International Business Research; Vol. 9, No. 4; 2016
ISSN 1913-9004 E-ISSN 1913-9012
Published by Canadian Center of Science and Education

The Concerns about Choice Attributes and Behavior Intentions of Consumers toward Food Safety Restaurant

Wei-Ling Lin[1,2], Chao-Chan Wu[3]

[1]Department of Hospitality Management, Tajen University, Taiwan, ROC

[2]PhD. Program of Business, Feng Chia University, Taiwan, ROC

[3]Department of Cooperative Economics, Feng Chia University, Taiwan, ROC

Correspondence: Wei-Ling Lin, PhD. Program of Business, Feng Chia University,Wenhwa Road, Seatwen, Taichung 4027, Taiwan, ROC. E-mail:weilinglin@yahoo.com.tw

Received: January 13, 2016 Accepted: February 20, 2016 Online Published: March 5, 2016

doi:10.5539/ibr.v9n4p11 URL: http://dx.doi.org/10.5539/ibr.v9n4p11

Abstract

Consumers have grown increasingly aware about food safety over the last decade. However, various lifestyles have been shown to influence and predict consumer behavior. The main objective of this study is to investigate different consumers' attribute and intentions toward food safety in restaurant. This study uses a food-related lifestyle approach and cluster analysis to identify three consumer segments: the conservative, the adventurous and the health-conscious consumer. Health-conscious consumers turned out to have more positive attitudes toward healthy and natural foods than the other two segments. This consumer segment also showed the highest likeliness to pay more for restaurants with higher food-safety standards. On the other end of the spectrum, adventurous consumers primarily seek novelty. This group values convenience over health concerns. Among the above, health-conscious consumers should be the primary target groups for restaurant that advertise food safety.

Keywords: food-related lifestyle, food safety, selection attribute, behavioral intention

1. Introduction

Eating out is playing an increasingly important part in the Taiwanese diet. More than ever before, the Taiwanese are eating in restaurants or other food service establishments. According to the Directorate-General of Budget, Accounting and Statistics (DGBAS), 20 years ago, eating out accounted for merely 10% of total food spending. The past three years saw this figure increase to 30%. In other words, over the past 20 years, 20% more food was consumed outside people's homes, reflecting an increase in the tendency to eat out. According to a recent survey, restaurant and hotel expenses per family increased from 9.37% to 11.57% of total family spending between 2009 and 2014. As a result, concerns about food safety when eating out have become an important issue in Taiwan (DGBAS, 2014).

The World Health Organization indicates that foodborne diseases are a growing public health issue and a major international problem. From farm to fork, contamination can occur at any stage of the food chain (World Health Organization 2015), and a series of food-related scandals in Taiwan has left the consumer concerned about the safety and reliability of food supplements. People expect the food they eat to be healthy and safe, but it is almost impossible for consumers to accurately assess the safety of their food. Food that looks, smells, and even tastes fine may contain biological and chemicals that can cause illnesses. Furthermore, more complex food processing technologies may be more difficult to assess and have a higher chance of having unintended side-effects (Fischler, 1988). Restaurants are the most common source for outbreaks and illnesses (DeWaal & Glassman, 2013). Food service establishments have been blamed for their role in causing foodborne illnesses, which continue to be a major concern in the hospitality industry.

Despite the increased emphasis on food safety by the restaurant industry, trends in global food production, processing, distribution and preparation constantly present new challenges to food safety. Managing risk is the shared responsibility of governments and food industries including food service establishments. The rapid growth of food-related scandals in Taiwan attracts researchers to examine different consumers' food safety concerns in restaurants in Taiwan. The aim of this research is to use food-related lifestyle (FRL) instruments to (1) determine consumer segments; and (2) explore the difference between FRL segments in attributes that affect consumer choice behavioral intentions towards food safety in restaurants. There are a number of factors that affect consumers' behavioral intentions in picking a food-safe restaurant. In this research three sets of factors were examined: food-related lifestyles, food safety, and attributes that affect

selection of restaurants.

2. Literature review

2.1 Food-related Lifestyle

The food-related lifestyle (FRL) instrument was originally developed by Grunert and introduced in the mid-1990s (Brunsø & Grunert, 1995; Grunert, Brunsø, & Bisp, 1997) as the most important instrument to measure people's attitudes to food. It has been applied and used in cross-cultural market surveillance, among others (Scholderer , Brunsø, Bredahl, & Grunert, 2004; Ryan, Cowan, McCarthy, & O'Sullivan, 2004; Wycherley, McCarthy, & Cowan, 2008; Fang & Lee, 2009; Grunert et al., 2011). In the Brunsø and Grunert (1995) model, the FRL scale originally constituted of 69 statements measuring 23 dimensions across 5 domains. Ways of shopping refer to consumer shopping behavior. It has six subscales: importance of product information, attitudes to advertising, enjoyment from shopping, specialty shops, price, and shopping list. Quality aspects refer to product benefit. Its six subscales are: health, price-quality relationship, novelty, organic products, taste, and freshness. Cooking methods refer to how much effort and time is put into meal preparation and who is responsible for it. The six subscales: interest in cooking, looking for new ways, convenience, whole family, planning, and woman's task. Consumption situations refer to consumers' social eating habits. There are two subscales: snack versus meal, and social events. Purchasing motives explores what consumers expect from a meal and the importance of such expectations. Three subscales are: self-fulfillment, security, and social relationships (O'Sullivan, Scholderer, & Cowan, 2005 and Ryan et al., 2004). Other study reported that food-related lifestyle dimensions are related to customer purchase behavior (Boer, McCarthy, Cowan & Ryan, 2004). However, the FRL approach attempts to characterize people by the role that food plays in their lives, linking generic food-related attitudes to the achievement of desired consequences (Brunsø, Scholderer, & Grunert, 2004). In this sense, this FRL instrument is suitable to predict consumer attitudes and behavior.

2.2 Restaurant Safety and Consumers' Selection Attributes of Restaurants

Restaurants are a key end point in the chain from farm to fork as restaurants prepare and cook food for customers. Food safety is particularly important to the food service industry, considering that food safety issues may impact where consumers purchase meals. Food safety and quality cues are motivations for consumers to avoid different degrees of harm and to make restaurant choices (Henson et al., 2006; Kennedy, Worosz, Todd, & Lapinski, 2008; Sneed & Strohbehn, 2008; Worsfold, 2006). Previous studies have identified a number of attributes that consumers consider to be important when selecting restaurants. Jang and Namkung (2009) listed three main factors that affect perceived restaurant quality: service quality, product quality, and atmosphere. Kivela, Inbakaran and Reece (2000) also identified important restaurant choice variables. Their variables included eating comfort at the premises, cleanliness, food freshness, staff appearance, and indoor temperature. Cullen (2004), Kivera et al. (2000), Gregoire, Shanklin, Greathouse, & Tripp (1995) also found that restaurant cleanliness was an important factor for consumers. Similarly, Henson et al. (2006) indicated that cleanliness was the decisive factor when consumers assess food safety in a restaurant.

However, consumers from different segments may have varying restaurant selection criteria. For example, Rahman (2012) found that older customers are more concerned about their health and attach more value to food of food. Soriano (2002) found that young customers are not too concerned about food quality, but customers over 60 years of age named food quality as the most important attribute determining their satisfaction. Higher income groups have chosen ambience and comfort level as their choice variables (Kivela, 1997). Therefore, it is logically assumed that customers with different individual characteristics have different motivations to select a restaurant.

H1: There is significant difference among FRL segments on customers' selection attributes regarding food safe restaurant.

2.3 Consumer Behavioral Intentions for Food-safe Products

Several studies have analyzed the willingness to pay (WTP) for food safety. A paper by Latouche, Rainelli, & Vermersch (1998) concluded that consumers are willing to pay more for food products that carry the label or organic food. Tsakiridou, Zotos, and Mattas (2006) found that consumers would pay up to 35% more for organic products. Boccaletti and Nardella (2000) indicated that 70 percent of participants were unwilling to pay for organic food products. A subset of studies reckons that consumers are willing to pay a premium for certified pesticide-free produce (Ott, 1990 & Eom, 1994). The number of individuals willing to pay more for food-safe products is increasing (Angulo & Gil, 2007). Skuras and Vakrou (2002) analyzed that customers generally are willing to pay a premium for high-quality food products. Concerning consumer characteristics, Davis, Titterington & Cochrane (1995), Govindasamy & Italia (1998), and Thomson (1998) argue that gender, age, income and education may significantly affect purchasing behavior. Aryal, Chaudhar, Pandit & Sharma (2009) revealed that all respondents are accustomed to paying premium for high-quality food, but the level of acceptability varied considerably.

Consumers concerned about food safety issue may be willing to pay more to avoid food-related issues. Therefore, overall satisfaction with food safety influences purchasing behavior. The purpose of this paper is to determine the willingness to pay for food safe in restaurant between different FRL segments.

H2: There is significant difference among FRL segments on customers' WTP premium for food safe restaurant.

3. Methodology

The questionnaire used for data collection included four sections: (a) the FRL. The FRL items were allocation from the scale identified by Brunsø and Grunert (1995). Twenty-six items were chosen from previous lifestyle segmentation studies (O'Sullivan et al., 2005; Buckley, Cowan, & McCarthy, 2007; Jang, Kim & Bonn, 2011) and identified through expert reviews. Respondents were asked to indicate their level of agreement with statements. All items are ranked on seven-point scales ranging from (1) "completely disagree" to (7) "completely agree"; (b) the attribute towards issues of food safety in restaurants were selected based on the results of previous consumer research studies (Jang et al., 2011; Shaharudin, Mansor & Elias, 2011, and Harrington, Ottenbacher & Way, 2013). The questions have the form of statements to which respondents indicate their degree of agreement on a seven-point scale (1 = totally disagree; 7 = totally agree); (c) identifying customers' behavioral intentions. Based on the studies of McCluskey, Grimsrud, Ouchi, & Wahl(2005) willingness to pay premium in which respondents indicate their degree of agreement on a seven-point scale (1 = very unlikely; 7 =very likely); and (d) socio-demographic characteristics of the respondents.

Statistical analysis was completed using SPSS 17.0 for descriptive statistics, factor analysis, reliability analysis, cluster analysis, Chi-square tests and ANOVA. Factor analysis is a multivariate statistical technique that seeks to identify structure within a set of observed variables (Stewart, 1981). Two statistics are the Bartlett test and the Kaiser-Meyer-Olkin measure of sampling adequacy. A reliability analysis, using Cronbach's alpha, was used to test the reliability and internal consistency of each of the FRL factors. Similar analyses were conducted on the attitudes to food safety in restaurants. The clustering method used to identify the FRL segments was "K-means", an iterative partitioning method that is preferred to the hierarchical method when dealing with larger datasets (Hartigan & Wong, 1979). Chi-squared tests were employed to identify significant demographic differences across the segments. Finally, the FRL segments were completed using ANOVA analysis, which established significant differences.

4. Results

4.1 Socio-demographic Characteristics

350 survey questionnaires were disseminated to people in Taiwan of over 18 years of age. Participants were asked to complete a questionnaire gathering information on socio-demographic status, FRL, qualities of food safety in restaurants, and willingness to pay.

Table 1 presents demographic profile of respondents. Population age structure by the following percentage: under 20 years (16.5% of sample), 21–30 years (17.8% of sample), 31–40 years (24.9% of sample), 41–50 years (23.6% of sample), and above (17.2% of sample). Distribution of respondents by gender was 45.8% male and 54.2% female. Over half of the respondents (70%) were at least university graduates and about 16.5% had stopped after high school education. About 64.6% of the respondents had a monthly income of NTD $ 40,000 or less, and about 35.4% earned NTD $ 40,0001or more. Just over half (55%) of the sample was married.

Table 1. Demographic profile of respondents

Variable	Level	%
Gender	Male	45.8
	Female	54.2
Age	Under 20	16.5
	21-30	17.8
	31-40	24.9
	41-50	23.6
	Over 51	17.2
Education level	Junior high	1
	High school	16.5
	University	68.4
	Graduate school	14.1
Occupation	Student	18.2
	Service industry	26.2
	Hi-tech industry	1.7
	Financial industry	1.3
	Education industry	11.8
	Freelance	3.0
	Retire	7.4
	other	30
Monthly income (NTD)	<10,000	20.5
	10,001-25,000	18.2
	25,001-40,000	25.9
	40,001-55,000	16.2
	Over 55,001	7.1
	Over 70,000	12.1
Marriage	Single	45.5
	Married with child	48.8
	Married no child	5.7

4.2 Factors Determining Food Consumption Behavior

Table 2 displays the results of the factor analysis divided into groups. Lifestyle elements were analyzed to reveal common elements in consumers' ways of thinking. The original 26 items were divided into 7 factors.

Table 2. Factor analysis of food-related lifestyle (FRL) scale.

Factor and Nomination of factor	Eigenvalue	Variance (%)	Crobnach's alpha
Factor1: Interest in cooking	5.383	24.470	0.849
Factor2: Social relation	2.422	11.010	0.733
Factor3: Joy of shopping	1.574	7.156	0.700
Factor4: Health and naturalness	1.540	6.998	0.540
Factor5: Novelty	1.381	6.277	0.806
Factor6: Women's tasks	1.179	5.357	0.673
Factor7: Price	1.108	5.037	0.643

The Kaiser-Meyer-Olkin (KMO) measure is 0.805. Kaiser (1974) indicates that values greater than 0.8 are good. Thus, the variable set is suitable for factor analysis. The significance of the Bartlett test is 0.000, meaning that the variances in each of the samples are consistent. The total variance explained by the factors was 66.360%. The seven lifestyle related factors were interest in cooking, joy of shopping, social relation, health and naturalness, novelty, women's task, and price.

The reliability test demonstrated that the coefficient of Cronbach's alpha of the seven factors were from 0.540 to 0.849, which surpassed the acceptable criteria for reliability. Similar analyses were performed on the selection attribute for food-safe restaurants.

Table 3 presents information of factor analysis. With a value of 0.898, the Kaiser-Meyer-Olkin (KMO) value is greater than the 0.5 required to be suitable for factor analysis. The significance of the Bartlett test is 0.000; the total variance explained by the factors was 64.365%. The factors are as follows: service quality, naturalness and traceability, hygiene, and convenience. Cronbach's alpha coefficients of the four factors ranged from 0.857 to 0.885.

Table 3. Factor analysis of selection attribute for food-safe restaurants

Factor and Nomination of factor	Eigenvalue	Variance (%)	Cronbanch's alpha
Factor1: Service quality	8.817	40.079	0.882
Factor2: Naturalness and traceability	2.261	50.354	0.878
Factor3: Hygiene	1.918	59.072	0.857
Factor4: Convenience	1.165	64.365	0.885

4.3 Food-related Lifestyle Clusters

In order to define segments, cluster analysis by the K-means method was conducted based on the seven identified factors. Table 4 presents the results of cluster analysis by the K-means method based on the food-related lifestyle factors. Significant differences ($p < 0.001$) were identified across all 7 factors for the three-cluster solution based on one-way ANOVA. The three distinct segments are "health conscious consumers" (52.0%), "conservatives consumers" (27%), and "adventurous consumers" (21%).

Table 4. Cluster for consumer's food-related lifestyles

Factors	Cluster 1 Conservative 81 27%	Cluster2 Adventurous 21%	Cluster3 Health conscious 52%	F-Value	
Interest in cooking	.21778	.17389	-.33544	89.410	***
Joy of shopping	-.05357	.04901	.03170	17.782	***
Social relation	-.28794	-.04897	.34333	10.447	***
Health and naturalness	.36208	-1.39019	.37192	39.684	***
Novelty	-.19304	.48282	-.05528	9.270	***
Women's task	.75248	-.12326	-.75815	23.129	***
Price	.14461	-.10242	-.10212	11.675	***

*** $P<0.001$

Cluster 1, or the "Conservative consumer", accounted for 27% of the sample. Conservative consumers enjoyed cooking and are happy to spend time in the kitchen. These consumers generally consider cooking the woman's job and the kitchen the woman's domain. They considered novelty to be less important, but were the more price-conscious. The conservative food consumer is not interested in shopping and particularly uninterested in shopping at specialty stores. They are also uninterested in novel food products. Eating out socially is not even considered important by this group. They value the healthiness of food, but do not consider food advertisement as much as the other groups. These consumers represent the majority of people aged 41–50 and over 50.

Cluster 2, or the "adventurous consumer", accounts for 21% of the sample and is distinguished by the highest importance placed on "novelty" in comparison to other segments ($p < .001$) This segment is strongly motivated to try exotic food and to buy foods that they have never tried before. Adventurous consumers also enthusiastic about shopping and preparing food. Similar to health-conscious consumers, persons belonging to this cluster consider advertisements and enjoy shopping at specialty stores. However, this segment is not price conscious—price means less to them than consumers in any other segment.

Finally, the "health-conscious consumer" from cluster 3 accounts for 52% of the sample. This segment prefers food to be natural and organic. They are not price-conscious shoppers. The health-conscious consumer is more inclined to eat out in a social context. They are least likely to consider cooking the woman's task and have below-average interest in food novelty and price.

4.4 Cluster Differences toward Food-safe Restaurants

A One-Way ANOVA test (Table 5) and chi-square test were used to confirm the three consumers segments in the demographic characteristics, the difference in selection criteria and WTP premium for food-safe restaurants. There were no significant differences in educational level ($p = 0.988$), occupation ($p = 0.084$), income categories ($p = 0.228$) or living area ($p = 0.083$). However, the socio-demographic characteristics were significantly different among the clusters in terms of gender ($p < .05$), age ranges ($p < .005$) and marital status ($p < 0.05$). No significant differences were found in the factors naturalness and traceability, hygiene, or convenience. A significant difference was detected in one factor that influences the selection of a restaurant: service quality. The health-conscious segment showed higher scores than the other segments, meaning that the health-conscious consumers are significantly more concerned about the service quality of restaurants. This supports part of the first hypothesis.

Table 5. Cluster difference by selection attributes

	Cluster 1 Conservative 27%	Cluster2 Adventurous 21%	Cluster3 Health conscious 52%	F-Value	
Factor1: Service quality	-.1472029	-.3166099	.2015267	7.388	**
Factor2: Naturalness and traceability	-.0405443	-.0345313	.0347774	.196	
Factor3: Hygiene	.0354247	-.1064374	.023376	.437	
Factor4: Convenience	-.0046846	.0233760	-.0097708	.037	

** $p < 0.01$.

The conservative group contained the highest proportion of females (65.4%) and people married with children (60.5%). The adventurous group contained the most men (54.1%) and the highest share of people that live alone (about 60.7% of this segment were single).The health-conscious is slightly dominated by men (51.6%) and most of them are 31–40. The conservative consumers showed the highest mean score for the hygiene criterion, meaning that hygiene is a more decisive criterion for this group, higher even than the other criteria. Adventurous consumers presented the lowest mean score in service quality and hygiene criteria. Their demand for naturalness and traceability is limited; they do not care as much about hygiene and service quality. This segment attaches more value to convenience; leaving the other potentially influential factors largely unconsidered. The health-conscious consumer selects restaurants mainly based on service quality and naturalness and traceability.

The results for the WTP are reported in Table 6. Concerning WTP, a high value (mean = 5.84) was found by all respondents, which means that all customers are will to pay more for a food-safe restaurant. Across the three segments, the ANOVA showed no significant differences regarding the WTP premium. The price was found to correlate negatively with the WTP in all segments. This means that the higher the price of the product, the less likely respondents will pay for it.

Table 6. Cluster difference by WTP premium

	Cluster 1 Conservative	Cluster2 Adventurous	Cluster3 Health conscious	Total	F-Value
Willing to pay premium	5.94	5.69	5.84	5.84	.922
10%	5.85	5.41	5.63	5.65	2.431
20%	4.10	3.79	4.13	4.05	.867
30%	3.01	2.79	3.08	3.00	.728
40%	2.42	2.39	2.52	2.47	.238
50%	2.04	2.15	2.12	2.10	.138

5. Conclusions

Food safety issues are receiving greater attention than ever in Taiwan. Restaurant in many developing countries are currently undergoing a profound transformation, with aspects of food quality and safety growing in importance. The results of this study partially support the hypothesis that there is no significant difference in consumers' willingness to pay a premium for safe food.

The study by Zhang (2005) showed that consumers will pay more for safe food while Eom (1994) also found that consumers were willing to pay a substantially higher price for safer produce.

This study used cluster analysis to segment consumers in three groups based on their food-related lifestyles and subsequently identified their attitudes toward food safety at restaurants. The findings of the study should enable restaurant owners to identify their target markets and develop effective marketing strategies. Health-conscious consumers offer strong business potential for food-safe restaurants. The health-conscious group is quite concerned about health and naturalness. This segment attaches great importance to restaurant service quality, naturalness of food, and restaurant hygiene. This consumer segment showed the highest inclination to pay a premium for food safety. The conservative group also gives high priority to natural and organic products, and is more willing to pay premium than the other group—the adventurous group. Adventurous food consumers are extremely novelty seeking and eager to try foods that are new and unfamiliar. This group values convenience most highly in a restaurant. They also showed the lowest willingness to pay premium. Therefore, the adventurous group may not be the ideal targets operators of restaurants that advertise food safety.

6. Limitations

There are some limitations of the study. Fist, it is focused only on some major city in Taiwan, the results may not be applicable to all consumers in the country. The distinctions were not made between different types of restaurants in this study. Another limitation is that there may be other features influencing selection attributes toward food safe restaurant. Moreover, we just examined basic statistics. If the study had been conducted in different method may have shown different result.

7. Recommendations

However, it is recommended that future research further investigate particular target groups or geographical areas in order to discern more specific groups. Furthermore, the present study did not focus on any specific type of restaurant. Further research could examine other segments of the restaurant industry (such as fast-food restaurants, fine-dining

restaurants, ethical restaurants etc.). Finally, future studies may use different approaches to move forward.

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