Relationship between Types of Food Choice Motives and Well-Being among Young and Middle-aged Chinese Adults

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Abstract

Food choice plays a vital role in people's lives and well-being, and this topic has received more research attention in recent years. The aims of the present research were to identify subgroups of participants who shared similar profiles of multiple motives for food choices, and examine differences across motive types on the well-being of young and middle-aged Chinese adults. Participants were 627 Chinese adults aged 18-58 years who completed questionnaire measures. The results of Latent Profile Analysis showed that based on the configurations among different motives for food choice, there were five profiles of food choice motives, corresponding to five types of Chinese adult consumers: unconcerned, mood oriented, weight control oriented, food enthusiast and health oriented. The food enthusiast consumers were more likely to include young adults with high income level and educational level, while the unconcerned consumers had a larger share of middle-aged adults with low income. Results of ANOVA suggested that the types of food choice motives significantly predicted individuals' well-being. Specifically, the food enthusiast group had the highest level of well-being, while the unconcerned group had the lowest level of well-being. The other three groups had moderate levels of well-being. The current study is the first to explore the potential influence of food choice motives on well-being using a person-centered approach, and the results have practical implications for public health authorities in developing effective interventions, for food companies in tailoring marketing campaigns, and for individuals in optimizing food choices.

KEYWORDS

types of food choice motives, well-being, latent profile analysis, life satisfaction, mental health

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1 | INTRODUCTION

It is well known that choices about food play an essential role in people's everyday lives. Previous studies on adults have shown that food choice affects not only physical and mental health (Blanchflower, Oswald, & Stewart-Brown, 2013; Cook & Benton, 1993), but also life satisfaction (Huffman & Rizov, 2018). For example, ice cream on a hot summer day is a better mood booster than other foods (Bublitz, Peracchio, & Block, 2010; Mujcic & Oswald, 2016). Healthy food choices like fruits and vegetables contribute to people's well-being and relieve mental distress (Hong & Peltzer, 2017; Saba & Vassallo, 2012). Tasty food choices, particularly high-fat and high-sugar foods, make people happy but may also lead to obesity

(Kemp, Bui, & Grier, 2013; Tan & Chow, 2014), and other health problems (Wahl et al., 2017). That is, food choice is about more than nutrition, and for this reason, it is currently a key focus of research in the field of well-being (Mujcic & Oswald, 2016; Wahl et al., 2017).

In fact, food choice is far more complicated than it appears to be at first glance. Food choice is determined by a set of individuals' motives, including changing one's mood, seeking out sensory experiences, losing weight, and adhering to personal ethics (Honkanen & Frewer, 2009; Milošević, Žeželj, Gorton, & Barjolle, 2012). In other words, there might be more than one motive behind a specific food choice behavior. Numerous studies have shown that food choice motives have a vital influence on well-being (Apaolaza, Hartmann, D'Souza, & López, 2018; Ares et al., 2015; Mujcic & Oswald, 2016). For example, Mujcic and Oswald (2016) found that the health motive for food choice is associated with well-being. Several studies have shown that the mood motive for food choice has a positive effect on individuals' mental health (Gardner, Wansink, Kim, & Park, 2014; Royal & Kurtz, 2010).

Most research in this area has taken a variable-centered approach to examine the relationship between food choice motives and well-being. However, this approach does not allow for the possibility that this relationship is different in different subgroups of individuals. Previous studies showed that an individual's food choice involves a complex configuration of multidimensional motives, rather than one motive occurring in isolation (Honkanen & Frewer, 2009; Jung, Sydnor, Lee, & Almanza, 2015; Lorenz & Langen, 2018; Marquis, Talbot, Sabourin, & Riopel, 2019). For example, although a previous study showed that the relationship between health motive and well-being is positive and that mood motive is negatively associated with well-being (Kemp et al., 2013), it is difficult to explore these potential influences using variable-centered approach to data analysis when health motive and mood motive co-occur or conflict with each other.

In a word, prior research employing the variable-centered approach did not take into account the complex internal relationship among various food choice motives. By contrast, a person-centered approach, which identifies subgroups of individuals sharing similar sets of food choice motives, reveals people's profiles of psychological motives when they make food choices. Moreover, a person-centered approach can provide a holistic perspective on the study of links between profiles of motives—or types—on well-being.

Some previous studies employed the person-centered approach to preliminarily probe types of food choice motives. For example, Honkanen and Frewer (2009) found that three profiles of food choice motives in a Russian sample of adults, corresponding to three types: price sensitive type, natural content type and mood oriented type. Subsequently, Milošević et al. (2012) in a sample of adults from six Western Balkan countries, found five profiles of food choice motives, corresponding to food enthusiast type, unconcerned type, price oriented type, purchase convenience type, and health oriented type. A recent study found there were three motive profiles in Chinese consumers' choice of organic food, each of which identified a different group of people: people who were safety conscious, gastronomes and sceptics (Chen, Lobo, & Rajendran, 2014). Other researchers have identified various profiles of food choice motives in Greece, Uruguay, Spain, and Poland, but did not label the subgroups of people who shared each profile (Carrillo, Varela, Salvador, & Fiszman, 2011; Fotopoulos, Krystallis, Vassallo, & Pagiaslis, 2009; Wądołowska, Babicz-Zielińska, & Czarnocińska, 2008).

It is widely known that culture has a strong influence on food choices (Michaelidou, Christodoulides, & Torova, 2012; Pearcey & Zhan, 2018). Cross-cultural research has found that motives for food choice vary across cultures (Pearcey & Zhan, 2018; Prescott, Young, O'Neill, Yau, & Stevens, 2002). In one study, Chinese college students viewed natural content as the most important factor when they made a food choice, whereas American college students believed that price and convenience were the most important (Pearcey & Zhan, 2018). In another study, European participants viewed sensory appeal as significantly more important than Asian participants did (Prescott et al., 2002).

Research has also shown that age is an important factor in adults' food choices (Chambers, Lobb, Butler, & Traill, 2008; Chen, Lobo, & Rajendran, 2014; Honkanen & Frewer, 2009). Compared with other age groups, young and middle-aged adults have relatively higher stability and autonomy in food choices (Batis et al., 2014; Ma, 2015; Roos, Lehto, & Ray, 2012). Moreover, with the social changes and rapid economic growth of mainland China, young and middle-aged adults suffer more than before from serious eating-related health problems such as obesity, hypertension, and diabetes, with negative effects on their well-being (Batis et al., 2014; Wang, Wang, Xue, & Qu, 2016; Zhao, Liu, Hu,

Chen, & Sun, 2017). Additionally, young and middle-aged adults are the main force behind Chinese food consumption, making up the largest market segment in mainland China (Wang et al., 2016; Zhang, Dagevos, He, Van der Lans, & Zhai, 2008). Therefore, it is important to focus on this age group to identify their food choice motives and to examine profiles of motives in relation to well-being, using the person-centered approach.

Based on these studies, we argue that there are likely to be multiple profiles of food choice motives among young and middle-aged Chinese adults and that these profiles might differ from those seen in Western countries. It is reasonable based on prior research to expect that well-being would vary across subgroups or types of individuals who share similar profiles. In addition, because the results of previous studies suggested that demographic characteristics such as gender, age, education, and income could play a role in food choices (Büyükkaragöz, Bas, Sağlam, & Cengiz, 2014; Chen et al., 2014; Honkanen & Frewer, 2009), we examined these demographic variables in relation to food choice motive profiles. Therefore, the aims of the current research were to identify different profiles of food choice motives shared by different subgroups or types in a sample of Chinese young and middle-aged adults and to examine whether individuals of different types showed different levels of well-being and different demographic characteristics, using a person-centered approach to statistical analysis. Because of the paucity of research on food choice motives, we did not pose any specific hypotheses.

2 | METHODS

2.1 | Participants and procedure

627 Chinese young and middle-aged adults voluntarily participated in a face-to-face confidential survey. They were from four cities (Shanghai, Wenzhou, Wuhan, Xi'an) in mainland China. These four cities are geographically representative of China's East, South, Central, and Northwest regions, and each city has its own food culture, eating habits, and economic level; the sample is thus thought to be representative of adult consumers in mainland China (Chen et al., 2014; Liu, Pieniak, & Verbeke, 2013; Wang, De, Gellynck, & Verbeke, 2015). In each city, trained graduate students performed data collection in food-related locations such as food courts, supermarkets, and grocery stores. These locations were selected in advance with reference to previous studies (Büyükkaragöz et al., 2014;

Honkanen & Frewer, 2009).

The sample was comprised of 329 young (ages 18-39 years) and 298 middle-aged (ages 40-58 years) adults. The range of ages in these categories was chosen to replicate the young adult and middle-aged categories used in most previous studies on food choice (Hooker & Kaus, 1994; Lindeman & Stark, 1999; Zhang, Mckeown, Muldoon, & Tang, 2006). The average age of the participants was 41.30 years old (*SD* = 4.14). Females made up 50.06% of the sample. Approximately half of the participants (50.56%) had a high school education or lower, 25.36% had a junior college education, and 24.08% had a bachelor's degree or higher. The majority of participants (54.70%) had an annual household income of < 100,000 Yuan (about 14,368 USD), 38.10% of the participants had an annual household income of 100,000-200,000 Yuan, and 7.20% of the participants had an annual household income of > 200,000 Yuan.

2.2 | Measures

All the measurement scales used in the current study are commonly used measures with good psychometric properties. We translated the English versions of these scales into Chinese by employing a translation and back-translation procedure.

2.2.1 | Food choice motives

The Food Choice Questionnaire (FCQ) was used to assess individuals' food choice motives on nine dimensions: Health, Mood, Convenience, Sensory Appeal, Natural Content, Price, Weight Control, Familiarity and Ethical Concern (Steptoe, Pollard, & Wardle, 1995). This questionnaire included 36 items that participants rated on a four-point Likert scale (1 = "not at all important" to 4 = "very important"). An example item is "Keeps me healthy." The FCQ has been widely used in different countries (Steptoe et al., 1995), and has demonstrated good reliability and validity in the Chinese context (Chen, Chen, Kee, & Tsai, 2008; Prescott et al., 2002). In this study, Cronbach's alpha was 0.96. The results of Confirmatory Factor Analysis (CFA) provided evidence of the measure's construct validity (χ^2 = 2220.80, *df* = 552, CFI = 0.90, IFI = 0.90, NFI = 0.87, RMSEA = 0.06).

2.2.2 | Well-being

In the current study, well-being was defined in terms of life satisfaction and mental health. These factors are thought to be the two most important components of well-being (Pavot &

Diener, 1993; Schiaffino, 2003), and each has been found to be associated with food choices (Meiselman, 2016). We employed the Satisfaction with Life Scale (SWLS) to measure life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985) and the General Health Questionnaire (GHQ-12) to assess mental health (Schiaffino, 2003).

The SWLS consists of five items, such as "Life is close to ideal." Each item is rated on a seven-point Likert scales (1 = "completely disagree" to 7 = "completely agree"). The SWLS has been found to have good reliability and validity in a Chinese sample (Pavot & Diener, 1993). In the current study, Cronbach's alpha was 0.88. The results of CFA indicated good construct validity (χ^2 = 18.77, *df* = 5, CFI = 0.99, IFI = 0.99, NFI = 0.98, RMSEA = 0.06).

The GHQ-12 assesses two aspects of mental health, namely depression and social dysfunction. There are six positively-worded items and six negatively-worded items that refer to current functioning. Example items are "Able to concentrate," and "Under stress." Participants rated each item with a four-point Likert scale (1 = "less so than usual" to 4 = "much more than usual"). This scale demonstrated good reliability and validity in a Chinese sample (Lai & Yue, 2000). In the current study, Cronbach's alphas for the depression dimension and social dysfunction dimension were 0.84 and 0.88 respectively. After controlling the reverse wording effect, the results of CFA showed that the two-factor model fit the data reasonably well: χ^2 = 107.26, *df* = 40, CFI = 0.97, IFI = 0.98, NFI = 0.97, RMSEA = 0.05.

3 | RESULTS

3.1 | Descriptive statistics and correlation analyses

Table 1 reports means, standard deviations, and correlation coefficients among focal variables in this study. The results showed moderate to strong positive correlations among the food choice motives. Life satisfaction was significantly and positively related to all other variables. Mental health was significantly correlated with all other variables except convenience motive, price motive, and familiarity motive. These initial results provided the basis for further in-depth analysis of food choice motive profiles, the identification of subgroups of people of the same type, and tests of differences in well-being across different types.

[Insert TABLE 1 Here]

3.2 | Common method bias test

Because the data were based solely on self-report questionnaires, the CFA comparison method was used to test the extent of common method bias (Podsakoff & Organ, 1986). The results showed that the twelve-factor model (9 food choice motives, 1 life satisfaction scale, 2 mental health subscales) fit the data well (χ^2/df = 2.86, IFI = 0.90, NFI = 0.85, CFI = 0.90, RMSEA = 0.05), and significantly better than did the single factor model (χ^2/df = 10.54, IFI = 0.45, NFI = 0.43, CFI = 0.45, RMSEA = 0.12), indicating there was no significant effect of common method bias on the results (Podsakoff & Organ, 1986).

3.3 | Latent profile analysis

Latent profile analysis (LPA) was conducted via Mplus7.0 to analyze food choice motive profiles. First, the scores for each food choice motive were standardized, then LPA was performed to identify groups (types) of individuals who shared similar profiles. Second, model fit indexes were used to determine the optimal model, including Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), Sample-Size-Adjusted BIC (SSABIC), the Lo-Mendell-Rubin adjusted Likelihood Ratio Test (LMR-LRT), Bootstrap Likelihood Ratio Test (BLRT) and Entropy. Lower AIC, BIC, and SSABIC values indicate a better model fit and a more parsimonious model. Entropy ranges from 0 to 1, with a higher score indicating higher classification accuracy. Significant LMR-LRT and BLRT *p* values indicate that the k class model provides a better fit than the k-1 class model. Finally, in addition to the above model fit indexes, the sample proportion and substantive interpretation of each class were also considered as criteria for making decisions about model fit (Nylund, Asparouhov, & Muthén, 2007).

Model fit statistics for the two-class to six-class models are shown in Table 2. Comparisons among these models led to the conclusion that the five-class model had the best fit to the data. Entropy values for each model were above 0.80, indicating 90% correct classification (Lubke & Muthén, 2007). The values of BIC, AIC and SSABIC decreased as the number of classes increased, but the LMR-LRT *p* value for the six-class model was greater than 0.05 (Nylund et al., 2007). The meaning of the five class model was interpretable. Thus, the five-class solution was deemed the optimal model.

[Insert TABLE 2 Here]

The five types (profiles) of food choice motives in this sample of Chinese adults were:

unconcerned, mood oriented, weight control oriented, food enthusiast and health oriented. Raw means and estimated means of food choice motives for subgroups of individuals who shared each profiles (types) are respectively displayed in Table 3 and Figure 1. The natural content and health motive for all types were relatively important factors. The "unconcerned type" for food choices comprised 18.02% of the sample (n = 113) and was characterized by the lowest scores on all motives. The "mood oriented type" comprised 24.40% of the sample (n = 153) and was characterized by relatively lower scores on all motives (although not as low as for the unconcerned type). Compared to other profiles, participants in this profile placed a strong emphasis on natural content and health as well as mood, while placing the least emphasis on familiarity and ethical concern. The "weight control oriented type" was the largest group, comprising 43.06% of the sample (n = 270), this profile was characterized by higher levels of health, weight control and natural content, but lower levels of mood and convenience. The "food enthusiast type" represented the smallest group, consisting of 6.22% of the sample (n = 39), and was characterized by high scores on all motives. That is, they deemed all nine motives as essential. The "health oriented type" comprised 8.29% of the sample (n = 52) and was characterized by fairly higher scores on all motives apart from price and familiarity, with the highest emphasis on the health motive.

[Insert TABLE 3 and FIGURE 1 Here]

3.4 | Differences in demographic variables across food choice motive types

We conducted chi-square analyses to examine whether there were differences in demographic characteristics across the five types of food choice motives. The distribution of gender, age, education, and annual household income in each type is presented in Table 4. The results showed no significant difference in gender across the five types ($\chi^2_{(4)} = 8.56$, $p > 0.05$), but there was a significant age difference ($\chi^2_{(4)} = 12.18$, $p < 0.05$). Young adults were more likely to be part of the food enthusiast type and the health oriented type, whereas middle-aged adults were more likely to fall into the unconcerned type. The difference in education levels was noted in that there were more adults with a low educational level in the weight control oriented group, and most of the respondents with a higher educational level fell into the food enthusiast group ($\chi^2_{(8)} = 15.91$, $p < 0.05$). There was also a significant difference in household income levels across the five types ($\chi^2_{(8)} = 15.58$, $p < 0.05$). Most members of the food

enthusiast type had higher household incomes, while the health oriented group had a larger share of respondents with a low household income level.

[Insert TABLE 4 Here]

3.5 | The relationship between food choice motive types and well-being

We performed a series of ANOVAs to examine the relationship between the five food choice motive types and well-being (see Table 5). Results suggested that there were significant differences in life satisfaction and mental health across the five types. Specifically, there was a significant main effect of food choice motive types on life satisfaction ($F_{(4, 622)} = 17.27$, $p < 0.001$, partial $\eta^2 = 0.10$) and mental health ($F_{(4, 622)} = 12.27$, $p < 0.001$, partial $\eta^2 = 0.07$). Post-hoc Bonferroni tests showed that the food enthusiast type had the highest scores on life satisfaction and mental health, while the unconcerned food type had the lowest scores on these variables. The mood oriented type, the weight control oriented type, together with the health oriented type, had moderate levels of life satisfaction. Moreover, results showed that the food enthusiast type, the mood oriented type and the health oriented type had the highest levels of mental health, whereas the weight control oriented group had more moderate levels of mental health.

[Insert TABLE 5 Here]

4 | DISCUSSION

The purposes of this study were to identify profiles of food choice motives in a sample of Chinese adults aged 18-58 years and to examine how these profiles were related to well-being and demographics, employing the person-centered approach to data analysis. We found five types of individuals who shared similar food choice motive profiles: unconcerned, mood oriented, weight control oriented, food enthusiast and health oriented. The results provide further evidence that people's food choices are driven by a configuration of multiple motives (Fotopoulos et al., 2009; Honkanen & Frewer, 2009; Milošević et al., 2012). Four of the profiles identified in the current study, specifically the food enthusiast, health oriented, mood oriented and unconcerned profiles, have also been identified in cluster analysis studies conducted in western countries (Honkanen & Frewer, 2009; Milošević et al., 2012).

There were two patterns of results that highlighted which food choice motives were most important in this sample of Chinese adults. The first concerned the weight control

motive. It was a surprise that a weight control oriented profile had not been identified in previous literature (Fotopoulos et al., 2009; Honkanen & Frewer, 2009; Milošević et al., 2012). This could have to do with the cultural context in which the study was conducted. In China, people are quite concerned about their body weights (Pearcey & Zhan, 2018; Wickelgren, 1998), especially with the increasing prevalence of obesity (Wang, Mi, Shan, Wang, & Ge, 2006). The second example of a food choice motive that may be especially strong in China had to do with the natural content of food and food that is healthy. Consistent with previous research using a variable-centered approach (Pearcey & Zhan, 2018; Prescott et al., 2002), the current study, using a person-centered approach, found that the natural content motive and health motive were relatively more important than other motives for Chinese in all profiles.

The current study also found interesting results regarding demographic characteristics in relation to food choice motive profiles. There was no significant gender difference in types of food choice motives in our sample, perhaps because adults in China today believe that a slim figure is more attractive in both men and women, leading both men and women to be motivated to choose foods that help with weight control (Wardle, Haase, & Steptoe, 2006; Wickelgren, 1998). There have been mixed results on this topic in extant studies. Like our study, a study in Japan also found a lack of gender differences in food choice motives (Kyutoku et al., 2012). However, women's food choices were shown to be more motivated by weight control and health than men's choices in an international study in 22 countries (Wardle et al., 2004). One possible explanation is that local cultures and norms regulate men's and women's attitudes toward food choices (Kyutoku et al., 2012; Wardle et al., 2006).

In line with previous research, there were significant differences in various ages, educational levels and income levels across profiles of food choice motives (Honkanen & Frewer, 2009; Milošević et al., 2012). The food enthusiast profile was more likely among younger, more highly educated and higher-income participants, whereas the unconcerned profile was more likely among older and lower income participants. It is possible that young consumers have a better appetite for all foods, and consumers with higher education have more knowledge about and interest in a variety of food options (Honkanen & Frewer, 2009). Consumers with higher income have more opportunities and capabilities for food choices

(Sosa, Cardinal, Contarini, & Hough, 2015), whereas low-income participants may not be able to afford a healthy diet and may therefore be more motivated to acquire healthy foods (Sosa et al., 2015).

The present research also investigated whether different food choice motive types (groups who shared similar motive profiles) differed in well-being. Results of the present research suggested that the food enthusiast group, who attached great importance to all motives, had higher levels of well-being than all other groups. One possible explanation is that people in the food enthusiast group are passionate about food, and may be passionate about other aspects of life as well, factors that would contribute to perceived well-being (Mujcic & Oswald, 2016; Wahl et al., 2017), positive emotions (Gardner et al., 2014; Kemp et al., 2013), life quality and the quality of social relationships (Ares et al., 2015; Wang, Keh, & Chao, 2018). Notably, participants in the health oriented, mood oriented and weight oriented groups had greater well-being than those who were unconcerned about food choices. Consistent with prior research, eating to be healthy, to boost one's mood, and to lose weight can be beneficial to individuals' life satisfaction and mental health (Ares et al., 2015; Gardner et al., 2014; Kemp et al., 2013; Wahl et al., 2017).

Some limitations should be noted. Firstly, despite our efforts to include participants from four regions that together would be representative of Chinese adults, there may be concerns about the representativeness of the sample and the generalizability of our findings. However, it has been suggested that the issue of representativeness is of less concern when the central goal of a study is to examine the existence of a phenomenon, as in our research, rather than to reveal the prevalence of a phenomenon (Landers & Behrend, 2015). Still, previous studies have shown that culture, region and demographic variables are important factors influencing consumers' food choices (Honkanen & Frewer, 2009; Pearcey & Zhan, 2018), and these factors might also influence motives for food choices. Hence, the external validity of the current results needs to be further explored in other demographic and cultural groups. In addition, it will be fruitful to focus in more detail on certain groups who share multiple demographic characteristics and as well as multiple food choice motives.

The second limitation lies in the cross-sectional data, as it is difficult to identify causal relationships between the types of food choice motives and individuals' well-being. Future

research needs to collect longitudinal data to explore the reciprocal relationship between food choice motive types and well-being, as well as the developmental trajectories of different types of food choice motives.

5 | CONCLUSIONS

Despite limitations, this study makes a unique contribution to the literature, and the results have clear potential for application. First, the current research is the first study to identify profiles of food choice motives in Chinese adults aged 18-58 years: unconcerned, mood oriented, weight control oriented, food enthusiast and health oriented. These findings contribute to a comprehensive and systematic understanding of the psychological motives behind food choices made by young and middle-aged Chinese adults.

Second, this study provides a more detailed and in-depth understanding of young and middle-aged Chinese adults' food choice motives by analyzing the demographic characteristics of each profile group. For example, we found that the food enthusiast type showed a wide range of motives for their food choices; demographically, they were also more likely to be high-income, highly-educated young adults. Third, the current study employed the person-centered approach to examine the relationship between the types of food choice motives and well-being, providing a holistic perspective on the relationship between food choice motives and well-being.

Finally, the findings are valuable and meaningful for public health officials, individuals, and food companies. In the realm of public health, the results on the many motives for food choices provide valuable information for the policy-makers and health professionals who want to educate the public about healthy eating and promote healthy food choices (Milošević et al., 2012; Roberto, Pomeranz, & Fisher, 2014), especially for the unconcerned group who are often middle-aged with low incomes, and who may also require healthy diet subsidies. For individuals, the results concerning motives for food choice can optimize people's food choices and facilitate higher well-being. People should pay more attention to their multiple motives for food choice, not just one motive. Last but not least, the results are relevant to food companies by showing that among the five food choice motive profiles in this sample of young and middle-aged Chinese adults, the mood oriented type (24.40%) and weight control oriented type (43.06%) appear to be two major food consumption markets.

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TABLE 1 Descriptive statistics and correlation analyses

	Mean	*SD*	1	2	3	4	5	6	7	8	9	10
1. Health	2.91	0.61										
2. Mood	2.68	0.64	0.69***									
3. Convenience	2.55	0.67	0.51***	0.63***								
4. Sensory appeal	2.66	0.62	0.60***	0.64***	0.62***							
5. Natural content	3.05	0.70	0.60***	0.50***	0.38***	0.56***						
6. Price	2.61	0.70	0.37***	0.48***	0.49***	0.56***	0.44***					
7. Weight control	2.74	0.76	0.52***	0.54***	0.42***	0.58***	0.51***	0.63***				
8. Familiarity	2.57	0.71	0.41***	0.51***	0.52***	0.53***	0.39***	0.60***	0.62***			
9. Ethical concern	2.62	0.76	0.53***	0.55***	0.51***	0.55***	0.49***	0.52***	0.59***	0.55***		
10. Life satisfaction	4.19	1.24	0.27***	0.27***	0.21***	0.27***	0.13***	0.17***	0.19***	0.24***	0.19***	
11. Mental health	2.95	0.41	0.30***	0.12**	0.04	0.12**	0.23***	−0.01	0.13***	0.05	0.13***	0.28***

Note. $N = 627$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

TABLE 2 Summary of fit indices of food choice motives for latent profile analyses

Number of profiles	AIC	BIC	SSABIC	Entropy	LMP-LRT(*P*-Value)	BLRT(*P*-Value)
2	14312.97	14437.32	14348.42	0.85	< 0.001	< 0.001
3	13380.57	13549.32	13428.68	0.91	< 0.001	< 0.001
4	13143.85	13357.02	13204.62	0.87	< 0.001	< 0.001
5	13013.02	13270.60	13086.46	0.89	0.04	< 0.001
6	12912.17	13214.15	12998.26	0.89	0.09	< 0.001

TABLE 3 Raw means of food choice motives across profiles of motives

	Profiles					*F*-test (sig.)
	1	2	3	4	5	
	Unconcerned	Mood oriented	Weight oriented	Food enthusiast	Health oriented	
	n = 113 (18.02%)	*n* = 153 (24.40%)	*n* = 270 (43.06%)	*n* = 39 (6.22%)	*n* =52 (8.29%)	
Health	2.06^{d} (2)	2.93^{c} (2)	2.92^{c} (3)	3.94^{a} (3)	3.78^{b} (1)	419.02^{***}
Mood	1.93^{e} (9)	2.47^{d} (3)	2.76^{c} (8)	3.90^{a} (4)	3.49^{b} (3)	279.37^{***}
Convenience	1.99^{e} (5)	2.23^{d} (6)	2.64^{c} (9)	3.90^{a} (5)	3.13^{b} (7)	160.37^{***}
Sensory appeal	1.98^{e} (7)	2.38^{d} (4)	2.82^{c} (7)	3.90^{a} (6)	3.21^{b} (6)	237.77^{***}
Natural content	2.22^{e} (1)	2.97^{d} (1)	3.18^{c} (1)	3.97^{a} (2)	3.70^{b} (2)	129.45^{***}
Price	2.05^{c} (3)	2.15^{c} (7)	2.87^{b} (4)	3.85^{a} (7)	2.89^{b} (8)	157.90^{***}
Weight control	1.99^{d} (5)	2.27^{c} (5)	3.04^{b} (2)	3.98^{a} (1)	3.29^{b} (5)	199.35^{***}
Familiarity	1.99^{c} (4)	2.09^{c} (9)	2.85^{b} (6)	3.81^{a} (8)	2.88^{b} (9)	166.10^{***}
Ethical concern	1.95^{d} (8)	2.11^{d} (8)	2.85^{c} (5)	3.78^{a} (9)	3.40^{b} (4)	177.40^{***}

Note. Figures in brackets refer to the ranking of factors based on means.

Different letters represent significant difference ($p < 0.05$).

*** $p < 0.001$.

TABLE 4 Differences in demographic characteristics across types of food choice motives

		Profiles						
		1	2	3	4	5	χ^2-test (sig.)	*P*-Value
		Unconcerned	Mood oriented	Weight oriented	Food enthusiast	Health oriented		
		n = 113	*n* = 153	*n* = 270	*n* = 39	*n* = 52		
Gender								
	Male	60.18%[a]	45.75%[b]	45.56%[ab]	56.41%[ab]	51.92%[ab]	8.56	0.073
	Female	39.82%[a]	54.25%[b]	54.44%[ab]	43.59%[ab]	48.08%[ab]		
Age								
	18 – 39 years	39.82%[a]	58.82%[a]	51.48%[a]	61.54%[a]	59.62%[a]	12.18*	0.016
	40 – 58 years	60.18%[a]	41.18%[a]	48.52%[a]	38.46%[a]	40.38%[a]		
Education								
	High school or lower	42.48%[a]	45.10%[a]	58.14%[a]	43.59%[a]	50.00%[a]	15.91*	0.044
	Junior college	26.55%[a]	30.72%[a]	22.60%[a]	20.51%[a]	25.00%[a]		
	Bachelor degree or higher	30.97%[a]	24.18%[a]	19.26%[a]	35.90%[a]	25.00%[a]		
Household income (100,000 RMB/Year)								
	< 1	53.10%[a]	53.59%[a]	56.67%[a]	38.46%[a]	63.46%[a]	15.58*	0.049

1 – 2	42.48%[a]	41.83%[a]	34.81%[a]	43.59%[a]	30.77%[a]
> 2	4.42%[ab]	4.58%[b]	8.52%[ab]	17.95%[a]	5.77%[ab]

Note. Percentages given are within the profile (by column).

Different letters represent significant difference ($p < 0.05$).

6.96 RMB is approximately equal to 1.00 USD.

[*] $p < 0.05$.

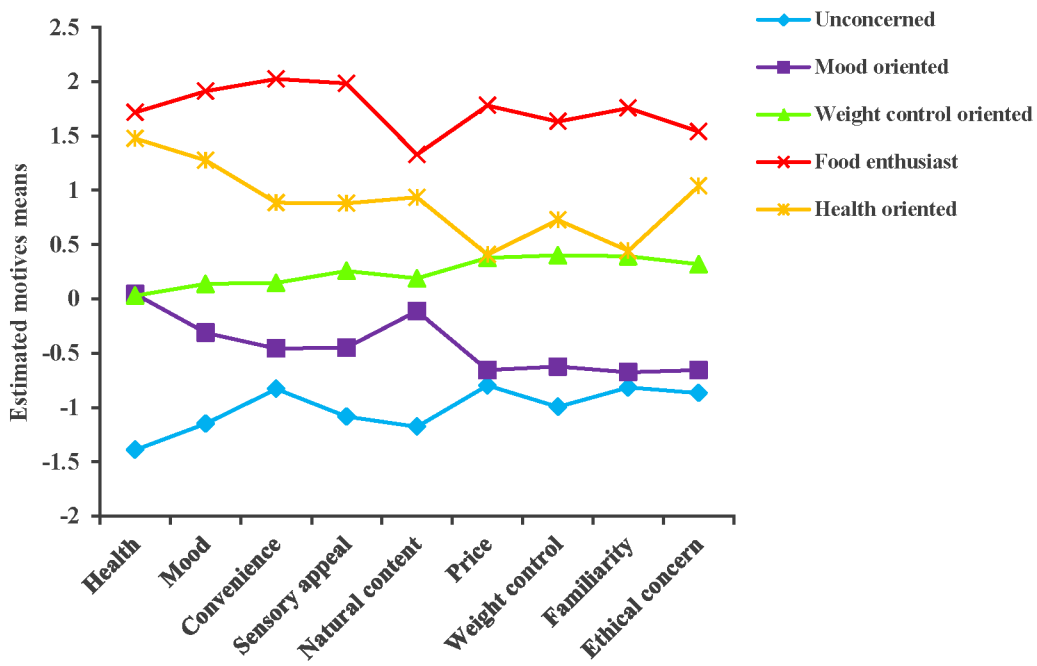
TABLE 5 ANOVA of life satisfaction and mental health

	Unconcerned	Mood oriented	Weight oriented	Food enthusiast	Health oriented	*F*
Life satisfaction	3.71^{c} (1.19)	4.07^{b} (1.07)	4.27^{b} (1.19)	5.48^{a} (1.26)	4.23^{b} (1.25)	17.27^{***}
Mental health	2.79^{c} (0.36)	3.03^{a} (0.36)	2.91^{b} (0.37)	3.24^{a} (0.60)	3.04^{ab} (0.51)	12.27^{***}

Note. Standard deviations are in parentheses.

Different letters represent significant difference ($p < 0.05$).

*** $p < 0.001$, * $p < 0.05$.



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