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Consumer acceptance of peanut plant-based meat in China.

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Introduction

Meat is a food choice commonly associated with a quality source of protein and essential nutrients, such as iron, vitamin B12 and zinc (McAfee et al., 2010). However, excessive meat consumption negatively impacts human and environmental health (Tilman & Clark, 2014; Gakidou et al., 2017; Tubiello et al., 2014). Consequently, as consumers gradually learn about these negativities, social pressure to reduce meat consumption and promote plant-based diets (PBD) has emerged (Lea et al., 2006). It has been argued that a shift towards PBD can improve human well-being (Hu et al., 2019; Lew et al., 2017), help fight climate change by reducing Greenhouse gas emissions (Alvaro, 2017; van de Kamp et al., 2018) and safeguard food security-- especially during food supply chain crisis such as the COVID-19 pandemic, as plant-based foods are more accessible and less prone to pathogen contamination harmful to humans (Pu & Zhong, 2020; Wilson, 1995).

Plant-based meat or meat analogues are plant-based products that mimic animal meat's appearance, flavour, and fibrous texture (Pietsch et al., 2017). It preserves the benefits of plant-based diets (PBD) and saves the struggle of giving up the sensory enjoyment of eating meat. Modern technologies such as extrusion, sharing and freeze alignment have made vegetable protein texture more similar to real meat. Plant-sourced proteins in the market generally come from legumes (soybeans, lentils, peanuts, peas), grains (wheat, rice, millet, corn) and leaves (alfalfa, sugar cane). Among the most explored are soybeans, mainly due to their balanced protein composition, wide availability, affordable price, and favourable physical properties (Boukid,

2020). However, other plant-based proteins also have the potential to diversify the market and offer more choices for consumers. This includes peanuts.

Peanuts with unsaturated fat and complex carbohydrate fibres contain desirable human health nutrients. Peanut protein contains all 20 amino acids. Its protein digestibility corrected amino acid score (PDCAAS) is 0.7, nutritionally equivalent to meat and eggs for human growth (Suárez López et al., 2006; FAO, 2007). Peanuts' pure protein digestibility reaches up to 90%, higher than soy protein (Chen et al., 2020). Moreover, peanut protein has excellent water retention and high solubility, ideal for making meat substitutes (Wu et al., 2009).

As most peanuts (55%) are used to produce edible oil, by-products, such as press cake and pulp, need to be given ways to suit sustainable production (Wang et al., 2016). The press is mainly used for animal feed (Asiedu, 1994), although it contains 40-50% protein and other nutrients. It makes the perfect material for plant-based meats. Some small companies have already launched peanut-based meats (PBM) in the Chinese market, proving the technical probability of such products.

The shift to a vegetarian diet is a significant trend, and peanut-based meat can be a portion of comfort food to facilitate the transition. For this reason, manufacturers should study consumer preferences before mass production starts. Many studies have identified consumer preferences towards general PBD, most of which were conducted in the Western world (Graca et al., 2015; Hopwood et al., 2021; de Koning et al., 2020). Fewer studies have focused on Chinese PBD preference, and to the best of the author’s knowledge, previous literature lacks the investigation of consumer acceptance of peanut-based meats (Bryant et al., 2019).

This study aims to understand the key factors influencing consumers’ willingness to consume (try and buy) peanut-based meat in China. As a by-product of cold-pressed oil, peanut cake (high in protein) is not widely used, so studying consumer preference towards PBM can provide a platform for high-value utilisation of peanut protein and, at the same time, offer a reference for practical measures and policies to improve the proportion of vegetarian food in the Chinese market.

1. Theoretical Background

Consumers turn to PBD for many reasons, from individual preferences to social and economic influences. Based on a literature review, this section will detail the conceptual model for PBM acceptance, which will be considered for the China case study.

1.1. Food knowledge

Previous studies have shown that consumer knowledge significantly impacts PBD consumption (Faber et al., 2020; Verbeke, 2005; Verbeke et al., 2005). Information from reliable sources was identified as affecting consumers' preferences or attitudes towards PBD (Pandey et al., 2021).

PBM is a relatively new concept in China, and we argue that many customers would not have known about it. Therefore, collecting knowledge information for PBM would be difficult, and we decided to consider general subjective knowledge about food and cooking since those consumers will have a more robust view of selecting ingredients to build their diet. The following hypotheses were generated:

H1: More knowledge about food will significantly affect food preference.

H2: More knowledge about food will significantly affect consumer attitudes towards PBM.

1.2. Food preference

Food preferences towards PBD have been linked to preferences for healthy and ethical attributes, among other elements (Steptoe et al., 1995; Sun, 2008; Fiorentini et al., 2020). Lindeman and Vaananen (2000) developed a food choice measurement scale based on health and ethical values. Other investigated factors included ecological welfare, animal welfare and environmental protection, political values, and religion (Hoek et al., 2011). Based on the discussion above, hypothesis 3 was made:

H3: A higher preference for healthy and ethical foods significantly and positively impacts consumer attitude towards PBM.

1.3. Perceived barriers

Other than personal attitudes, there are many subjective barriers to PBM consumption. These are the price, availability, and lack of information (Chang & Wildt, 1994). Price is an essential determinant of purchase intention. The higher the food product price, the lower the purchase intention. Herrmann et al. (2007) explained that perceived price fairness significantly influences consumer satisfaction. PBM is still more expensive than ordinary meat (Rosenberg, 2021), making it a less common choice for budget consumers. Likewise, information can influence consumers' attitudes and purchase choices towards plant-based diets (Vainio, 2019).

Another barrier to consider is the lack of information, which would increase the knowledge gap between consumers and products, lowering the purchase intention. Availability is also an important determinant of consumer attitude and purchase behaviour. This was proven by Vermeir and Verbeke (2006), who found that the limited availability of sustainable products is the reason for low purchase intention, contrary to positive purchase attitudes. Therefore, hypotheses 4 and 5 were made:

H4. Perceived barriers towards PBM consumption will have significant negative effects on consumer attitudes.

H5. Perceived barriers towards PBM consumption will significantly negatively affect consumer purchase intention.

Based on the theory of planned behaviour (TPB), there is a positive link between food attitude and purchase intentions (Ajzen, 1991). It found that intention was the primary predictor of behaviour, and intention was influenced by attitude, social norms, and perceived behavioural control (Ajzen, 2005). Several lines of evidence strengthened this relationship in food consumption research (Vermeir & Verbeke, 2008; de Gavelle et al., 2019).

This paper includes meat attachment, food innovation and sensory enjoyment, in addition to the initial three factors of the TPB.

1.4. Meat attachment

Graca et al. (2015) evaluated the elements that form the meat attachment concept, which are Hedonism (the joy of consuming meat), Affinity (the liking of meat consumption), Entitlement

(the feeling of having the right to consume meat) and Dependence (the reliability to consuming meat). Other studies have also indicated that meat lovers are more likely to be driven by price and sensory appeals than production methods, making them less likely to accept meat substitutes (Richardson et al., 1993; Verbeke & Vackier, 2004). Hypotheses 8 and 9 were made based on this information:

H6: Higher attachment to meat significantly negatively impacts consumer attitude towards PBM.

H7: Higher attachment to meat significantly negatively impacts consumers' intention to try PBM.

1.5. Food innovation

Familiarity with specific foods and food technology strongly contributes to food acceptance (Meiselman & Bell, 2003). Here, food innovation attitude refers to the extent to which people are unaffected by food and technology neophobia. Studies have shown that neophobia negatively impacts the acceptance of novel foods; in other words, a positive attitude towards food innovation positively influences food acceptance (Barrena & Sánchez, 2013; de Koning et al., 2020). Based on this knowledge, the following hypothesis was made:

H8: Food innovation attitude positively impacts consumers' intention to try PBM.

1.6. Social norm

Social norms are identified as socially expected behaviours in social interactions; the expected behaviour pressure may come from family members, friends, classmates, co-workers and celebrities. Social norms effectively impact food acceptance (Bae & Choi, 2020; Higgs, 2015). In the Chinese population, this is particularly true, as they pay much attention to shared aims and appreciate what they have in common (Bagozzi et al., 2000). Therefore, the following hypothesis was made:

H9. Social norms have a positive influence on consumer’s intention to try PBM.

1.7. Sensory

Most studies found that simulations of meat are critical for meat substitute acceptance, and novel technologies have made this possible (Hoek et al., 2011). Sensory properties of food are essential

in forming positive impressions, and unpleasant tastes can put people off accepting them. Many non-vegetarians hesitate before trying healthy plant-based diets, fearing compromising taste (Reipurth et al., 2019). Further, before tasting, visual appearances and smell of food have a greater impact on consumers' acceptance than taste and texture (Elzerman et al., 2011). As plant-based meats are still developing, their sensory properties differ from actual meat (de Koning et al., 2020). Based on the above, the following hypothesis was made:

H10: Sensory enjoyment significantly negatively impacts consumer intention to try PBM.

1.7.1. Perceived behavioural control and intention to try and buy.

The most challenging part of introducing unfamiliar food is to have people try it. When familiarity rises, purchase intention rises (Bäckström et al., 2004). "Trying before buying" is a long-used promotion strategy; it increases consumer familiarity with the product and helps build trust in the product with little at the consumer's cost (Lang, 2019). Try before buying is great for accumulating customers with a great product as it eliminates the unknowns and eases neophobia (Shoemaker & Shaof, 1975). Studying the factors influencing trying intention might offer more practical benefits than straightforward purchase intention. Another essential element related to familiarity is perceived behavioural control (PBC). PBC consists of the belief in the level of control over the behaviour expressed by the people, which can change the behavioural outcome (Armitage & Conner, 1999). In other words, PBC can also influence consumer purchase intention (Yangui et al., 2016). Based on this discussion, hypotheses 11-13 were made:

H11. Consumers' attitudes towards PBM have a significant effect on their intention to try PBM.

H12. Consumers' intention to try PBM significantly affects their intention to buy PBM.

H13. Perceived behavioural control significantly affects consumers' intention to buy PBM.

All the hypothesised relationships are summarised in Figure 1.

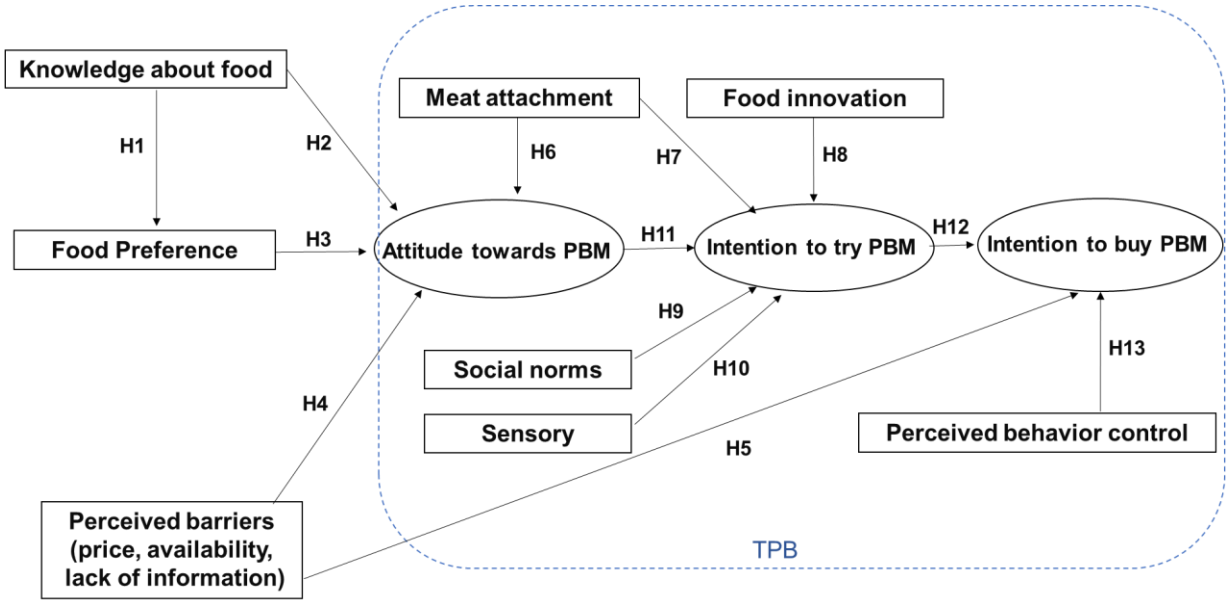

Figure 1. Hypothesised relationships of factors influencing Chinese PBM acceptance (Conceptual model).

2. Methods

2.1. Data collection and sample

Data collection was conducted with an anonymous online questionnaire in Chinese communities using social media, with 773 respondents collected. Previous studies have suggested that a sample size of 200 and above offers adequate statistical strength for structural equation model analysis (Singh et al.,2016). There was an observable skew towards younger age with an average age of 38.07 (72.06% under 50) and females (73.87%), in line with other studies using online platforms or other smart devices to assist data collection (Pandey et al., 2021).

Table 1 provides an insight into the demographic characteristics of the survey respondents. Regarding the participants' educational background, 50.97% finished college, and 25.49% attended post-graduate school. As for employment status, most were employed or self-employed (60.16%), followed by students (27.94%), which could explain the relatively sizeable low-income response percentage, with 30.66% earning below 5000 CNY (Chinese Yuan) per month and 29.62% between 5001-10000CNY. In addition, over 70% claimed to believe in or partly believe in Buddhism.

Table 1. Sample's characteristics

Variables	Categories	N	%
Age (median)	(44)	/	/
Gender	Female	571	73.87%
	Male	200	25.87%
	Other	2	0.26%
Education	Primary or lower	1	0.13%
	Secondary	52	6.73%
	Diploma/ Technical certificate	129	16.69%
	Undergraduate	394	50.97%
	Postgraduate or higher	197	25.49%
Employment Status	Employed (including self-employed)	465	60.16%
	Homemaker	22	2.85%
	Retired	62	8.02%
	student	216	27.94%
	unemployed	9	1.03%
Monthly Income	Below 5000 CNY	237	30.66%
	5001-10000 CNY	229	29.62%
	10001-20000 CNY	127	16.43%
	Higher than 20001 CNY	41	5.30%
	Prefer not to say	139	17.98%
Peanut allergy	No	768	99.35%
	Yes	5	0.65%
Agreement with Buddhist beliefs	No	203	26.26%
	Partly	438	56.66%
	Yes	132	17.08%

2.2. Questionnaire and scaling

The questionnaire was written in English and translated into Chinese. The survey included various questions from previous studies on consumer acceptance (as shown in Table 2) and was tailored to avoid repetition in categories. The respondents were also encouraged to indicate their choices and offer opinions at the end of the survey. All rating questions were presented on a 5-point Likert agreement scale (1=strongly disagree, 5=strongly agree). Demographic information was also collected in the survey (Table 1). Multiple randomisation techniques, such as the shuffling of questions, were used during the survey to reduce biases associated with survey methods. The data collected from the online survey were stored and managed in Excel and further processed using Lavaan and SemPlot R package for data analysis (Rosseel,2012; Jacobucci, 2017). All reverse-scaled questions were stored in the same direction and considered when interpreting the analysis.

Table 2. Factor and measurement items of the study (deleted items for final SEM are shown in brackets)

Factor	**Measurement items**	**Reference**
01. Food knowledge (FK)	(FK1 I know pretty much about foods and cooking) (FK2 Among my circle of friends, I am one of the "experts" on foods and cooking) (FK3 Compared to most other people, I know less about foods and cooking)	(Flynn and Goldsmith, 1999; Lang, 2020)
02. Food preference (FP)	-Health (FPH) FPH1 It is important to me that what I eat is low in fat. FPH2 It is important to me that what I eat is nutritious. FPH3 It is important to me that what I eat is beneficial for weight control. -Ethical (FPE) FPE1 It is important to me that what I eat is produced in a way that animals experience no pain. FPE2 It is important to me that what I eat is produced in a way that does not disturb nature's balance. FPE3 It is important to me that what I eat has environmentally friendly packaging. -Political (FPP) (FPP1 It is important to me that what I eat comes from a country that has no political conflict with my home country)	(Lindeman and Vaananen, 2000)

	(FPP2 It is important to me that what I eat has the country of origin clearly marked)	
03. Food innovation (FI)	FI1 I am constantly sampling new and different foods. (FI2 I do not trust new foods) (FI3 If I do not know what is in a food, I will not eat it) FI4 At dinner parties I will try a new food. (FI5: I am afraid to eat things I have never had before) FI6 I like to try new foods from all over the world -Food innovation technology (FIT) (FIT1 The benefits of new food technologies are often grossly overstated) (FIT2 There are plenty of tasty foods around, so we do not need to use new food technologies to produce more) (FIT3 New food technologies decrease the natural quality of foods) (FIT4 New products using new food technologies can help people have a balanced diet) (FIT5 Innovations in food technology can help us produce foods in a sustainable manner)	(Bryant et al., 2019; Pliner and Hobden, 1992)
04. Meat attachment (MA)	MA1 Eating meat makes me happy. MA2 Meat is irreplaceable in my diet. MA3 I feel eating meat is an entitled right of being human. (MA4 I feel bad when I think of eating meat)	(Graca et al., 2015)
05. Perceived behavioural control (PBC)	PBC1 I can change to a plant-based behaviour if I want to PBC2 Whether to reduce meat consumption is completely under my control	(Graca et al., 2015; Wang and Scrimgeour, 2021)
06. Perceived Barriers (PB)	PB1 PBM are more expansive PB2 PBM are not available in my local shops and restaurants PB3 I have little access to PBM information (PB4 I think PBM tastes bad)	(Verbeke, 2005)
07. Sensory (Sen)	Sen1 I am more willing to buy food that tastes good Sen2 I am more willing to buy food that smells good Sen3 I am more willing to buy food that looks good Sen4 I am more willing to buy food that has good texture	(de Koning et al., 2020)
08. Social norms (SN)	SN1 I will be more likely to have PBM if my family tell me to SN2 I will be more likely to have PBM if my friends tell me to	(Povey et al., 2001)

	SN3 I will be more likely to have PBM if my classmates/colleagues tell me to SN4 I will be more likely to have PBM if my idol is promoting it	
09. Attitude towards PBM (ATT)	Compared to eating meat products, ATT1 I think consuming PBM is good for the environment ATT2 I think consuming PBM is beneficial for my health ATT3 I think consuming PBM is a sustainable act ATT4 I think consuming PBM is better for animal welfare ATT5 I think consuming PBM is attractive	(Graca et al., 2015; Pandey et al., 2021)
10. Intention to try (IntT)	IntT1 How likely are you to try PBM if they were widely available in grocery stores? IntT2 How likely are you to try PBM if they were widely available in restaurants? IntT3 How likely are you to try PBM if they were widely available at dinner parties?	Own experience
11. Intention to buy (IntB)	IntB1 I would buy PBM if it were grown in a more environmentally friendly way than ordinary food IntB2 I would buy PBM if it had less fat than ordinary food IntB3 I would buy PBM if it had more micronutrients than ordinary food IntB4 I would buy PBM if it were as accessible as ordinary food IntB5 I would buy PBM if it had a similar texture and taste as ordinary meat IntB6 I would buy PMB if it were from a renowned brand IntB7 I would buy PBM if it were cheaper than ordinary food	(Costa-Font and Gil, 2009; Van Loo et al., 2020)

2.3. Data analysis

A two-step structural equation modelling (SEM) was used for the analysis. SEM is a multivariate technique used to investigate and evaluate pre-assumed multivariable causal relationships. The first step is confirmatory factor analysis (CFA), used to associate latent variables with their designed indicators. The second step is structural modelling, which investigates the relationship between the latent variables (Fan et al., 2016). Fully independent variables were allowed to correlate.

The following equations are used to define the model (Jöreskog & Sörbom, 1993):

$$x = \Lambda_x \xi + \delta \quad (1)$$

$$y = \Lambda_y \eta + \varepsilon \quad (2)$$

$$\eta = B\eta + \Gamma\xi + \zeta \quad (3)$$

Equations (1) and (2) are measurement models for CFA, whereas equation (3) defines the structural model. In the equations, x is a q×1 vector of the exogenous or independent variable, y is a q×1 vector of the endogenous or dependent variable; Λ_x is a q × n matrix of coefficients of the regression of x on ξ, Λ_y is a q × m matrix of coefficients of the regression of y on η; ξ is an n × 1 random vector of latent exogenous variables, η is an m × 1 random vector of latent endogenous variables; B is an m × m matrix of coefficients of the η variables in the structural model, Γ is an m × n matrix of coefficients of the ξ variables in the structural relationship; and $\delta, \varepsilon, \zeta$ are all vector of error terms in their own relationships.

As not all variables were normally distributed, and more importantly the variables were ordered, the conceptual model was tested by SEM using the diagonally weighted least squares (DWLS) method instead of the maximum likelihood method (Li, 2016). Construct validity was measured using factor loadings, composite reliability, internal consistency reliability, average validity extracted and discriminant validity (Hair et al., 1999; Bagozzi et al., 1991). Items with factor loading <0.4 were eliminated, and then factors with loading <0.5 and cross-loadings >0.25 were dropped to clean the model (Bryman& Cramer, 2011). Namely, factors FIT, FI2, FI3, FI5, FK, MA4, BB4 were removed. As a result, H1, H2 and H5 were not included in the model. The refined conceptual model is shown in Figure 2.

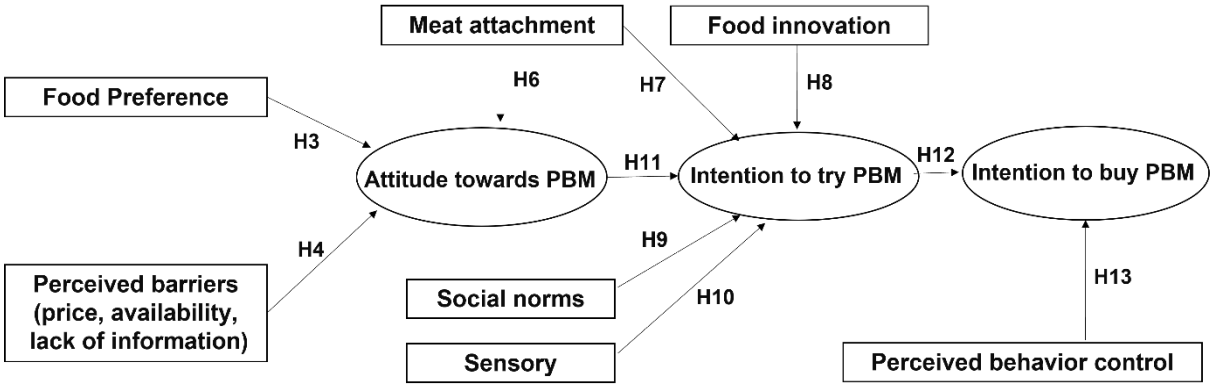

Figure 2. Hypothesised relationships of refined factors influencing Chinese PBM acceptance.

The model of fit considered Comparative fit index (CFI), Tucker Lewis index (TLI), root mean square error of approximation (RMSEA) and standardised root mean square residual (SRMR). For a good fit, the CFI and TLI must be above 0.95, RMSEA less than 0.08 and SRMR less than 0.09 (Hu & Bentler, 1999; Pieniak et al., 2009). However, the chi-square test results were not considered as the χ^2 test is sensitive to sample size, and this model has a relatively large database (Zhi-Hua, 2016).

3. Results and discussion

3.1. Confirmatory factor analysis

The first step of the study was to carry out CFA. The construct and validity results of the estimated model are presented in Table 4. As shown, factor loadings ranged from 0.568 for FPH1 to1.020 for BB2, the average variance extracted (AVE) varied from 0.544 for FP to 0.922 for PB, all factor loadings and AVE were above the 0.5 cut-off point suggested by Hair et al. (1999). Ordinal alpha ranged from 0.801 for PBC to 0.966 for PB, which is above the 0.7 level set by Bagozzi et al. (1991); composite reliability (CR) ranged from 0.755 for PBC to 0.948 for PB, and all CR were larger than the 0.7 barrier also set by Bagozzi et al. (1991). Correlations among the variables were all less than 0.85 and considered acceptable (Bagozzi et al., 1991). The model achieved a good fit with indices within limits: comparative fit index (CFI) and Tucker Lewis index (TLI) equal to 0.995, Root Mean Square Error of Approximation (RMSEA) equal to 0.08 and standardised root mean square residual (SRMR) equal to 0.073.

Table 3. Factor loadings, reliabilities, and convergent validity of factors.

Factor and item	Standardised factor loading	Alpha. ordinal	Composite reliability (CR)	Average variance extracted (AVE)
Food preference		0.864	0.839	0.544
FPH1	0.568			
FPH2	0.811			
FPH3	0.770			
FPE1	0.576			
FPE2	0.807			
FPE3	0.843			
Meat Attachment		0.826	0.794	0.619
MA1	0.752			
MA2	0.871			
MA3	0.731			
Food Innovation		0.813	0.776	0.601
FI1	0.757			
FI4	0.724			
FI6	0.840			
Sensory		0.872	0.823	0.657
Sen1	0.905			
Sen2	0.631			
Sen3	0.793			
Sen4	0.885			
Attitude		0.916	0.889	0.706
ATT1	0.867			
ATT2	0.850			
ATT3	0.863			
ATT4	0.791			
ATT5	0.827			
Social Norm		0.934	0.919	0.828
SN1	0.911			
SN2	0.999			
SN3	0.989			
SN4	0.710			
Perceived barriers		0.966	0.948	0.922
PB1	0.979			
PB2	1.020			
PB3	0.877			
Perceived behavioural control		0.801	0.755	0.671
PBC1	0.779			

PBC2	0.858			
Intension to try		0.897	0.868	0.753
IntT1	0.879			
IntT2	0.860			
IntT3	0.865			
Intension to buy		0.959	0.947	0.791
IntB1	0.888			
IntB2	0.919			
IntB3	0.919			
IntB4	0.921			
IntB5	0.874			
IntB6	0.834			
IntB7	0.868			

Note: For the code of variables, please see Table 2.

3.2. Structural model

The goodness-of-fit indices revealed that the refined hypothesised model fitted the data well. CFI=0.995, TLI=0.995, RMSEA= 0.08 and SRMR= 0.05, all within desired limits.

The path diagram for the estimated SEM model is shown in Figure 4. It can be seen that all paths relate to attitudes, but meat attachment were significant and positive, suggesting that preference in ethical values, health and perceived barriers all had a positive impact on attitude towards PBM. However, higher attachment to meat had a negative impact on attitude towards PBM. Therefore, H3(FP) and H6(MA) were supported at p=0.001 level, with path coefficients at 0.481 and -0.292, respectively. However, surprisingly, H4(PB) was significant ($p<0.001$) but in the opposite direction to the original hypotheses, with a path coefficient of 0.676. The results indicated that the respondents who were more attached to meat held a more positive view towards PBM. On the contrary, those who cared more about health and ethical issues associated with food and those who experienced barriers when consuming PBM held a more optimistic view towards it.

As for the intention to try, all pathways were significant at the p=0.001 level, except for sensory, which was significant at the p=0.01 level. Therefore hypotheses 7(MA), hypothesis 8(FI), hypothesis 9(SN), hypothesis 10(Sen), and hypothesis 11(ATT), were all supported. Meaning that attachment to meat and sensory enjoyment had a significant negative influence on consumers' intention to try PBM; PBM attitude, social norms, and food innovativeness all had a significant

positive influence on consumers' intention to try PBM. Among these, attitude(H11) had the strongest influence with a path coefficient of 0.591, and food innovation(H8) came close behind with a path coefficient of 0.499. Meanwhile, sensory(H10) had the lowest influence towards intention to try, with a path coefficient of -0.155.

Regarding the intention to buy related paths, all were positively significant at p=0.001 level, H12 (IntT) with a path coefficient of 0.879, and H13(PBC) with a path coefficient of 0.094 were supported, which means that people's intention to try PBM and Perceived behavioural control are significant positive contributory factors to their PBM purchase intension.

However, it is worth noting that out of the 773 respondents, only 58 claimed to have heard of peanut-based meat, representing merely 7.50% of the total. Those who had tasted PBM are likely to be fewer than this percentage. Therefore, sensory-related claims could be biased.

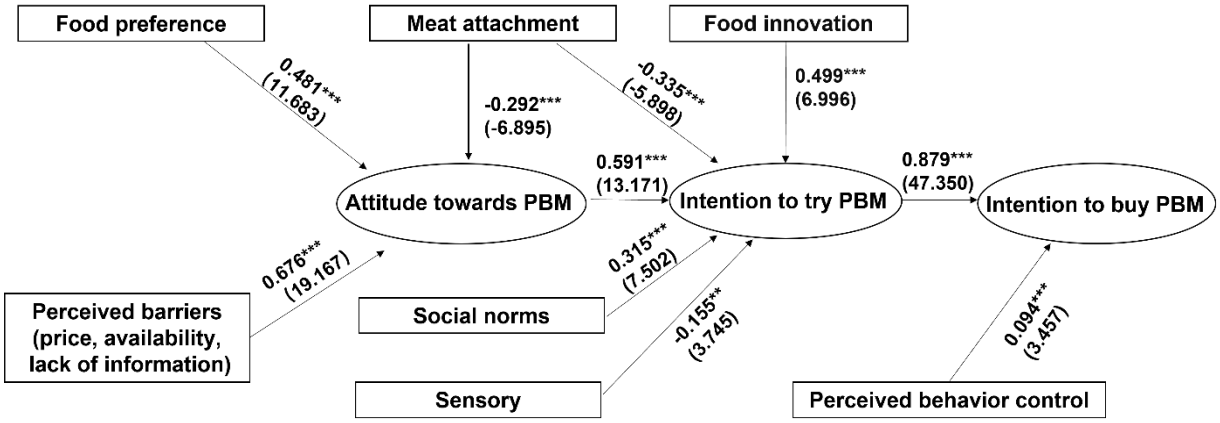

Figure 3. Path diagram results. (Statistically significant at 0.05 level; ** statistically significant at 0.01 level; *** statistically significant at 0.001 level)*

4. Conclusion

This study investigated the factors influencing Chinese consumer acceptance of peanut-based meat (PBM). Overall, Chinese consumers hold a positive attitude towards PBM and are willing to consume it. High utilisation of peanuts using PBM is practical in the country. The study confirmed, as has been found in other research of this kind, that food acceptance was affected by the factors of the Theory of Planned Behaviour (TPB)—attitude, social norm and perceived behavioural control. However, food acceptance was also driven by other factors, including food

innovation, sensory enjoyment and meat attachment. Moreover, people's attitude towards PBM was driven by meat attachment, food preference towards health and ethical values, and perceived barriers. The detailed relations are concluded below.

1) Consumer's intention to buy PBM was directly, positively and significantly influenced by their intention to try PBM and their level of perceived behavioural control.

2) Consumer's intention to try PBM was directly, positively and significantly influenced by their attitude towards PBM, level of food innovation, and social norms. Therefore, consumer intention to buy was indirectly influenced by attitude, food innovation and social norms. Meanwhile, attitude was directly, positively, and significantly influenced by their food preference towards health and ethical values and perceived barriers when buying. However, some see PBM's safety and nutritional values as hazardous.

3) Meat attachment and a higher level of pursuit for sensory had a direct significant negative impact on trying intention, therefore indirectly influence the purchase intention. People were more likely to consume PBM, which had similar properties to real meat, and PBM, which was more nutritious.

Based on the results of this research, governments and companies are advised to try the following measures.

1) Introduce measures to promote consumer trying intention and trying behaviour. Offering tasting samples at restaurants and grocery stores could be a good start.

2) As food innovation increases, food preferences towards health and ethical values vary among Chinese consumers. It is advisable for the government and companies to tailor advertisements to individual likings, increase the familiarity of PBM, strengthen the popularity of animal and environmental protection knowledge, enhance consumers' awareness of the health benefits of consuming a more plant-based diet, and create a preferable public environment for the PBM market to grow. Ways to achieve this include considering the communication of public figures and opinion leaders, expressing the self-satisfaction related to PBM purchasing behaviour, increasing advertisement coverage to attract new users, and informing the pubic about ethical and health benefits of consuming PBM through campaigns.

3) In order to satisfy the sensory and nutritional needs of consumers, PBM companies should invest in PBM production technology and safe food additive development. Governments should also set regulations to accelerate the transition.

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Appendix

Correlation matrix among indicators

(* Statistically significant at 0.05 level; ** statistically significant at 0.01 level; *** statistically significant at 0.001 level)

	FP	**FI**	**Sen**	**ATT**	**MA**	**SN**	**PB**	**PBC**	**IntT**	**IntB**
FPH	1									
FI	0.238***	1								
Sen	0.584***	0.523***	1							
ATT	0.394***	0.234***	0.365***	1						
MA	-0.097*	0.638***	0.476***	0.111**	1					
SN	0.398***	0.234***	0.316***	0.676***	0.048	1				
PB	0.174***	0.321***	0.486***	0.395***	0.315***	0.352***	1			
PBC	-0.059	0.483***	0.491***	0.117**	0.848***	0.047	0.290***	1		
IntT	0.404***	0.298***	0.249***	0.587***	0.083*	0.703***	0.238***	0.100**	1	
IntB	0.429***	0.268***	0.332***	0.707***	0.083*	0.700***	0.329***	0.043	0.755***	1