

Chinese dietary culture influences consumers' intention to use imported soy-based dietary supplements: an application of the theory of planned behaviour

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Abstract

The over-saturated dietary supplement (DS) market in developed countries such as the US spurs the need for foreign market expansion, and the Chinese market provides a great potential for the foreign soy-based DS industry. This study examined Chinese consumers' intention to use imported (US-made US-brand) soy-based DS based on the Theory of Planned Behavior (TPB). Two alternative models were also examined in which Chinese dietary culture variables, including soyfoods favourability and dining-out sociability, as well as their interactions with attitudes, were integrated into the TPB model. A cross-sectional, self-administered survey was conducted with a sample of 215 subjects (137 females; 78 males) in Shanghai, China. The TPB variables attitude, subjective norm, perceived behaviour control and behavioural intention, as well as the Chinese dietary culture variables: soyfoods favourability and dine-out sociability were measured. Multiple linear regressions were used to analyze the three models. The statistical results indicated that all three models were statistically significant to predict intention (Model 1: $R^2 = 0.473$, $P < 0.001$; Model 2: $R^2 = 0.505$, $P < 0.001$; Model 3: $R^2 = 0.525$, $P < 0.001$). The results also showed that attitude, perceived behavioural control, and dine-out sociability were significant (positive) determinants of intention. Soyfoods favourability acted a significant (negative) moderator of the relationship between attitude and intention. Subjective norm had no significant impact on intention. In conclusion, the TPB model was useful to predict Chinese consumers' intention to use imported soy-based DS, but not all the TPB components weighed significantly in exploring DS consumption in China. The selected Chinese dietary culture variables were much more important predictors than subjective norm. This study makes a significant contribution in the application of the TPB model and in market strategy development for imported dietary supplements in China.

The use of dietary supplements (DS) has played an essential and increasing role in American health culture during the last decade (Nichter and Thompson, 2006). According to a nationally representative, cross-sectional survey examining American health and nutrition, 52% of adults reported taking DS (Radimer *et al.*, 2004). Consumers' increased interests in health and well-being have contributed greatly to the popularity of DS. However, the over-saturated DS market in developed countries such as the US spurs the need for foreign market expansion (Nutrition Business Journal, 2004a).

China is expected to be one of the largest markets for DS business even though it accounted for only 4% of global DS sales in 2003 (Nutrition Business Journal, 2004b). Spurred by increases in average household income and a corresponding demand for healthcare products, the sales of DS in China have increased

steadily (Asia Pacific Biotech News, 2003). In addition, as a result of urbanization in China, consumers report increases in unbalanced and fast food diets, hectic nightlife, busy lives and sedentary jobs with little time to exercise, as well as indoor and outdoor pollution. These changes of lifestyle and environment have significantly contributed to the increasing demands for nutrition and wellness products (Global Dispatches China, 2004). More importantly, since the entry of China into the WTO, some competitively priced, well-researched foreign brands are now available in the market (Nutrition Business Journal, 2004b). One estimate shows that the Chinese market for health supplements will peak at \$10 billion in 2010 (Asia Pacific Biotech News, 2003).

In the current study, three US-made US-brand (UMUB) soy-based DS, soy protein, soy isoflavone, and soy lecithin, were chosen as our target products to examine the market potential of

imported soy-based DS in China. In the US, soy protein was ranked as the second most important ingredient after antioxidants in '2003 Functional Foods Trend Survey' (Choi and Rhee, 2006). Soy isoflavone used in DS has reached approximately \$34 million at retail in the US (Choi and Rhee, 2006), and soy lecithin has become one of the most popular nutrition foods, with annual consumption exceeding 130 000 tons in developed countries (China Health Care Association, 2005). In China, the mainstream of soy-based ingredients, soy protein powder, is aimed at the growing market for processed meat, food and beverages (Feed-stuffs, 2002). Soy-based DS are not currently as available in the Chinese market as the soy protein ingredient added in processed meat, food, and beverages and neither are other western-style DS such as multivitamins and calcium because few manufacturers possess the up-to-date technology and funding to develop the technology or purchase the equipment to produce them (Yin, 2003). For example, even though China produces soy isoflavone, nearly 90% of it is exported as raw material and only 10% is domestically produced for use in terminal products. Likewise, soy lecithin production is low due to the lack of necessary technology; therefore most soy lecithin products are imports (China Health Care Association, 2005).

Consequently, the Chinese market provides a great potential for the foreign soy-based DS industry. Previous literature reviews have revealed that the Theory of Planned Behavior (TPB) has been applied frequently and has performed well in predicting all kinds of consumer health-related behaviours (Ajzen, 2002). The TPB hypothesizes that individuals' specific behaviours are determined by their intentions to perform those behaviours (Ajzen, 1985). In addition, the TPB predicts an individual's behavioural intention by three antecedents: attitude (ATT) towards behaviour, subjective norm (SN) and perceived behavioural control (PBC). Some researchers have successfully integrated other models/theories or new variables with the TPB to investigate consumer intentions and behaviours, such as Chinese consumers' intention to buy fortified soy sauce (Sun *et al.*, 2006) and American women's intention and behaviour to use DS (Conner *et al.*, 2001). However, no studies were found that examined the influences of one important external factor: *local culture*. Therefore, in the current study, in addition to the TPB components known to be important, the Chinese Dietary Culture (CDC) was examined as having additional influential factors on behavioural intention. CDC refers to Chinese consumers' diet preferences and dining habits. Asian consumers are known to have a staple diet of soyfoods and to enjoy dining out for social activities more frequently than consumers living in other areas of the world (Banks, 2009). As a result, two Chinese dietary culture variables, *Soyfoods Favourability* and *Dining-out Sociability*, were chosen and integrated with the TPB to explore Chinese consumers' intention to use UMUB soy-based DS.

In summary, this study examined Chinese consumers' intentions to use imported (UMUB) soy-based dietary supplements based on the TPB. Two alternative models were also explored in which Chinese dietary culture variables, *Soyfoods Favourability* and *Dining-out Sociability*, as well as their interactions with ATTs, were integrated into the TPB model. The results will help marketers develop more effective strategies and theoretical contributions by integrating local culture variables with TPB.

Hypothesis development

ATT

Many previous studies that had applied the TPB model indicated that ATT is a positive predictor of consumers' intention to conduct certain health-related behaviours. For example, ATT was one of the main predictors of intention to eat healthy food among 10–13-year-old New Zealand children (Hewitt and Stephens, 2007); intention to eat dairy products among older adults (mean age 75 years) (Kim *et al.*, 2003); intention to use DS among women in the US (Conner *et al.*, 2001); intention to use soy products among women (Rah *et al.*, 2004) and intention to purchase novel foods enriched with omega-3 fatty acids in a community in Australia (Patch *et al.*, 2005). Thus, the following hypothesis is proposed:

H1: Chinese consumers' ATTs towards using UMUB soy-based DS will have a positive influence on their intention to use.

SN

SN is also a positive predictor of consumers' intention to engage in certain health-related behaviours. For example, SN is an antecedent of intention to eat healthy food among 10–13-year-old New Zealand children (Hewitt and Stephens, 2007) and intention to use DS among women in the US (Conner *et al.*, 2001). In China, personal relationships, known as *Guanxi*, are crucial. *Guanxi* involves 'relationships between or among individuals creating obligations for the continued exchange of favours' (Dunfee and Warren, 2001, p. 2). According to Willis and Quen's research (2009), when Chinese consumers make purchase decisions about products or services where brand image is socially important, they tend to use *Guanxi*. In addition, Sun and Collins (2002) identified the primary importance of symbolic values in Chinese consumers' decisions to purchase imported fruit. That is, they conform to the norms of those individuals who are important or close to them and place much emphasis on other people's opinions. Thus, the following hypothesis is proposed:

H2: Chinese consumers' SNs towards using UMUB soy-based DS will have a positive influence on their intention to use.

PBC

PBC has been found to be a positive antecedent of behavioural intention in a wide number of domains (Armitage and Conner, 2001). For example, PBC was one of the main predictors of exercise intention (Payne *et al.*, 2004), food choice-related intention among children (Hewitt and Stephens, 2007), and intention to use DS (Conner *et al.*, 2001). In the current study, PBC will include two components: *capability and controllability*. 'Capability' refers to a person's perceived confidence that he or she is able to perform one certain behaviour; 'controllability' addresses a person's beliefs that he or she can manage the behaviour of interest (Ajzen, 2002). Thus, capability and controllability are proposed to have positive influences on intention to use UMUB soy-based DS. Thus, the following hypothesis is proposed:

H3: Chinese consumers' perceived capability and controllability towards using UMUB soy-based DS will have positive influences on their intention to use.

Soyfoods favourability

Since our target products are those DS made of primarily soy, it is likely that consumers' favourable feelings towards soyfoods could influence their behavioural intention to use soy-based DS. Chinese dietary culture shows that Chinese people are known to have had a staple diet of soyfoods for a long and rich history; moreover, China is currently the largest consumer of soyfoods in the world (China Food and Agricultural Services, 2005). Some ordinary soyfoods, such as tofu, soymilk and soybeans, are very common in Chinese dishes. Thus, consumers who regularly eat soyfoods may have a low level of perceived need, which acts as an important and positive predictor of intention to eat healthily (Payne *et al.*, 2004; Shepherd and Raats, 2007). Soyfoods favourability would be negatively related to Chinese consumers' perceived needs towards using soy-based DS. Further, based on Liu's research (2006), Chinese consumers believe that natural foods can satisfy their nutrition needs. Accordingly, we assume that Chinese consumers who have been consuming adequate amounts of soyfoods are likely to believe that they do not need to take soy-based DS to supplement their diets. Therefore, we propose that soyfoods' favourability will negatively affect Chinese consumers' intention to use soy-based DS.

Further, we argue that soyfoods' favourability would negatively moderate the relationship between ATT and behavioural intention to use UMUB soy-based DS. That is, if consumers do not favour soyfoods and have positive ATT towards using UMUB soy-based DS, their intention to use such DS would increase because they would more likely feel the need to consume such DS for soy nutrients. On the other hand, if consumers favour soyfoods and have positive ATTs towards using UMUB soy-based DS, such positive ATTs would be weakly associated with the intention to use UMUB soy-based DS because the individuals would already be receiving soy nutrients from soyfoods. Thus, we propose a stronger relationship between ATT and intention to use UMUB soy-based DS for Chinese consumers with low soyfoods favourability than those with high soyfoods favourability. Based on the above arguments, the following hypotheses are proposed:

H4a: Chinese consumers' favourable feelings towards soyfoods consumption will negatively influence their intention to use UMUB soy-based DS.

H4b: Chinese consumers' favourable feelings towards soyfoods consumption will negatively influence the function between their ATTs and intention to use UMUB soy-based DS.

Dine-out sociability

The frequency of out-of-home dining reflects local diet cultures. Many Asian countries emphasize out-of-home socializing rather than sharing a meal with the family at home (Banks, 2009). According to an online global survey from The Nielsen Company conducted in 52 markets across Europe, Asia Pacific, the Americas and the Middle East, consumers in the Asia Pacific markets dine out more frequently than consumers in other regions. In particular, in Hong Kong (China), nearly one-third (31%) of consumers eat out at restaurants every day or more than once a day (Banks, 2009). We believe the Chinese would have a similar dining-out culture because 99% of Hong Kong's population is of Chinese origin, and the ATTs towards food wellness and health care in

China (mainland) and Hong Kong have been found to be similar (Jungbeck and Benkouider, 2004).¹ In addition, with increasingly busy lifestyles in China and longer working hours, it is becoming more and more common for Chinese consumers to eat 'on-the-go' or in restaurants (Tait, 2005). Thus, we assume that dine-out sociability is highly associated with Chinese consumers' perceived needs towards using soy-based DS (Payne *et al.*, 2004). The people who eat out frequently may be more likely to feel the deficiency of vegetable ingredients such as soy protein in their diets. Since DS have been marketed as diet enhancers, taking supplements is considered by some consumers as a form of harm reduction because people feel taking DS is a way to make up for essential nutrients that may be missing from their diets (Nichter and Thompson, 2006). Ishihara *et al.*'s study (2003) showed that people eating out more frequently are prevalent DS users. Consequently, dine-out sociability would positively affect Chinese consumers' intention to use soy-based DS.

Further, we propose a moderating influence of dine-out sociability on the relationship between ATTs towards using UMUB soy-based DS and the intention to use these DS products. That is, if consumers frequently dine-out, their needs to supplement their diets by using DS would increase. Thus, for these consumers, as compared with those who dine out less frequently, their positive ATTs towards using UMUB soy-based DS would be directly translated into stronger intention to use these DS products. Based on these arguments, the following hypotheses are proposed:

H5a: Chinese consumers' favourable feelings towards dine-out sociability will positively influence their intention to use UMUB soy-based DS.

H5b: Chinese consumers' favourable feelings towards dine-out sociability will positively influence the function between their ATTs and intention to use UMUB soy-based DS.

Method

Focus group interview

One session of a focus group was conducted in Shanghai with 11 participants who had purchased DS products in the past. Because previous studies have indicated that females and older consumers are more likely to buy these products, we chose eight females and only three males. Only two participants were below the age of 30. These participants came from various educational and income backgrounds. The discussion process lasted about one hour. The audience was notified that their participation was totally voluntary, and they did not have to answer particular questions if they did not want to. Also, they were free to leave or stop participating at any time. An audiotape recording was taken during the process; however, the participants' identities and recordings were not associated since their names were not recorded. The contents of the interview included questions about consumers' beliefs in terms of

¹For example, traditional Chinese medicine (TCM), especially tonics and bottled nutrition, plays a big role in both areas due to tradition, availability, and cost-savings (Jungbeck and Benkouider, 2004). In addition, some events that happened after 1997 influenced these two areas (Hong Kong and China Mainland) at the same time. For instance, following the outbreak of SARS in 2003, both Hong Kong and China Mainland witnessed soaring sales of dietary supplements (Jungbeck and Benkouider, 2004).

(1) the efficacy of consuming DS, (2) the physical risks associated with consuming DS, (3) marketer distrust, (4) important referent others and (5) resources and opportunities associated with purchasing DS. In addition, the cultural context of the target concepts, previous experiences with DS, reasons for purchasing DS, reasons for using DS, and salient product ATTs important in purchasing DS were also identified. The information gathered during this phase was used to refine and complete the quantitative survey instrument.

Pre-test

After being developed in English, the survey instrument was translated into Chinese by a native Chinese speaker using a double-blind translation procedure to achieve questionnaire equivalence. Before the pre-test, in order to determine the time needed to complete the Chinese questionnaire, a pilot test was conducted. In the pre-test, data were collected from 30 Chinese consumers in Shanghai. The pre-test used the same procedure as the main survey. The average age of the respondents was 32.35 in the pre-test, ranging from 18 to 64 years of age. There were 12 males and 18 females.

Main survey

A few revisions were made to the survey questionnaire based on the results of the pre-test. The final study used a self-report survey.

A picture board was constructed and shown to the respondents before they filled out the questionnaires. On this board, the pictures of three UMUB soy-based DS (protein powder, isoflavone and lecithin) were presented with brief product descriptions including country of origin (made in the US) and prices. The market price for each product was researched, and then an average value was used. Our study focused only on the common category of US-brand DS and ignored the possible impact of different brands since brand effect was beyond the purpose of our research. Therefore, the brand names were not identified, but the products were labelled as American brands.

The survey instrument consisted of the following sections: (1) ATT, (2) SN, (3) PBC including capability and controllability, (4) intention to use, (5) demographics such as age, gender, income, and education and (6) frequencies of soyfoods intake and dining out (see Table 1). The measures for ATT, SN, PBC and intention were adapted from Ajzen's (1991) and Conner *et al.*'s (2001) studies. An odd-point scale enables the respondent to choose neutrality, while an even-point scale forces a choice and provides greater differentiation and discrimination in evaluations of constructs (Shetland Islands Council, n.d.). Besides, as a Confucian virtue, 'the Doctrine of the Mean', which has influenced Chinese people throughout a long history by demonstrating the usefulness of a mean as a golden way to gain perfect virtue in most social activities, could make Chinese consumers likely to pick neutral

Table 1 The results of reliability and principle component analyses

Variable	Questionnaire items
ATT	Cronbach's $\alpha = 0.78$; Eigen value = 2.46; % of Variance = 61.38 For me to take a US-made US-brand soy-based dietary supplement regularly during the next year for my health would be: 1. Risky and healthy 2. Harmful and beneficial 3. Worthless and Valuable 4. Bad and good 5. Difficulty and easy
SN	Cronbach's $\alpha = 0.80$; Eigen value = 2.50; % of Variance = 62.50 1. In regards to taking a US-made US-brand soy-based dietary supplement regularly during the next year for my health, most people who are important to me think that: I should & I should not 2. It is expected of me that I will take a US-made US-brand soy-based dietary supplement regularly during the next year for my health: likely and unlikely 3. In regards to taking a US-made US-brand soy-based dietary supplement regularly during the next year for my health, the people in my life whose opinions I value would: approve and disapprove 4. The people in my life whose opinions I value take US-made US-brand soy-based dietary supplements for their health: regularly and never
PBC	Cronbach's $\alpha = 0.88$; Eigen value = 2.43; % of Variance = 80.85 1. If I could remember, I could take a US-made US-brand soy-based dietary supplement regularly during the next year for my health: likely and unlikely 2. For me to take a US-made US-brand soy-based dietary supplement regularly during the next year for my health would be: likely and unlikely 3. If I wanted to, I could take a US-made US-brand soy-based dietary supplement regularly during the next year for my health: possible and impossible
INT	Cronbach's $\alpha = 0.91$; Eigen value = 2.56; % of Variance = 85.29 1. I intend to take US-made US-brand soy-based DS. 2. I plan to take US-made US-brand soy-based DS. 3. I want to take US-made US-brand soy-based DS.
SF	'How often do you eat Tofu?' (never to regularly)
DS	'How often do you dine out?' (never to regularly)

SF, soyfoods favourability in Chinese dietary culture; DS, dine-out sociability in Chinese dietary culture.

answers (Yau, 1994). Thus, a 6-point scale could effectively force them to express their real thoughts.

ATT

Five items assessed ATT in relation to the benefits of taking UMUB soy-based DS and were measured on a semantic differential scale. For example, 'For me to take a UMUB soy-based DS regularly during the next year for my health would be harmful vs. beneficial.' A value of '1' is given to 'harmful' and '6' to 'beneficial.'

SN

Four items assessed SNs in relation to the social pressure of taking UMUB soy-based DS. For example, 'In regards to taking a UMUB soy-based DS regularly during the next year for my health, most people who are important to me think that?' was measured on a 6-point Likert-type scale ('1' = 'I should' to '6' = 'I should not').

PBC

Three items assessed capability and controllability. For example, a capability item is 'If I could remember, I could take a UMUB soy-based DS regularly during the next year for my health' measured on a 6-point Likert-type scale ('1' = 'likely' to '6' = 'unlikely'). For controllability, 'If I wanted to, I could take a UMUB soy-based dietary supplement regularly during the next year for my health': was measured on a 6-point Likert-type scale ('1' = 'possible' to '6' = 'impossible').

Intention

Three items assessed behavioural intention. For example, 'I intend to take UMUB soy-based DS' was measured on a 6-point Likert-type scale ('1' = 'strongly disagree' to '6' = 'strongly agree').

Soyfoods favourability and dine-out sociability

Consumers' favourable feelings towards soyfoods consumption were assessed by measuring the frequency of consuming soyfoods, including soybeans, tofu, and soybean-related foods (Kirk *et al.*, 1999). An ordinal scale of 'never', 'sometimes' and 'regularly' was used. Similarly, favourable feelings towards dine-out sociability were obtained through the same scale. Since the 'never' category accounted for only a little of the total ('never' eat soybeans: 8.4%; tofu: 3.3%; soybean-related foods: 5.1%; never dine-out: 5.1%), these scales were coded as continuous variables in the regression. For example, the frequency of eating 'soybeans', 'tofu', and 'soybean-related foods' were added together as the value of 'soyfoods favourability', which ranged from '3' (never) to '9' (regularly). Dine-out sociability ranged from '1' (never) to '3' (regularly).

Sample selection and data collection

This survey was conducted in Shanghai, one of the major metropolitan cities in China, where a variety of soy-based DS are readily available. Previous research in western cultures has indicated that

DS consumers are more likely to have higher than average disposable incomes (de Jong *et al.*, 2003; Ishihara *et al.*, 2003; Chen *et al.*, 2005) and to be well educated (de Jong *et al.*, 2003; Gunther *et al.*, 2004; Brownie, 2005; Chen *et al.*, 2005). Shanghai, the most economically developed region in China with a population of about 20 million residents, has been regarded as one of the largest single markets for DS due to (1) high levels of nutritional education and advertising, as well as higher disposable incomes; (2) increasingly unbalanced diets and hectic and sedentary lifestyles with little time to exercise and (3) fewer family meals, heightened stress levels, and pollution to contend with (Jungbeck and Benkoudier, 2004).

A marketing company in Shanghai was contracted to conduct the focus group interview, the pre-test, and the final data collection. The street intercept method was used. The locations for data collection were selected based on the following criteria: (1) a large flow of visitors with 50 persons per minute; (2) an average demographic distribution in the locations of data collections (based on previous research by the company), especially in age and income levels and (3) several large drugstores or supermarkets selling health care products. Selection bias can be a big issue for street intercepts since most interviewers would choose friendly-looking people to achieve successful responses. We tried to avoid this kind of bias by asking every fourth person passing the data collection point for survey participation. The response rate was 73.9% and the total number of usable questionnaires for the UMUB soy-based DS was 215.

To ensure the quality of measurements, the reliability and principal component analyses were conducted. The results showed that the values of Cronbach's α ranged from 0.78 to 0.91, which indicated a great internal consistency. Furthermore, principal component analysis was performed and one factor with an eigenvalue greater than 1 was found for all measures accounting for 61.38% to 85.29% of the variability in the data. Then the multiple regressions using SPSS were applied to test the hypotheses with the 'Enter' method.

Statistical analysis and results

The respondents' ages ranged from 18 to 72 with a mean of 38.97. The percentage of females was higher than that of males (64% : 36%). The respondents whose incomes were over 50 000 RMB accounted for 59% of the total. In terms of education, 46% of respondents had earned a bachelor's or higher degree. Our demographic results are generalizable to the urban population of China.

Multiple regression analysis was conducted to examine the application of the TPB and two alternative models that included Chinese dietary culture variables to assess Chinese consumers' intention to use UMUB soy-based DS (See Table 2).

Step 1 (TPB model): ATT, SN and PBC were regressed on intention. The results showed that the TPB is applicable ($R^2 = 0.473$, $P < 0.001$). ATT and PBC positively influenced intention ($\beta_1 = 0.173$, $P < 0.005$; $\beta_3 = 0.563$, $P < 0.001$, respectively); however, SN had no significant influence on intention ($\beta_2 = 0.056$, $P = 0.883$). Step 2: Two Chinese dietary culture variables, soyfoods favourability and dine-out sociability, were integrated into the TPB model as independent variables along with the three TPB components (ATTs, SN and PBC). The results showed that, under

	Predictors	Beta	SE(B)	t	F	R ²
Step 1	ATT	0.173	0.063	3.124***	62.214****	0.473
	SN	0.056	0.067	0.883		
	PBC	0.563	0.060	8.641****		
Step 2	ATT	0.177	0.063	3.220***	41.169****	0.505
	SN	0.072	0.067	1.143		
	PBC	0.539	0.060	8.325****		
	SF	0.128	0.046	2.577*		
	DS	0.131	0.110	2.633**		
Step 3	ATT	0.266	0.065	4.658****	31.391****	0.525
	SN	0.076	0.066	1.214		
	PBC	0.512	0.060	7.947****		
	SF	0.182	0.015	3.534****		
	DS	0.145	0.108	2.939***		
	ATT × SF	-0.110	0.013	-2.195*		
	ATT × DS	-0.047	0.104	-0.946		

*P < 0.05; **P < 0.01; ***P < 0.005; ****P < 0.001.

SF, soyfoods favourability in Chinese dietary culture; DS, dine-out sociability in Chinese dietary culture.

the existence of the TPB components, both new variables are positively associated with intention ($\beta_4 = 0.128, P < 0.05$; $\beta_5 = 0.131, P < 0.01$ respectively). The relationships between ATT, SN, PBC, and intention were not changed by these additional variables. ATT and PBC still positively predicted intention ($\beta_1 = 0.177, P < 0.005$; $\beta_3 = 0.539, P < 0.001$, respectively) and SN had no significant impact ($\beta_2 = 0.072, P > 0.05$). This integrated model predicted intention as well as the TPB model ($R^2 = 0.505, P < 0.001$). Step 3: We tested how these two cultural variables would influence the function between ATT and intention in this stage. In order to test the moderating influences of soyfoods favourability and dine-out sociability on the relationship between Chinese consumers' ATTs and behavioural intention, two interaction terms (ATT × soyfoods favourability and ATT × dine-out sociability) were added to the regression model in Step 3. The results showed that soyfoods favourability was a significant and negative moderator between ATT and intention (β_1 for ATT = 0.266, $P < 0.001$; β_4 for soyfoods favourability = 0.182, $P < 0.001$; β_6 for the interaction = -0.110, $P < 0.05$). Consequently, the slope of the linear relationship between ATT and intention varies across the levels of consumers' favourable feelings towards soyfoods consumption. In other words, the lower the level of Chinese consumers' soyfoods favourability, the stronger the influence of ATT on intention. Chinese consumers' favourable feeling towards soyfoods actually acts as an opposite force during their motivation process from ATT to intention to use soy-based DS. Besides, dine-out sociability is still directly and positively associated with intention ($\beta_5 = 0.145, P < 0.005$) since its interacting impact with ATT on intention is not significant ($\beta_7 = -0.047, P > 0.05$). ATT and PBC still positively predicted intention ($\beta_1 = 0.266, P < 0.001$; $\beta_3 = 0.512, P < 0.001$, respectively) and SN had no significant impact ($\beta_2 = 0.076, P > 0.05$). This integrated model including the interactions (moderator) predicted behavioural intention significantly and equally as well as the previous models ($R^2 = 0.525, P < 0.001$). (See Fig. 1)

To test the hypotheses, the results obtained from the multiple regression in Step 3 were used, as this is the most comprehensive

Table 2 The results of multiple regression analysis

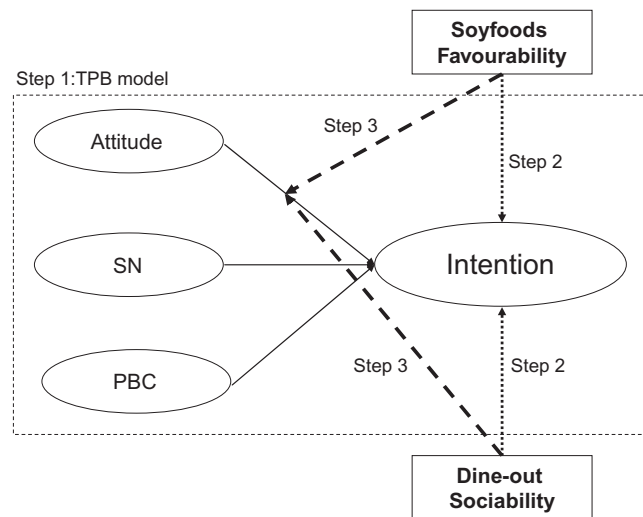


Figure 1 The process of multiple regression analysis.

model. ATT, PBC, and dine-out sociability are significant predictors to intention. Soyfoods favourability is a significant moderator for the function between ATT and intention. SN has no significant impact on intention. Accordingly, H1, H3, H4b and H5a were supported. H2, H4a and H5b were not supported.

Discussion

The data analysis showed that our assumption about the significant influences of Chinese dietary culture on Chinese consumers' intention to use imported soy-based DS was confirmed. Soyfoods favourability was found to negatively moderate the function between ATT and intention. Moreover, dine-out sociability was found to positively influence intention. All of the above evidence supported the claim that it is necessary to integrate local culture

variables into the TPB as it is applied in different areas. Even though the new alternative model in which dietary culture variables including soyfoods favourability and dine-out sociability and their interactions with ATTs were integrated into the TPB model yielded only marginal statistical improvement to the TPB model itself, it did provide important and helpful information to marketers and researchers for understanding what could influence Chinese consumers' intention to use imported soy-based DS.

However, the negative moderating effect of soyfoods favourability on the function between ATT and intention is partly inconsistent with some previous western findings showing a healthier lifestyle such as a diet lower in fat and higher in vegetables is positively associated with herbal/specialty supplement use (Gunther *et al.*, 2004); multivitamin use (Reaves *et al.*, 2006); and multivitamin, multi-mineral, single supplement, and herbal use (Reedy *et al.*, 2005), as well as non-vitamin and non-mineral supplement use (Radimer *et al.*, 2000). Our finding suggests that even though soyfoods favourability does not directly influence intention, it acts as an indirect and negative moderator for the relationship between ATT and intention, which is consistent with Liu's finding (2006): Chinese consumers believe that natural foods should be able to supply their nutritional needs. Chinese consumers with sufficient soyfoods consumption might think soyfoods have satisfied their soy nutrition needs. Consequently, they would not intend to use soy-based DS even though they might have very positive ATTs towards the DS. In conclusion, Chinese consumers' favourable feelings towards soyfoods would be an inhibitor to their intentions to use UMUB soy-based DS. As a result, it is necessary to pay some attention to local dishes when applying the TPB to explore consumers' intention to use food-related products such as DS. For example, if we want to investigate consumers' behavioural intention to use fish oil, 'seafoods favourability' could be an influential factor. Another example could be 'fruit favourability' towards vitamin C consumption.

Also, dine-out sociability was found to directly and positively associate with Chinese consumers' intention to use UMUB soy-based DS. It seems that those who have a strong favourable feeling towards dine-out activities have perceived their deficiency of soy nutrition. In connection with the finding of soyfoods favourability, the underlying factor – the perceived needs resulting from local diet habits – plays a very important role in influencing consumers' intention. Our study confirmed the results of the previous studies (Payne *et al.*, 2004; Shepherd and Raats, 2007) that found that perceived needs significantly impact consumers' intention to use DS.

In addition, our regression analysis revealed that ATT and PBC positively predicted intention but SN did not. This finding is consistent with some previous studies. For example, Kim *et al.* (2003) found that older adults' ATTs and PBC were significant antecedents of intention to eat dairy products, whereas SN had no influence. Both dairy products and soy-based DS are consumed privately at home rather than conspicuously in public. In other words, these consumption behaviours may not indicate social status so that they are not greatly influenced by other people's opinions. Similarly, Eves and Cheng (2007) found that Chinese consumers' personal beliefs were more important in intention to purchase new food products than the influences of other people, which did not support their expected results that the Chinese would place more emphasis on others' opinions than on their own

beliefs due to China being a collectivist culture (Eves and Cheng, 2007). They reasoned that food is not an item of conspicuous consumption or a cultural shift among urban Chinese (Eves and Cheng, 2007).

Last, PBC played the most important role in affecting Chinese consumers' intention to use UMUB soy-based DS. Similar findings were reported by Payne *et al.* (2004); they claimed that PBC was the main predictor of exercise intention. Similar to exercising, the most popular soy-based DS in China is soy protein powder, which is commonly more difficult to be taken consistently than other forms such as tablets, capsules, softgels or liquids. Besides, soy protein powder is not very conveniently taken or carried, which could cause some consumers to feel it would be difficult to remember taking it on time. Some certain self-control is needed for this behaviour. Moreover, as a foreign-brand DS, availability at the market could be insufficient, which might cause some consumers to feel it will be inconvenient to purchase them. Consequently, Chinese consumers' perceived capability and controllability might greatly influence their intention to use UMUB soy-based DS.

Conclusion and implications

This study identified the application of the TPB model and the significance of local culture, such as diet preferences and dining habits, in exploring Chinese consumers' intention to use imported soy-based DS. These cultural factors might directly or indirectly (moderate) influence intention. They even played more important roles than SN, which was shown to have no significant relationship with intention.

In addition, a few marketing implications were recognized in this study for the producers and marketers of these imported soy-based DS such as paying some attention to the local diet culture rather than applying the same strategies globally. For example, comparing the advantages and disadvantages between taking soy-based DS and soyfoods would be an effective way to enhance Chinese consumers to recognize the better benefits of soy-based DS. Moreover, emphasizing the deficiency of soy nutrients due to dining out would be a good strategy to make Chinese consumers perceive their need for soy-based DS.

Lastly, even though the new alternative models could have no significant statistical improvement compared with the TPB model itself, they did provide important and helpful information to marketers and researchers for understanding what could influence Chinese consumers' intention to use imported soy-based DS.

Limitation and future studies

Future studies should examine a moderating influence of product type (i.e. private vs. conspicuous) on the relationship between SN and intention in order to have a better understanding of the importance of SN in predicting behavioural intention to use different products. Moreover, since different brands, such as local brands vs. imported ones, would significantly influence Chinese consumers' intention to use DS, the issue of 'brand effect' is suggested for future studies.

Further, data was collected from only one city in China. As mentioned above, consumers in different parts of China show different DS consumption patterns (Savage, 2005). In particular, even though rural areas are not the major consumption markets for

soy-based DS due to low awareness of DS use, these markets have great potential with gradual economic development and a huge population (U.S. Food and Drug Administration Center, 2001). In China, the developing countryside has 75–80% of the population, which has a great potential to become DS consumers (Asia Pacific Biotech News, 2003). Therefore, future research should be conducted in different parts of China, including rural and urban areas, to compare consumer characteristics in relation to behavioural intention to use imported soy-based DS in these regions.

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