

### Ethical concern or religious reason? A study of factors influencing vegetarian food consumption in Hong Kong

Ko, Annie  
Department of Management and Marketing, Faculty of Business  
The Hong Kong Polytechnic University

#### Abstract:

The rise of vegetarian and vegan diets in the West is influencing the consumer food sector. There are many reasons including health-consciousness, religion or ethical concerns about animal rights and environmental protection. This study aims to understand the relationship between local residents' daily food choice decisions and their intention to consume vegetarian food in the future. The results of exploratory factor analysis revealed 12 food choice factors. Among them, regression analysis indicated five important predictors that exert influences on such behavioural intention. They are ethical concern, togetherness, natural content, price and convenience. Implications for academics, tourism policymakers, and hotel and restaurant operators are discussed.

**Keywords:** Consumer behaviour, Ethical concern, Food sector, Hong Kong, Vegetarian food, Sustainable consumption

#### 1. Introduction

The factors that influence consumers' daily diet vary across countries. In view of the changes of countries' economic and social-cultural factors or recent meat reduction movement, more and more consumers have been drawn towards vegetarianism in recent decades. A vegetarian diet is the practice of eating food obtained from plants and abstaining from meat products. There are different types of vegetarian diet caused by different motives. For instance, one of the religions with food prohibitions is Islam which every Muslim having to follow a set of halal dietary laws intended to advance their well-being (Bonne, Vermeir, Bergeaud-Blackler, & Verbeke, 2007). Another major reason to follow a vegetarian diet is to pursue health-related benefits (Dyett, Sabaté, Haddad, Rajaram, & Shavlik, 2013). Periodic food scares, due to recurring dioxin contamination incidents and ongoing bird flu outbreaks, are known to have caused intermittent spikes in vegetarian eating. This has contributed to a new group of consumers who do not entirely exclude meat but are consciously reducing their meat consumption. However, the reasons are no longer limited to religious beliefs, health, food safety and self-interest. Sustainability is another recent concern where rearing of livestock is considered a chief culprit in the depletion of global resources. Consumers, especially in more affluent countries or cities, may choose ethical living as a compassionate approach to consumption, especially in regard to environmental protection or animal rights (Euromonitor International, 2017). Veganism is increasingly adopted by a group of people, who are on strict plant-based diets. They choose health-conscious food, are anti-cruelty to animals and are concerned with animal welfare and environmental conservation. Although total veganism may not be mainstream today but the number of consumers following a vegan diet has notably increased in many industrialised countries (Janssen, Busch, Rodiger, & Hamm, 2016). Consumers on different types of vegetarian diets are on the rise globally.

According to Euromonitor International, the world's vegetarian population in 2018 reached 627 million with a year-on-year growth from 0.3% in 2013 to 0.8% in 2018 (Euromonitor International, 2019a). Among the Western countries that are high on per capita meat consumption such as Denmark, a sharp increase of 34.1% of the vegetarian population in 2018 was recorded as compared to 2017; Germany has also seen an increase of 11.6% of their vegetarian population. In terms of demographic factors, the number of young vegetarians in Sweden has tripled from 3% to 9% of the population in the last eight years (Try Swedish, 2019). In the specific vegan sector, studies show that the vegan population in the United States has also risen substantially from approximately 300,000 to 500,000 in 1997 to between 2.5 and 6 million in 2012 (1-2% of the US population) (Stahler, 2012).

In the East, a report has highlighted a trend of middle-to-upper urban consumers in Indonesia and China migrating towards healthier diets, thus boosting the demand for plant-based protein, fresh and organic vegetables as well as vegan or vegetarian restaurants (Euromonitor International, 2018). Similarly, the vegetarian population in Hong Kong has undergone a steady year-on-year growth of 0.6% to 0.9% from 2013 to 2018; accounting for 3% of its total population (Euromonitor International, 2019a). Due to the gradual increase of the vegetarian population and the global trend of modernity in vegetarianism, this indicates a need to understand consumers' behavioural changes so that the food service providers, such as hotels and restaurants, can better anticipate consumers' future demand and create more related products strategically to enhance their competitive advantage. This assumption is well supported by some recent studies in the restaurant sector that explored managerial opinions on the role of menu design in shaping more responsible consumer choice (Bacon & Krpan, 2018; Filimonau & Krivcova, 2017). Many other empirical research studies have focused on consumers' motives for following vegetarian and vegan diets for health and ethical reasons (Radnitz, Beezhold, & DiMatteo, 2015). Since vegetarianism and veganism are the trend, the focus of recent studies is largely in response to consumers' increasing awareness of environmental issues and animal welfare. There is a paucity of research examining individual consumers' perspective based on their daily food including personal reasons or cultural factors such as sensory appeal, mood, price, convenience, togetherness and social status, etc. Without a clear understanding of what factors drive their food choices, it will not be possible for restaurants to design or redesign menus to cater for their needs. Drawing upon the theory of planned behaviour as a conceptual framework, this research had two major objectives. The first objective aimed to examine a range of comprehensive and exhaustive factors to investigate local consumer behaviour towards daily food choices. The second objective was to examine the motivational factors that cause future consumption of vegetarian food.

#### 2. Literature Review

##### 2.1 Religion and the vegetarian food concept in Hong Kong

Religion has been a significant force in the lives of many individuals. 75% of Muslims in the United States follow the dietary rules in contrast with only 16% of Jews (Hussaini, 2004 as cited in Bonne et al., 2007). On the contrary, around 2% of UK citizens follow a vegetarian diet but the majority of Christians living in Britain today have health and economic rather than theological concerns regarding their diet

(Millington, 2014). Indeed, the exact role of religion in consumer food choice is rather unclear (Delener, 1994), particularly in the city of Hong Kong which has no dominant religion. According to Euromonitor International (2019b), Buddhism in Hong Kong accounts for 12.6%, Christianity accounts for 6% and Islam accounts for 2.7%, while the majority of locals are non religious (31.7%) or syncretic religion (42.5%). Unlike other countries, Hong Kong is regarded as having a "nameless but active religion" (Liu, 2003). The reason is because Hong Kong is an immigrant society with a large section of its population from South China; therefore, Hong Kong shares local religious activities and cultural traditions with neighbouring communities in the South China region. It is not uncommon to see local and individual variations in the celebration of these religious festivals or activities (Liu, 2003). Although local people always pay regular visits to temples, having similar elements to Buddhism or Daoism rituals, their religious practices are regarded as "worshipping deities" (bàishén) or "superstition" (mixin). Interestingly, to ordinary people, there is no clear boundary between Buddhism, Daoism and local religious practices. As such, the concept of vegetarian dining is quite blurred in Hong Kong due to the variations of individual practices.

According to an unpublished report from the Food Science and Technology Association, there are currently 230 vegetarian restaurants in Hong Kong. Among them, the majority (75%) are traditional local vegetarian restaurants serving Buddhist cuisine, 4% are Indian vegetarian restaurants and 16% are vegan restaurants. The food provided in the traditional vegetarian restaurants is relatively greasy as it originates from "Buddhist food" as a distinct sub-style of cuisine tied to monasteries serving allium-free and mock-meat such as soy chicken that looks like chicken but is made of soy. This type of vegetarian food or restaurant may not appeal to young and/or occasional vegetarians who do not follow strict religious rules but eat vegetarian food due to ethical concerns or healthy-eating motives. Therefore, it gives rise to a modern vegetarian eating concept with a growing number of vegetarian-friendly restaurants offering veggie burgers, green pastas and trendy Japanese bites. These restaurants offer some of the best plant-based dishes as well as plenty of others for meat-eating friends to enjoy a meal out.

## 2.2. Conceptual framework: consumer daily food choice and behavioural intention of vegetarian food

Prior to examining the behavioural intention of consuming vegetarian food, it is important to understand how people choose food on a daily basis and what influences them to make such decisions. Frust, Connors, Bisogni, Sobal, and Falk (1996) outlined the general nature of the food choice process and suggested a pathway leading to the point of choice (Fotopoulos, Krystallis, Vassallo, & Pagiaslis, 2009). The conceptual model helps breaking down the complex process into three components, namely "life course", "influences" and "personal systems". To make predictions about general food choice behaviour, there are four basic sub-components under "personal systems" that can provide implications for operationalization of the construct in this study.

First is sensory perceptions. These refer to taste which varies widely among individuals (Frust et al., 1996). People are most likely to consume food that is tasty where flavour is regarded as the essential criterion when evaluating food (Pollard,

Step toe, & Wardle, 1998). Other studies have used the term "sensory appeal" to describe a person's need to experience food through sensation or feeling such as touch, smell, taste, sight and hearing (Kim & Eves, 2012; Kim, Eves & Scarles, 2009; Steptoe, Pollard, & Wardle, 1995).

Second is monetary considerations. These consist of "price and the perceived worth of food to be bought" (Frust et al., 1996, p. 258). In a study of food choice measurement development, Steptoe et al. (1995) conceptualized monetary considerations into a construct of "price". It refers to considerations such as inexpensiveness, cheapness or value for money.

Third is "convenience". According to Frust et al.'s (1996) study, "time was an important component of convenience, and people often spoke in terms of time as a commodity to be spent or saved, weighing the value of convenience in terms of time in negotiation with other values" (p. 258). As such, what makes an individual perceive convenience is the time saved before consuming food, for example, preparation time, cooking time or whether it is easy to obtain (Steptoe et al., 1995).

Fourth is health and nutrition value. This refers to the effect of food intake, in terms of its nutritional value that contributes a positive output for health. For instance, salt from canned vegetables (processed food) or fat intake from commercially-prepared foods are substances people choose to avoid (Frust et al., 1996, p. 259). Therefore, a person's concern for health from food intake can be examined in regard to three distinct factors: "health (nutritional value)" for bodily well-being; "natural content" that contains no additives or artificial ingredients for disease avoidance; and "weight control" by eating food that is low in calories and low in fat (Steptoe et al., 1995).

There are other psychological factors that affect a person when making food choices including "mood" and "familiarity". Food, to some extent, has an effect on an individual's mood as it may help to cheer a person up. Familiarity refers to a person's exposure effect, such as favourable experience in the past, which makes him/her choose the food again to rekindle a memory (Steptoe et al., 1995). Crompton's (1979) psychological motivational domains further suggest that enhancing kinship and relations or family togetherness is a desire and willingness to meet people. In a collectivist culture that emphasizes social relationships like Hong Kong, food and dining culture is a tie to kinship and friendship which can strengthen social bonding. Therefore, "togetherness" delineates an important concept that extends to the development of new friendships through meeting like-minded people in vegetarian and vegan clubs. These occasions offer social development beyond the normal circle of acquaintance (Crompton & McKay, 1997; Kim & Eves, 2012; Kim et al., 2009; Steptoe et al., 1995). Food is also a social marker. For instance, an individual dining at a trendy or prestigious hotel restaurant can enhance his/her self-identity and self-esteem through sharing photos on social media platforms. Thus, "prestige (status)" is a factor that refers to a desire to have high standing in the eyes of surrounding people (Crompton, 1979; Kim & Eves, 2012; Kim et al., 2009).

With regard to religion, previous studies suggest that religion can influence consumer attitude and behaviour. In particular, religion plays one of the most influential roles in shaping food purchasing decisions and eating habits in many societies (Bonne et al., 2007). The findings of Bonne et al. (2007) provide practical implications for food policy decision makers and food marketers in regard to communication strategies



targeted at growing the halal food market segment in Western Europe. "Religion" is suggested by Lindeman & Väänänen (2000) to be a food choice factor.

Finally, ethical food choice motives include "animal welfare" and "environmental protection" (Lindeman & Väänänen, 2000). People who oppose farming methods that use antibiotics in animal rearing and the use of mega or factory farms that result in cruelty to animals may make food choice decisions based on respect for animal rights. Consumers that consider the impact of manufacturing of food (i.e. preparing, producing, packaging food) and environmental conservation (i.e. striving for sustainable consumption) have definitely shaped food choice decision-making.

The factors that have been examined above are listed in Table 1 in reference to a food choice study that categorized factors into "food", "person" (individual that makes the choice) and "external economic and social-cultural environment" (Shepherd, 1999). These factors are considered as the attitude of behavioural beliefs of a person and that contribute to his/her attitude towards an intention. According to the Theory of Planned Behaviour (TPB) (Ajzen, 1985, 1991; Armitage & Conner, 1999), intention is regarded as the motivation necessary to engage in particular behaviour. In other words, these factors affect consumers' food choice and intake, and are regarded as antecedents of intention and behaviour. The construct of intention is central to many popular social psychological models of behaviour (Courneya, 1994). Previous studies suggest a correlation between ethical values and organic food choice (Honkanen, Verplanken, & Olsen, 2006). Figure 1 shows the conceptual model of this study.

### 3. Methodology

#### 3.1. Measurement Instrument

The measurement scale used for this study was referenced from literature reporting food choice and food-related motives (Fotopoulos et al., 2009; Kim & Eves, 2012; Lindman & Väänänen, 2000; Pollard et al., 1998; Steptoe et al., 1995). The first eight factors, presented in Figure 1, were adopted from Steptoe et al.'s (1995) food choice questionnaire (FCQ). The respective measurement items and Cronbach alpha are: health (six items; 0.87), natural content (3 items; 0.84), weight control (3 items; 0.79), price (3 items; 0.82), sensory appeal (4 items; 0.7), convenience (5 items; 0.81), mood (6 items; 0.83) and familiarity (3 items; 0.70). All Cronbach alphas ranged from 0.70 to 0.87. It was further supported by a FCQ revisited study yielding similar results (Fotopoulos et al., 2009). Therefore, the scale was psychometrically sound for this study.

"Togetherness" and "Prestige" are adopted from Kim and Eves's (2012) study based on Crompton and McKay (1997) and Steptoe et al. (1995). There are three items for togetherness, namely "enables me to meet new people with similar interests"; "enables me to have an enjoyable time with friends and/or family"; and "increases friendship or kinship" with three items for prestige, namely "enables me to talk to everybody about my experiences"; "enables me to take pictures to show friends" and "enriches me intellectually".

The factors of "Religion", "Animal Welfare" and "Environmental Protection" were adopted from Lindman and Väänänen's (2000) new FCQ study. Religion was

measured by "is not forbidden in my religion" and "is in harmony with my religious views". Animal welfare was measured by two items: "has been produced in a way that animals have not experienced pain" and "has been produced in a way that animals' rights have been respected". Environmental Protection was measured by three items: "has been prepared in an environmentally friendly way", "has been produced in a way which has not shaken the balance of nature" and "is packaged in an environmentally friendly way". Based on the above, the initial pool of motivational factors contained 46 statements.

The dependent variable of intention to consume was adopted from Conner, Povey, Sparks, James, and Shepherd (2003) with three items, namely "I intend to consume vegetarian food during the next two weeks", "I plan to consume vegetarian food during the next two weeks" and "I want to consume vegetarian food during the next two weeks".

The 49 items were then subjected to review by two academic scholars in the field. The results showed that all items should be retained as they achieved face and content validity. The items were then translated into traditional Chinese by a professional editor and were turned into a bi-lingual questionnaire for data collection. Pre-testing of the questionnaire was conducted prior to data collection by five respondents who are local residents of Hong Kong. Minor refinement of a few Chinese words regarding the statements "is like the food I ate when I was a child" (Familiarity), "enables me to talk to everybody about my experience" (Prestige) and "enriches me intellectually" (Prestige) were made for the context of the study.

#### 3.2 Sampling and data collection

The study was conducted from October to December 2018 in Hong Kong at food exhibitions and events in relation to vegetarian food. Prior to the events, a training session was given to six interviewers who took part in the study. It included the background of the study, interview questions on the survey, a mobile application for inputting the survey data and procedures of conducting the face-to-face survey interview. A team of seven interviewers, including the researcher, undertook the task of surveying. There were two parts in the survey questionnaire. The first part comprised 46 statements on motivational factors. The question began with "It is important to me that the food I eat on a typical day ...", followed by the respective statements for example "contains a lot of vitamins and minerals". The respondents were asked to indicate the level of importance of each statement using a 4-point Likert scale ranging from "not at all important" ("1") to "a little important" ("2"), "moderately important" ("3") and "very important" ("4"). The second section focused on statements of intention to consume vegetarian food during the next two weeks. The consumption included buying it from supermarkets and cooking it by themselves, buying ready-made or processed vegetarian food from supermarkets or dining at restaurants. The respondents were asked to select from a 7-point Likert scale to indicate their intention to consume vegetarian food during the next two weeks: "1" meaning "definitely do not" to "7" meaning "definitely do". The final section contained demographic data including gender, type of vegetarian, religion, age group, education level, occupation and individual annual income.

In terms of data analysis, descriptive statistics providing the demographic information of the profile of the respondents and the 46 statement items were conducted. Exploratory factor analysis was then used to derive the underlying factors that influence consumers in their daily food choice. Regression analysis was used to examine any correlation between such factors and intention to consume in the future.

#### 4. Results

##### 4.1. Profile of the respondents

Three hundred and forty-eight valid responses, at a response rate of 94% were received. Table 2 presents the demographic profile of the respondents. Males and females accounted for 39% and 61% respectively; 63% were non-vegetarian; 16% were flexitarian; 14% were vegetarian who may consume eggs, dairy products or fish; 8% were vegan on a strict plant-based diet. The majority of the respondents had no religion (69%); 11% believed in Buddhism or Daoism; 20% were Christian. In terms of respondents' age group, 7% of the respondents were less than 21 years old; 42% were 21 to 30 years old; 20% were 31 to 40 years old; 13% were 41 to 50 years old; 14% were 51 to 60 years old; 4% were 61 years old or above. More than half of the respondents had attained bachelor degree education; 19% had attained primary or secondary level and 17% had attained a certificate/diploma/associate degree. With regard to their occupation, 48% were general employees; 18% were in junior or middle management; 13% were in senior management positions and 21% were students, housewives or retired. Finally, 16% of the respondents had an annual income of HK\$100,000 or below; over half of the respondents (78%) were in the range of HK\$100,000 to HK\$599,999; only 6% earned HK\$600,000 or above.

##### 4.2. Mean ratings of daily food choice decisions

Among the 46 items presented in Table 3, the three most important considerations in the respondents' daily food choices were "Tastes good" (3.29), followed by "Is good value for money" (3.28) and "Keeps me healthy" (3.24). On the contrary, the two items ranking the lowest mean both came under the religion factor: "Is not forbidden in my religion" (2.19) and "Is in harmony with my religious views" (2.17). The low rating can be explained by the respondents' profile that the majority of them (69%) had no religious belief.

##### 4.3. Exploratory factor analysis results of food choice factors

The 46 items were factor analyzed using the principal components and orthogonal (varimax) rotation method. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.83 and the Bartlett's Test of Sphericity was 8673.523 with a significance level of .000. This indicated that the data matrix had sufficient correlation to the factor analysis. The rule of thumb (Hair, Black, Babin, Anderson, & Tatham, 2005) suggested that the eigenvalue must be higher than 1.0 and factor loadings should be greater than 0.5. All 13 factors were loaded into a clean 12-factor structure (Table 4). The factor loadings ranged from 0.563 to 0.859 and the eigenvalue ranged from 1.09 to 9.74. The relatively high loadings signalled the correlation of the variables with the factors on which they were loaded. The communality of each variable was relatively high, ranging from 0.477 to 0.899, which also indicated that

the variance of the original values was captured well by the 12 factors. Reliability analysis was conducted to measure the internal consistency of each factor. The coefficients ranged from 0.73 to 0.94. All items exceeded the recommended level of .50 (Hair et al., 2005). The results are satisfactory and accounted for 69.23% of the total cumulative variance. The 12 factors of the results were ethical concern, mood, health (nutritional value), prestige, convenience, natural content, weight control, sensory appeal, familiarity, togetherness, religion and price.

One interesting finding is factor 1 ethical concern. Animal welfare and environmental protection were two distinct factors treated separately in this study but were loaded into a single factor thereafter. Animal welfare such as suffering on farms and animal rights are regarded as ethical reasons which have been cited by previous studies. However, several authors did not further specify what the term "environmental reasons" encompasses. In this study, the food manufacturing process (i.e. how it is prepared, produced, packaged) and whether the process shakes the balance of nature are the concern (Lindman & Väänänen, 2000). Other studies may look into resource scarcity, environmental sustainability and rainforest clearing (Janssen et al., 2016). Since consuming vegetarian food for environmental reasons can vary broadly, this may provide some implications for future study to develop an exhaustive scale to cover all areas of ethical concern. All the other 11 factors were loaded clearly from the proposed framework. Five statement items were deleted after internal reliability testing (see the footnote in Table 4) resulting in 41 items.

##### 4.4. Regression analysis of determinants of intention to consume vegetarian food

To determine the behavioural intention of individuals to consume vegetarian food, linear regression analysis using a stepwise method was conducted to estimate the coefficients of the linear equation involving 12 factors that best predicted the value of the dependent variable (intention to consume vegetarian food). The overall regression model was significant,  $F(5, 342) = 24.98, p < .001, R^2 = .257$ . Seven factors were not accepted in the model. The results indicated that five predictor variables were included in the model to predict the behavioural intention. Three factors, factor 1 "ethical concern" (0.39), factor 10 "togetherness" (0.13) and factor 6 "natural content" (0.13) exerted positive influences on the dependent variable. Two factors, factor 12 "price" (-0.15) and factor 5 "convenience" (-0.12) exerted negative influences (Table 5).

#### 5. Discussion and Conclusion

##### 5.1. Discussion and implications

Figure 2 reveals the relationships between five food choice factors and the behavioural intention in relation to vegetarian food. It is important to take into consideration these five important factors altogether paying special attention to the strong predictor of ethical concerns for animal welfare and environmental protection. This is supported by more and more empirical studies of ethical consumers showing positive attitudes to vegetarian and vegan diets (Hoffman, Stallings, Bessinger, & Brooks, 2013) or organic food (Honkanen et al., 2006). The findings indicate significant implications for market segmentation of ethical consumers in the food sector. This type of market segment is difficult to identify using the traditional socio-



demographic variables because they are present in all groups in society. Marketing communication can then be based on broader food choice factors and ethical stance on environmental issues for restaurant menu design that cater to responsible consumer groups (Bacon & Krpan, 2018; Filimonau & Krivcova, 2017).

Furthermore, the results provide practical implications for the food sector such as vegetarian-friendly restaurants or any hotel restaurant that intends to target this new consumer group or to increase the intention of customers to eat more vegetarian food. The factor of natural content (i.e. natural ingredients, contains no additives) in the regression model implies that marketers should communicate explicitly the food content as it appeals to them. Restaurateurs or hoteliers should make more efforts to source food from reliable suppliers. Staff training on product knowledge (i.e. new vegetarian dishes and ingredients) should be conducted to upsell to their customers.

In terms of togetherness, this factor explains that more occasions for family members or friends to get together to enhance social bonding will increase this behavioural intention. This is particularly applicable in Hong Kong as local residents always dine at restaurants for celebrations and festivals. To create more demand for vegetarian food, chefs can design vegetarian-themed banquet or exquisite vegetarian dishes to cater for their needs.

The results also indicate an interesting finding in relation to the two factors of price and convenience that have negative coefficients. This means that the respondents were not price sensitive to vegetarian food as they are not looking for cheaply priced or inexpensive vegetarian food. This is also understandable as many of the modern vegetarian-friendly or vegan restaurants in Hong Kong are very expensive. It is suggested that restaurants that want to attract them should offer moderately priced menu as their pricing strategy. The convenience factor as discussed in section 2.2 is about the association of time saved before consuming vegetarian food. It is indicated by preparation time, cooking time or whether it is easy to buy at supermarkets nearby. The negative coefficient of this factor implies that time saved is not their concern or will not attract them to consume more. This is another positive implication for hotel restaurants or non-vegetarian restaurants as there are currently only a few vegetarian items on menus. If more options were available, consumers would be attracted to eat vegetarian food there instead of cooking at home for convenience reasons.

### 5.2. Conclusion

This was an exploratory study to understand the relationship between local residents' daily food choice factors and their future consumption intention regarding vegetarian food. The results of exploratory factor analysis and regression analysis indicated five important predictors that exert influences: ethical concerns, togetherness, natural content, price and convenience. The results provided implications for consumer behavioural studies in the food sector that ethical concerns for animal welfare and environmental protection are one of the key factors nowadays that drive vegetarian consumption. The finding of religion exerting no influence in this study is largely due to the demographic profile of the respondents. Future studies may be conducted with different religious groups to further understand their behavioural intention with regard to a vegetarian diet.

All in all, the results shed light on the food culture in Hong Kong. Hong Kong is an international culinary destination with more than 30,000 restaurants, bars, and food outlets offering different types of indigenous Chinese and international cuisines. It has more restaurants per capita than anywhere else in the world (Au & Law, 2002). However, fruits, vegetables (Okumus, Okumus, & McKercher, 2007) and vegetarian restaurants are less often highlighted in the marketing and promotional materials. According to the website of the Hong Kong Tourism Board (Hong Kong Tourism Board, 2019), there are only three vegetarian restaurants on the Quality Tourism Services (QTS) dining list. Fifty-five restaurants have Halal food certification and only 14 hotel restaurants have Halal certification. Indeed, food plays an important role in image building. If Hong Kong is to continue to position itself as Asia's World city as well as Asia's cruise hub to attract international tourists, vegetarian cuisine branding under a modern dining concept should be their strategic direction.

Finally, the foodservice player has social responsibility to support sustainable consumption by respecting consumer sovereignty. Ethical consumers that prefer to minimize the negative impact on the environment by changing their lifestyle and behaviour cannot be achieved without the support from food service provision to offer more choices for selection.

### 5.3. Limitations of this study

In view of the cross-sectional data and convenience sampling method used, the implications of the study should be carefully considered. Improvements in the sampling design for comparative study among different cultures and cities may yield more meaningful results.

### References

- Ajzen, I. (1985). *From intentions to actions: A theory of planned behavior*. In Action control (pp. 11-39). Springer, Berlin, Heidelberg.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Armitage, C. J., & Conner, M. (1999). The theory of planned behaviour: Assessment of predictive validity and perceived control. *British Journal of Social Psychology*, 38(1), 35-54.
- Au, N., & Law, R. (2002). Categorical classification of tourism dining. *Annals of Tourism Research*, 29(3), 819-833.
- Bacon, L., & Krpan, D. (2018). (Not) Eating for the environment: The impact of restaurant menu design on vegetarian food choice. *Appetite*, 125, 190-200.
- Bonne, K., Vermeir, I., Bergeaud-Blackler, F., & Verbeke, W. (2007). Determinants of halal meat consumption in France. *British Food Journal*, 109(5), 367-386.
- Conner, M., Povey, R., Sparks, P., James, R., & Shepherd, R. (2003). Moderating role of attitudinal ambivalence within the theory of planned behaviour. *British Journal of Social Psychology*, 42(1), 75-94.
- Courneya, K. S. (1994). Predicting repeated behavior from intention: The issue of scale correspondence. *Journal of Applied Social Psychology*, 24(7), 580-594.
- Crompton, J. L. (1979). Motivations for pleasure vacation. *Annals of Tourism Research*, 6(4), 408-424.

- Crompton, J. L., & McKay, S. L. (1997). Motives of visitors attending festival events. *Annals of Tourism Research*, 24(2), 425-439.
- Delener, N. (1994). Religious contrasts in consumer decision behaviour patterns: their dimensions and marketing implications. *European Journal of Marketing*, 28(5), 36-53.
- Dyett, P. A., Sabaté, J., Haddad, E., Rajaram, S., & Shavlik, D. (2013). Vegan lifestyle behaviors. An exploration of congruence with health-related beliefs and assessed health indices. *Appetite*, 67, 119-124.
- Euromonitor International (2017, September). *Ethical Living*. Retrieved from <http://www.portal.euromonitor.com.ezproxy.lib.polyu.edu.hk/portal/ResultsList/Index>
- Euromonitor International (2018, April). *Top 5 countries with the largest vegetarian populations*. Retrieved from <http://www.portal.euromonitor.com.ezproxy.lib.polyu.edu.hk/portal/Analysis/Tab>
- Euromonitor International (2019a). *Vegetarian Population in all countries*. Economies and Consumers Annual Data. Retrieved from <http://www.portal.euromonitor.com.ezproxy.lib.polyu.edu.hk/portal/StatisticsEvolution/index>
- Euromonitor International (2019b). *Religion population in all countries*. Retrieved from <http://www.portal.euromonitor.com.ezproxy.lib.polyu.edu.hk/portal/statisticsevolution/index>
- Filimonau, V., & Krivcova, M. (2017). Restaurant menu design and more responsible consumer food choice: An exploratory study of managerial perceptions. *Journal of Cleaner Production*, 143, 516-527.
- Fotopoulos, C., Krystallis, A., Vassallo, M., & Pagiaslis, A. (2009). Food Choice Questionnaire (FCQ) revisited. Suggestions for the development of an enhanced general food motivation model. *Appetite*, 52(1), 199-208.
- Furst, T., Connors, M., Bisogni, C. A., Sobal, J., & Falk, L. W. (1996). Food choice: a conceptual model of the process. *Appetite*, 26(3), 247-266.
- Hair, J. F. Jr., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2005). *Multivariate data analysis*. New Jersey: Pearson Prentice Hall. Sixth Edition.
- Hoffman, S. R., Stallings, S. F., Bessinger, R. C., & Brooks, G. T. (2013). Differences between health and ethical vegetarians. Strength of conviction, nutrition knowledge, dietary restriction, and duration of adherence. *Appetite*, 65, 139-144.
- Hong Kong Tourism Board (2019). *Halal and Vegetarian*. Retrieved from <http://www.discoverhongkong.com/eng/dine-drink/what-to-eat/halal-and-vegetarian.jsp>
- Honkanen, P., Verplanken, B., & Olsen, S. O. (2006). Ethical values and motives driving organic food choice. *Journal of Consumer Behaviour: An International Research Review*, 5(5), 420-430.
- Janssen, M., Busch, C., Rödiger, M., & Hamm, U. (2016). Motives of consumers following a vegan diet and their attitudes towards animal agriculture. *Appetite*, 105, 643-651.
- Kim, Y. G., & Eves, A. (2012). Construction and validation of a scale to measure tourist motivation to consume local food. *Tourism Management*, 33(6), 1458-1467.

- Kim, Y. G., Eves, A., & Scarles, C. (2009). Building a model of local food consumption on trips and holidays: A grounded theory approach. *International Journal of Hospitality Management*, 28(3), 423-431.
- Lindeman, M., & Stark, K. (1999). Pleasure, pursuit of health or negotiation of identity? Personality correlates of food choice motives among young and middle-aged women. *Appetite*, 33(1), 141-161.
- Lindeman, M., & Väänänen, M. (2000). Measurement of ethical food choice motives. *Appetite*, 34(1), 55-59.
- Liu, T. S. (2003). A nameless but active religion: An anthropologist's view of local religion in Hong Kong and Macau. *The China Quarterly*, 174, 373-394.
- Millington, K. (2014, July 18). *BBC. Religion and ethics*. Retrieved from <http://www.bbc.co.uk/religion/0/28248329>
- Okumus, B., Okumus, F., & McKercher, B. (2007). Incorporating local and international cuisines in the marketing of tourism destinations: The cases of Hong Kong and Turkey. *Tourism Management*, 28(1), 253-261.
- Pollard, T. M., Steptoe, A., & Wardle, J. (1998). Motives underlying healthy eating: using the Food Choice Questionnaire to explain variation in dietary intake. *Journal of Biosocial Science*, 30(2), 165-179.
- Radnitz, C., Beezhold, B., & DiMatteo, J. (2015). Investigation of lifestyle choices of individuals following a vegan diet for health and ethical reasons. *Appetite*, 90, 31-36.
- Shepherd, R. (1999). Social determinants of food choice. *Proceedings of the Nutrition Society*, 58(4), 807-812.
- Stahler, C. (2012). *How often do Americans eat vegetarian meals? And how many adults in the U.S. are vegetarian?* The Vegetarian Resource Group. Retrieved from <https://www.vrg.org/journal/vj2011issue4/vj2011issue4poll.php>
- Steptoe, A., Pollard, T. M., & Wardle, J. (1995). Development of a measure of the motives underlying the selection of food: the food choice questionnaire. *Appetite*, 25(3), 267-284.
- Try Swedish (2019). *Vegetarian food is booming as more people skip the meat*. Retrieved from <http://www.tryswedish.com/vegetarian-and-vegan-food-innovators-from-sweden/>

Table 1 Definition of food choice factors

Factors	Definition	References
<i>Food factors</i>		
Health and nutritional value	It refers to the food that contains nutritional value that an individual consume for health and bodily well-being.	Frust, Connors, Bisogni, Sobal, and Falk (1996); Steptoe, Pollard and Wardle (1995)
Natural content	It refers to the food that contains no additives or artificial ingredients that an individual consume for disease avoidance or health reason.	Frust, Connors, Bisogni, Sobal, and Falk (1996); Steptoe, Pollard and Wardle (1995)
Weight control	It refers to the food that contains low calories or low fat and that an individual consumer for weight control motives.	Frust, Connors, Bisogni, Sobal, and Falk (1996); Steptoe, Pollard and Wardle (1995)
<i>Person - Psychological factors</i>		
Price	It refers to the perceived worth of food to be bought.	Frust, Connors, Bisogni, Sobal, and Falk (1996); Steptoe, Pollard and Wardle (1995)
Sensory appeal	It refers to the need to experience food through sensation or feeling such as touch, smell, taste, sight, hearing.	Frust, Connors, Bisogni, Sobal, and Falk (1996); Kim and Eves (2012); Kim, Eves and Scarles (2009); Pollard, Steptoe, & Wardle (1998); Steptoe, Pollard and Wardle (1995)
Convenience	It refers to the time being saved before consuming the food such as preparation time, cooking time or whether it is convenience or easily available for purchase/consume.	Frust, Connors, Bisogni, Sobal, and Falk (1996); Steptoe, Pollard and Wardle (1995)
Mood	It refers to the psychological effect on an individual's mood such as cheering up a person.	Steptoe, Pollard and Wardle (1995)
Familiarity	It refers to a person's exposure effect and past experience (favorable or not) on certain food that makes the person choose to consume the food again.	Steptoe, Pollard and Wardle (1995)

Togetherness	It refers to a desire and willingness to meet people and have time with family and friends from beyond the normal circle of acquaintance.	Crompton (1979); Crompton and McKay (1997); Kim and Eves (2012); Kim, Eves and Scarles (2009); Steptoe, Pollard and Wardle (1995)
Prestige	It refers to a desire to have high standing in the eyes of surrounding people.	Crompton (1979); Kim, Eves and Scarles (2009); Kim and Eves (2012)
<i>Social-cultural and ethical factors</i>		
Religion	It refers to eating habit that is not forbidden in religion or is in harmony with the religious view.	Lindman and Väänänen (2000); Lindeman and Stark (1999)
Animal welfare	It refers to food choice decision based on respect to animal rights.	Lindman and Väänänen (2000)
Environment protection	It refers to food choice decision in consideration of negative impact from food manufacturing (i.e. preparing, producing, packaging) and environmental conservation.	Lindman and Väänänen (2000); Steptoe, Pollard and Wardle (1995)

Figure 1 Conceptual Model



Table 2 Demographic profile of respondents (n = 348)

Characteristics	Respondents (%)	Frequency
Gender		
Male	38.8	135
Female	61.2	213
Vegetarian Type		
Not a vegetarian	62.6	218
Flexitarian	15.8	55
Vegetarian (e.g. lacto, ovo, lacto-ovo, pollotarian, pescatarian)	13.8	48
Vegan	7.8	27
Religion		
No religion	69.0	240
Buddhism/Daoism	10.6	37
Catholic/Christian/Anglican	20.1	70
Others (e.g. Hebrew)	0.3	1
Age Group		
Less than 21 years old	6.9	24
21 to 30 years old	41.4	144
31 to 40 years old	20.4	71
41 to 50 years old	13.2	46
51 to 60 years old	14.4	50
61 years old or above	3.8	13
Education Level		
Primary/secondary level	19.3	67
Certificate/diploma/associate degree	16.7	58
Bachelor degree	51.7	180
Graduate degree or above	12.4	43
Occupation		
General employee	48.0	167
Executive/junior or middle management	18.1	63
Senior management/business owner	13.2	46
Others (e.g. students, housewife, retired)	20.6	72
Individual Annual Income		
Less than HK\$100,000	15.8	55
HK\$100,000 – 199,999	31.6	110



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HK\$200,000 – 299,999	22.7	79
HK\$300,000 – 399,999	15.2	53
HK\$400,000 – 499,999	4.9	17
HK\$500,000 – 599,999	4.0	14
HK\$600,000 or above	5.8	20

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Table 3. Mean ratings of daily food choice

Indicators	Mean	Std Dev.
Contains a lot of vitamins and minerals	2.93	0.74
Keeps me healthy	3.24	0.68
Is nutritious	3.16	0.68
Is high in protein	2.84	0.75
Is good for my skin/teeth/hair/nails, etc.	2.73	0.79
Is high in fibre and roughage	2.97	0.76
Helps me cope with stress	2.56	0.86
Helps me to cope with life	2.55	0.86
Helps me relax	2.75	0.88
Keeps me awake/alert	2.71	0.85
Cheers me up	2.60	0.87
Makes me feel good	3.05	0.75
Is easy to prepare	2.92	0.82
Can be cooked very simply	2.95	0.83
Take no time to prepare	2.71	0.89
Can be bought in supermarkets/shops close to where I live or work	3.03	0.81
Is easily available in restaurants	2.78	0.78
Smells nice	2.95	0.74
Looks nice	2.91	0.77
Has a pleasant texture	3.01	0.71
Tastes good	3.29	0.67
Contains no additives	2.98	0.81
Contains natural ingredients	3.01	0.82
Contains no artificial ingredients	2.94	0.86
Is not expensive	3.00	0.69
Is cheap	2.83	0.73
Is good value for money	3.28	0.67
Is low in calories	2.77	0.81
Helps me control my weight	2.84	0.86
Is low in fat	2.80	0.87
Is what I usually eat	2.76	0.81
Is familiar	2.77	0.82
Is like the food I ate when I was a child	2.31	0.83
Is produced in a way that animals have not experienced pain	2.82	0.97

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Is produced in a way that animals' rights have been respected	2.93	0.95
Is prepared in an environmentally friendly way	2.97	0.84
Is produced in a way which has not shaken the balance of nature	2.91	0.79
Is packaged in an environmentally friendly way	2.83	0.86
Is not forbidden in my religion	2.19	1.08
Is in harmony with my religious views	2.17	1.07
Enables me to meet new people with similar interests	2.32	0.94
Enables me to have an enjoyable time with friends and/or family	2.87	0.87
Increases friendship or kinship	2.81	0.88
Enables me to talk to everybody about my experiences	2.43	0.90
Enables me to take pictures to show friends	2.35	0.90
Enriches me intellectually	2.45	0.91

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Table 4 Results of the exploratory factor analysis on daily food choice

Factor name (Factor mean)	Factor loading	Eigen value	Variance (%)	Cumulative variance (%)	Cronbach alpha
<b>Factor 1 Ethical Concern (2.89)</b>		9.74	21.17	21.17	0.90
Is produced in a way that animals' rights have been respected	.856				
Is produced in a way that animals have not experienced pain	.843				
Is prepared in an environmentally friendly way	.829				
Is produced in a way which has not shaken the balance of nature	.815				
Is packaged in an environmentally friendly way	.698				
<b>Factor 2 Mood (2.63)</b>		3.64	7.92	29.08	0.88
Helps me cope with life	.829				
Helps me cope with stress	.818				
Helps me relax	.805				
Cheers me up	.761				
Keeps me awake/alert	.602				
<b>Factor 3 Health (2.98)</b>		2.77	6.02	35.10	0.82
Is nutritious	.766				
Contains a lot of vitamins and minerals	.723				
Is high in protein	.672				
Is high in fibre and roughage	.649				
Keeps me healthy	.597				
Is good for my skin/teeth/hair/nails, etc.	.592				
<b>Factor 4 Prestige (2.41)</b>		2.64	5.74	40.84	0.84

Enables me to talk to everybody about my experiences	.796				
Enables me to take pictures to show friends	.793				
Enriches me intellectually	.740				
<b>Factor 5 Convenience (2.90)</b>		2.28	4.95	45.79	0.82
Can be cooked very simply	.828				
Takes no time to prepare	.824				
Is easy to prepare	.738				
Can be bought in supermarkets/shops close to where I live or work	.675				
<b>Factor 6 Natural Content (2.98)</b>		2.12	4.60	50.39	0.88
Contains natural ingredients	.815				
Contains no artificial ingredients	.780				
Contains no addictive	.753				
<b>Factor 7 Weight Control (2.80)</b>		1.87	4.07	54.46	0.84
Helps me control my weight	.852				
Is low in calories	.813				
Is low in fat	.805				
<b>Factor 8 Sensory Appeal (3.04)</b>		1.73	3.77	58.23	0.73
Smells nice	.780				
Looks nice	.764				
Has a pleasant texture	.703				
Tastes good	.563				
<b>Factor 9 Familiarity (2.76)</b>		1.39	3.02	61.25	0.80
Is what I usually eat	.835				
Is familiar	.834				
<b>Factor 10 Togetherness (2.84)</b>		1.31	2.84	64.09	0.89
Enables me to have an enjoyable time with friends and/or family	.769				
Increases friendship or kinship	.764				

<b>Factor 11 Religion (2.18)</b>		1.30	2.83	66.92	0.94
Is not forbidden in my religion	.859				
Is in harmony with my religious views	.858				
<b>Factor 12 Price (2.92)</b>		1.09	2.37	69.29	0.75
Is cheap	.844				
Is not expensive	.837				

Note: extraction method: principal components analysis; rotation method: varimax with Kaiser normalization. Four-point Likert scale was used ranging from "1" = not at all important, "2" = a little important, "3" = moderately important to "4" very important. Item "Makes me feel good" was deleted from factor 2 after internal reliability test. Likewise, item "enables me to meet new people with similar interests" was deleted from factor 4; item "is easily available in restaurants" is deleted from factor 5; item "is like the food I ate when I was a child" was deleted from factor 9 and item "is good value for money" is deleted from factor 12.



Table 5 Regression analysis of determinants of intention to consume vegetarian food

Factor	Beta	<i>t</i>	Significance	Ranking
Factor 1 Ethical concern	0.39	7.48	0.000**	1
Factor 12 Price	-0.15	-3.10	0.002**	2
Factor 10 Togetherness	0.13	2.66	0.008**	3
Factor 5 Convenience	-0.12	-2.39	0.017*	4
Factor 6 Natural Content	0.13	2.35	0.019*	5

\* $p < 0.05$ ; \*\* $p < 0.01$

Figure 2 Relationships between derived factors and intention to consume vegetarian food

