.232		-9.504	.000
	Attitude	.291	.047	.213	6.235	.000
	Subjective Norms	.798	.041	.622	19.619	.000
	Perceived Behavioral Control	.395	.061	.202	6.476	.000
	Income	9.811E-005	.000	.100	3.495	.001

a. Dependent Variable: Purchase Intention


Histogram
Dependent Variable: PurchaseIntention
Mean = 6.95E-16
Std. Dev. = 0.993
N = 300
Frequency
60
50
40
30
20
10
0
-4
-2
0
2
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: PurchaseIntention
Expected Cum Prob
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
Observed Cum Prob

Gender Difference in Purchase Intention of Dietary Supplement Products (N= 300)

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
PurchaseIntention	Male	107	3.1510	1.90668	.18433
	Female	193	2.9827	1.65146	.11887

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
PurchaseIntention	Equal variances assumed	4.160	.042	.799	298
	Equal variances not assumed			.767	193.985

Independent Samples Test

		t-test for Equality of Means		
		Sig. (2-tailed)	Mean Difference	Std. Error Difference
PurchaseIntention	Equal variances assumed	.425	.16828	.21051
	Equal variances not assumed	.444	.16828	.21933

Independent Samples Test

		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
PurchaseIntention	Equal variances assumed	-.24598	.58255
	Equal variances not assumed	-.26430	.60087

Relationship between Income and Purchase Intention of dietary supplement products (N=300)

Descriptive Statistics

	Mean	Std. Deviation	N
Purchase Intention	3.0428	1.74547	300
Income	931.3333	1786.33841	300

Correlations

		Purchase Intention	Income
Purchase Intention	Pearson Correlation	1	.373**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	910.948	347853.493
	Covariance	3.047	1163.390
	N	300	300
Income	Pearson Correlation	.373**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	347853.493	954110466.667
	Covariance	1163.390	3191004.905
	N	300	300

Difference between Types of Residential Area towards Purchase Intention of Dietary Supplement Products (N= 300)

Group Statistics

	RE	N	Mean	Std. Deviation	Std. Error Mean
Purchase Intention	Urban	236	3.0311	1.78217	.11601
	Rural	64	3.0859	1.61545	.20193

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
Purchase Intention	Equal variances assumed	1.004	.317	-.223	298
	Equal variances not assumed			-.236	108.286

Independent Samples Test

		t-test for Equality of Means		
		Sig. (2-tailed)	Mean Difference	Std. Error Difference
Purchase Intention	Equal variances assumed	.824	-.05488	.24639
	Equal variances not assumed	.814	-.05488	.23288

Independent Samples Test

		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
Purchase Intention	Equal variances assumed	-.53976	.43000
	Equal variances not assumed	-.51648	.40672

Pilot test: Mean, Standard Deviation and Reliability (Cronbach's Alpha) of Behavioral Statement

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.956	.955	20

Item Statistics

	Mean	Std. Deviation	N
Q1	4.1667	2.16689	30
Q2	4.1667	2.18274	30
Q3	4.1333	2.01260	30
Q4	4.0000	2.08443	30
Q5	3.9667	2.10882	30
Q6	3.9000	2.02314	30
Q7	4.4333	2.11209	30
Q8	4.6667	2.02286	30
Q9	4.7000	1.91455	30
Q10	3.5333	2.14530	30
Q11	3.5000	2.06364	30
Q12	4.1000	2.02314	30
Q13	3.9333	2.19613	30
Q14	3.1333	1.67607	30
Q15	3.7333	1.96404	30
Q16	3.5333	1.88887	30
Q17	4.0667	2.16450	30
Q18	3.9333	2.01603	30
Q19	4.2667	1.87420	30
Q20	4.8333	2.00144	30

UNIVERSITY TUNKU ABDUL RAHMAN

FACULTY OF ARTS AND SOCIAL SCIENCE

UAPZ 3023 Final Year Project II

Informed consent

We (Lee Jia Hou, Lim Kwoh Fronn, and Yong Kai Yun) are Year 3 Trimester 3 **Psychology students** from University Tunku Abdul Rahman. We are under the supervision of our subject supervisor Ms. Loh Wan Lin. In order to conduct our subject **UAPZ 3023 Final Year Project II**, we would like to invite you to participate in this survey.

The title of study: **Factors Influencing Purchase Intention towards Dietary Supplement Products among Young Adult.** We only invite people aged from 19 to 40 to participate in this survey. You will be given a set of questionnaire. The questionnaire consists of 3 sections which require the participants to complete all section in 30 minutes. Kindly fill it up as genuinely. Your feedback is important.

Your Privacy: Your participation in this survey and your responses will be used only for our research and will be kept confidential. There will be no connection to you specifically in the results or in future publication of the results.

Risk to you: We do not anticipate that participating in this survey will contain any risk or inconvenience to you. Furthermore, your participation is strictly voluntary and you have the right to withdraw from this survey at any time without penalty.

Benefits to you: There are not direct benefits to you regarding participation in this survey. However, you are assisting to facilitate the knowledge related to this research topic, and also assisting the researchers in completing the subject. There is no compensation given to the participant who participates in this survey.

If you have any questions regarding your participation in this survey, you can contact our group leader Ms. Yong Kai Yun (019-2661282) or our supervisor Ms. Loh Wan Lin (012-4700322).

This document acknowledges you understand of your right as a participant in this survey.

“I have read and understood the statement above, and I have also been given sufficient opportunity to ask any question. I understand that there is no compensation and direct benefits given to participants in this survey. I also understand that I have the right to withdrawn from this survey at any time without any penalty. I hereby indicate that I consent to participate in this survey, that I am at least 19 years old, and I am voluntary to participate in this survey.”

Signature_____ Date_____

Section A: Demographic Information

Instruction: Please complete the following question by ticking (√) on the relevant option.

** This survey is only opened for people who aged from 19 to 40 years old. If you are not in this aged range, you are required to withdraw from this survey. Thank you for your cooperation.*

Age : _____

Gender :
- ☐ Male
- ☐ Female

Ethnic :
- ☐ Malay
- ☐ Chinese
- ☐ Indian
- ☐ Others

  Specify: _____

Residential area :
- ☐ Rural (area located outside towns and cities)
- ☐ Urban (refers to towns or cities)

Monthly Income: RM _____

Dietary supplement products user
- ☐ Yes
- ☐ No

Note: Dietary supplement products are targeted to complement the diet with dietary ingredient such as vitamins, minerals, herbs or other botanicals, and other substances, which exist in various forms like tablets, capsules, liquids or powders (FDA, 2006).

Section B: Behavioral Statements

Instructions: Below are twenty statements regarding your purchasing of dietary supplement products next month. Using the 1 - 7 scale below, indicate your preference with each item by circling the appropriate number.

1.	I expect to purchase dietary supplement products next month.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
2.	It is very likely that I will purchase dietary supplement products next month.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
3.	I feel under social pressure to purchase dietary supplement products next month.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
4.	I will purchase dietary supplement products next month.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
5.	The decision to purchase dietary supplement products next month is beyond my control.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
6.	For me to purchase dietary supplement products next month for my health would be:	Harmful	1	2	3	4	5	6	7	Beneficial
7.	I plan to purchase dietary supplement products next month.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
8.	My family (e.g. parents, siblings) thinks that I should purchase dietary supplement products next month.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
9.	I am confident that I could purchase dietary supplement products next month.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

10. For me to purchase dietary supplement products next month for my health would be:	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
11. Whether I purchase dietary supplement products next month or not is entirely up to me.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
12. It would be easy for me to purchase dietary supplement products next month.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
13. For me to purchase dietary supplement products next month for my health would be:	Valuable	1	2	3	4	5	6	7	Worthless
14. I intend to purchase dietary supplement products next month.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
15. Most people who are important to me think that I should purchase dietary supplement products next month.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
16. It is expected of me that I purchase dietary supplement products next month.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
17. For me to purchase dietary supplement products next month for my health would be:	Good	1	2	3	4	5	6	7	Bad
18. I want to purchase dietary supplement products next month.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
19. My peers think that I should purchase dietary supplement products next month.	Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree

20. For me to purchase dietary supplement products next month for my health would be:	Risky	1	2	3	4	5	6	7	Healthy

Section C: Body Shape Questionnaire- short version (BSQ-8C)

*Instructions: We would like to know how you have been feeling about your appearance over the **PAST FOUR WEEKS**. Please read each question and circle the appropriate number using the 1 - 6 scale below.*

	Statements	Never	Rarely	Sometimes	Often	Very Often	Always
1.	Have you been afraid that you might become fat (or fatter)?	1	2	3	4	5	6
2.	Has feeling full (e.g. after eating a large meal) made you feel fat?	1	2	3	4	5	6
3.	Has thinking about your shape interfered with your ability to concentrate (e.g. while watching television, reading, listening to conversations)?	1	2	3	4	5	6
4.	Have you imagined cutting off fleshy areas of your body?	1	2	3	4	5	6
5.	Have you felt excessively large and rounded?	1	2	3	4	5	6
6.	Have you thought that you are in the shape you are because you lack self-control?	1	2	3	4	5	6
7.	Has seeing your reflection (e.g. in a mirror or shop window) made you feel bad about your shape?	1	2	3	4	5	6
8.	Have you been particularly self-conscious about your shape when in the company of other people?	1	2	3	4	5	6

End of the questionnaire

Thank you for your participation