

Healthy Eating Away-from-Home: Effects of Dining Occasion and the Number of Menu Items

*Boo, H.C., Chan, L.T. and Fatimah, U.

*Department of Food Management and Service, Faculty of Food Science and Technology,
Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia*

Abstract: Consumers are reported to be increasingly concerned about their health. Nonetheless, consumers show different attitudes toward food at home and away from home. In particular, consumers tend to shy away from healthy food items when dining on special occasions. This study is the first to look into the number of healthy menu items provided to consumers during dining occasions. The impacts of two independent variables (dining occasion: normal vs. special; number of healthy items: limited vs. extended) on consumers' dining menu selection was examined among female university students. The results of this study indicate that both dining occasion and the number of healthy items offered could influence consumers' food selection independently. Although consumers are more likely to choose unhealthy items while dining on special occasions, offering more healthy items would increase the probability of healthy eating. This study also offers some insights into the food categories and cooking methods favored by consumers. Further studies should explore other potential foods that would enhance the selection of healthy options by consumers.

Keywords: Health, nutrition, menu choices, food service, dining occasion

INTRODUCTION

Consumer food habits, purchase behaviors, and consumption pattern today has dramatically changed. Foods once favored are now rarely eaten; foods once only dreamed about are now a reality. The frequency of eating out has been rising among consumers almost everywhere. According to Euromonitor International (2007), Malaysians can afford to eat out just about everyday of the week. Depending on the budget, the choice can vary from full-service restaurants to fast food outlets and hawker stalls. This norm of eating out is especially widespread among students and dual income earning families.

In a survey conducted by Nielsen (2004), around 59% of Malaysians eat at restaurants at least once a week. The widespread eating out consumption pattern can be ascribed to a decline in the number of persons per household and the increase in household and disposable incomes. Besides economic factors, changes in lifestyle also contribute to the higher level of eating out. A global market study conducted by Euromonitor International (2007) reported that young Chinese consumers perceive the time saved from preparing meals in the kitchen outweighs the added cost of eating out, while the greater flexibility and less

routine in all aspects of life makes the British constantly seeking ways to save time.

The increasingly common phenomenon of eating out has been associated with several health diseases, such as cardiovascular diseases, diabetes, and obesity. As a result, the promotion of slimming programs is intensifying, the number of fitness institutions is growing, and the sales of health supplements are escalating. Indeed, the demand and consumption of healthy and dietary supplements in Malaysia have increased in recent years, especially among the female population (Euromonitor International, 2007).

Although consumers were reported to be increasingly health conscious on one hand, many young people were inclined to choose high fat and sugar, but low fiber foods despite their knowledge of the importance of healthy eating (Warwick *et al.*, 1997).

Previous studies suggest that foods away-from-home generally contain more of the nutrients over-consumed and less of the nutrients under-consumed (Lin *et al.*, 1999a; 1999b). Typically, meals consumed away from home contain high calorie content, total fat, saturated fat, cholesterol, sodium and are in large sized portions (Kumar *et al.*, 2006; LaVonna *et al.*, 2005; Lin *et al.*, 1999a; 1999b). On the contrary, dietary fiber content is

*Corresponding author
E-mail: hcbboo@putra.upm.edu.my

low in these foods. Fast food restaurants, which offer mostly unhealthy food items, are particularly considered as the culprit (Binkley *et al.*, 2000). The Malaysian Minister of Health has even banned fast food companies from sponsoring television shows for children or advertising on children's programs (Singh, 2007). Such an action is intended to reduce the influence of fast food advertisements (i.e., unhealthy eating habits) on the food consumption patterns of children and teenagers. However, unhealthy menu items are not confined to the fast food industry. They are also popular among casual dining restaurants.

The inconsistency between health conscious claims of consumers and their consumption behaviors manifests especially during special dining occasions. Marketers have long recognized the potential influence of the buying situation. The proviso that "it depends upon the situation" implies that consumers expect both purchase and consumption situations exert an influence on their decision making. Previous research has substantiated the apparent situational effect on consumer food preferences (Filiatrault and Ritchie, 1988; Michalczyk, 2002; Story *et al.*, 2002). For example, Michalczyk (2002) revealed that consumer meal decisions can be characterized as time-specific and occasion related. Specifically, consumers will think more about a healthy option when dining for lunch compared to evening meals as lunch is perceived as an ordinary meal for survival. On the contrary, the focus shifts to enjoyment for an evening meal as it is interpreted as a social occasion. In other words, consumers are expected to care less about the nutritional value of their meals when dining on special occasions. This argument is in line with the suggestion by Hertzler and Frary (1999) that convenience, tradition, and pleasure seeking are the reasons contributing to consumers not following their healthy eating plan.

Besides situational factors, literature in consumer decision making has also shown that the quantity of choice alternatives or product attributes can influence consumer decision processes (Malhotra *et al.*, 1982). According to the rule of probability, the chances of selecting an item is positively related to the proportion of the item in the pool of choices. In other words, if consumers are offered with healthier menu choices, the likelihood of them choosing healthy menu items will be greater. In contrast, when the alternatives provided are limited, consumers are forced to make a trade off. This is consistent with Tversky and Sattath's (1979) hierarchical elimination model – a cognitive process in which consumer decisions are believed to be made by considering attributes in a hierarchical fashion. Kahn *et al.*

(1987) further demonstrated that constraints can have a significant impact on choice probabilities. According to the researchers, the effect of imposing a constraint on choice can lead to an increase in choice probabilities for less preferred similar alternatives. Translating that into the context of this study, consumers may have to choose some unhealthy foods (less preferred alternative) because there is a limited number of healthy items offered (constraint imposed) by the food service establishment.

To date, very few studies have focused on the number of healthy options provided to consumers (LaVonna *et al.*, 2005). If we examine the types of food offered on special dining occasions, we will uncover that a majority of the items such as fish and chips, chicken chop, and crispy seafood platter are unhealthy. In the fast food sector, even though McDonald's and Kentucky Fried Chicken (KFC) attempt to include salads and low-calorie products, the number of healthy items offered is limited. Therefore, it remains a question if consumers truly do not want to practice healthy eating when they dine out on special occasions, or it is simply because they are not offered sufficient healthy menu choices. To shed light on the discrepancy between consumer health claims and consumption behavior, this study was undertaken to examine the effects of menu items and dining occasion on the menu selection among consumers.

METHODS

This study employed a 2 (dining occasion: normal vs. special) x 2 (number of healthy items: limited vs. extended) between-subject experimental design. The dining occasion was manipulated via a role-play scenario. For the normal dining occasion, subjects and friends dined out for their normal meals. However, they dined out to celebrate the subject's birthday at the special dining occasion. The scenario case approach is appropriate since this method minimizes memory-bias effect (Smith *et al.*, 1999).

Two types of menu list with a total of 20 items from five food categories were created. The five categories were (a) chicken, (b) beef, (c) fish, (d) lamb, and (e) noodles. In the limited healthy item menu list, only one item in each food category was healthy. On the other hand, the extended healthy item menu list consisted of one-half of the healthy menu items (two out of four in each food category). The foods for healthy menu were cooked by baking, steaming, grilling, braising, and stewing. In contrast, unhealthy menu items were deep-fried, pan-fried, or cooked in creamy coconut.

Table 1: The mean and standard deviation of age and consumption behavior of respondents

Dining Occasion	Healthy Menu	Age	Eat Out - Lunch		Eat Out - Dinner	
			Normal	Special	Normal	Special
Normal	Limited	21.82±1.49	4.73±2.02	1.93±1.81	4.32±2.07	2.92±2.42
	Extended	21.56±1.15	5.23±1.99	1.70±1.57	4.67±2.14	2.56±2.02
Special	Limited	21.50±1.49	4.35±2.23	1.68±1.26	3.98±2.22	2.18±2.08
	Extended	21.77±1.33	4.85±1.96	1.68±1.50	4.47±1.98	2.43±1.70

Gender and nutritional knowledge are two possible variables that may be confounded in the healthy eating behavior of consumers. Previous studies have suggested that health is a significant factor that differentiates the food choice between men and women (Monneuse *et al.*, 1997; Steptoe *et al.*, 1995; Wardle *et al.*, 2004). Hence, the subject pool in the study was composed of only female university students. The use of university students, though convenient, is deemed appropriate since eating out is common among these students. Past researches have also demonstrated the influence of knowledge in nutrition on consumers' dietary behaviors (Dallongeville *et al.*, 2007; Steptoe *et al.*, 2003). To control the effect of nutritional knowledge, 20 nutrition and health knowledge questions developed from several sources of references (Bogert *et al.*, 1979; Davies and Dickerson, 1989) were used.

Based on the manipulation of dining occasion and number of healthy menu items, four sets of questionnaires were produced. Each questionnaire contained three sections. In the first section, subjects were given a scenario describing the dining occasion (either special or normal occasion) together with a list of menu items (either limited or extended healthy items). Explanations of the various cooking methods were provided. Subjects were asked to evaluate whether the scenario was realistic and the total number of menu items was sufficient. Subjects were then required to indicate their preference from the menu list. In the second section, background information such as age, frequency of eating out for normal and special occasions was included. The last section of the questionnaire was the pre-screening test which consisted of a series of questions related to nutritional and health knowledge. Subjects took appropriately 20 minutes to complete a questionnaire.

RESULTS

Respondent Profile

A response rate of 78.6% (N = 274) was achieved. The mean age of respondents was 21.66, ranging from 19 to 24 years. The omnibus F-test of the analysis of variance (ANOVA) showed no significant difference in age among the four treatment groups (F (3, 270) = 0.913, p = 0.435). In terms of consumption behavior, the average frequency of eating out for lunch per week was 4.82 (SD = 2.06). Approximately one third (33.2%) of the respondents dined out daily for lunch. Only 16.8% dined out at the most twice a week. Meanwhile, the average frequency of dining out for dinner was slightly lower (M = 4.38, SD = 2.11). Only 26.3% of the respondents ate out daily, while 23.0% ate out at the most twice a week during dinner. Respondents reported an average of 1.75 and 2.54 times per week of dining for special occasions during lunch and dinner, respectively. Table 1 exhibits the profile and consumption behavior of respondents.

Manipulation Checks

The realism of the two scenarios (normal lunch or special lunch for a birthday celebration) was judged using a 7-point scale (1 = highly unrealistic, 7 = highly realistic). The sufficiency of menu items provided was also measured with a 7-point scale (1 = not at all sufficient, 7 = greatly sufficient). Consumers' nutritional knowledge was tested via 20-multiple choice questions.

The manipulation checks indicate that the scenarios and the number of menu items given were perceived as realistic and sufficient, respectively (Table 2). Specifically, the omnibus F-test of ANOVA revealed no significant effects on the two independent variables in the realism of the scenarios (F (3, 268) = 0.711, p = 0.546). Furthermore, the average realism ratings among the eight treatment groups were above the middle point (M (limited, normal) = 4.84, M (limited, special) = 4.63, M (extended, normal) = 4.62, M (extended, special) = 4.75). In short, responses

Table 2: Mean and standard deviation of scenario realism, menu item sufficiency, and nutritional knowledge of respondents

Dining Occasion	Healthy Menu	Scenario Realism	Menu Item Sufficiency	Nutritional Knowledge
Normal	Limited	4.84±0.94	4.41±1.27	11.31±2.42
	Extended	4.62±1.03	4.11±1.23	11.52±2.46
Special	Limited	4.63±1.07	4.25±1.11	11.38±2.19
	Extended	4.75±1.14	4.28±1.38	11.59±2.09

Table 3: Goodness-of-fit model

Model	df	Deviance G ²	p-value	Pearson X ²	p-value
Saturated	0	0	-	0	-
Menu + Occasion	1	0.330	0.566	0.330	0.566
Occasion	2	9.401	0.009	9.320	0.010
Menu	2	5.196	0.074	5.200	0.074
Null	3	14.266	0.003	14.528	0.002

indicated that the respondents perceived the scenario as realistic.

For the sufficiency of menu items, the omnibus F-test showed no significant effects on the two independent variables ($F(3, 270) = 0.697, p = 0.555$). Respondents from the four treatment groups reported that the number of items provided in the menu was sufficient (M (limited, normal) = 4.41, M (limited, special) = 4.25, M (extended, normal) = 4.11, M (extended, special) = 4.28). In sum, respondents agreed that they were provided with sufficient menu items.

The nutritional knowledge test resulted in a mean score of 11.44. The median score was 11 (52% scored 11 and below). The omnibus F-test of ANOVA showed no significant two-way interaction effect ($F(1, 270) = 0.000, p = 0.998$). The main effect of menu ($F(1, 270) = 0.543, p = 0.462$) and occasion ($F(1, 270) = 0.065, p = 0.799$) was also insignificant. In other words, the nutritional knowledge among respondents in the four groups was not significantly different.

Overall, the manipulation of scenario and menu items was effectively executed. The possible confounding variables, such as age, gender, and nutritional knowledge were controlled successfully.

Goodness-of-Fit Model

The analysis began with an investigation of the independence of consumers' menu selections from the effect of dining occasion and the number of healthy menu items.' The logistic regression analysis (Table 3) yields a significant lack of fit (Wald $\chi^2(3) = 14.528, p = 0.002$) indicating that respondents' menu selections is affected by dining

occasion and the number of healthy menu items. On the other hand, the saturated model (with the interaction between menu and occasion) did not significantly improve the model ($\Delta\chi^2(1) = 0.330, p = 0.848$). The conditional independence model was then tested to examine the main effect of dining occasion and the number of healthy menu items. The overall statistics showed that the model with both main effects has the best goodness-of-fit (Wald $\chi^2(1) = 0.330, p = 0.566$).

Effect of Situation and Number of Menu Item

Table 4 presents the respondents' menu selections' for the four treatments. Results of the logistic regression analysis revealed a negative relationship between dining occasion and menu selection ($\beta = -0.593, SE = 0.270, \text{Wald } \chi^2 = 4.830, p = 0.028$). Specifically, the proportion of respondents choosing healthy food decreased from 68.92% during normal dining occasion to 51.67% on special occasions when a limited menu was provided. In other words, the odds of choosing healthy food on special occasions were 0.48 (1.07/2.22) times higher than for normal occasions. A similar pattern was observed in the context of extended menu. The proportion of respondents choosing healthy food also decreased from 81.01% (for normal occasion) to 73.77% (for special occasion). Or, the odds of choosing healthy food for special occasion were 0.66 (2.81/4.27) times as high as for normal occasion. Overall, respondents were 44.8% less likely to choose healthy food when they dine out on special occasions. Hence, the main effect of dining occasion is supported.

Table 4: Proportion and ratio of healthy to unhealthy menu selection

Dining Occasion	Healthy Menu	Menu Selection		Proportion of Healthy to Total	Health: Unhealthy
		Healthy	Unhealthy		
Normal	Limited	51	23	68.92	2.22
Normal	Extended	64	15	81.01	4.27
Special	Limited	31	29	51.67	1.07
Special	Extended	45	16	73.77	2.81

In addition, results of the logistic regression analysis also reveals a positive relationship between the number of menu items and menu selection ($\beta = 0.809$, $SE = 0.273$, $Wald \chi^2 = 8.822$, $p = 0.003$). As shown in Table 4, the proportion of respondents who chose healthy food increased from 68.92% (for limited menu) to 81.01% (for extended menu) in a normal dining context. In other words, respondents who dined for their normal meals were almost twice (odds = $4.27/2.22 = 1.92$) as likely to choose healthy food when an extended menu was offered compared to when a limited menu was provided. Comparable results were observed in the context of special dining occasions. The proportion of respondents choosing healthy foods also increased from 51.67% (for limited menu) to 73.77% (for extended menu). The odds of choosing healthy food for an extended menu were 2.63 (2.81/1.07) times higher than for limited menus. On the whole, offering extended healthy menus appears to increase the odds of selecting a healthy menu item by 2.25. Thus, the effect of number of menu items on menu selection is independent of dining occasion.

Analysis of Selected Menu Items

Table 5 shows the details of menu items selected by respondents in the four consumption situations. In general, chicken (47.81%) and fish (29.56%) were the two most popular food categories. Conversely, beef (4.74%), lamb (4.38%), and noodles (13.5%) were less favorable. In terms of the cooking methods, grilling was the most preferred way of preparing food, accounting for 54.74% of the selection. More than half of the respondents chose grilling as the preferred method to prepare chicken (54.96%), beef (76.92%), fish (74.07%), and lamb (66.67%). These grilled items received high acceptance among respondents who dined for their daily meals and also on special occasions. Only 14.23% of the total respondents (20.63% of the healthy eating diners) chose other healthy food cooking methods such as braised, baked, and steamed.

Because chicken and fish constituted almost two thirds of the selected items, the subsequent

analysis focused on these two food categories. Overall, results showed that 70.8% (51/72) of the respondents who preferred chicken chose healthy cooking methods for normal dining occasions compared to 49.15% (29/59) for special occasions. Meanwhile, 54.29% (38/70) of the respondents chose healthy items when a limited menu was provided compared to 68.85% (42/61) when an extended menu was provided. Specific to the dining occasion, although the proportions of respondents selected healthy items in the normal dining context, there was no variation between the different types of menu (24/36 = 66.67% for limited vs. 27/36 = 75% for extended), and this proportion was lower for a limited menu (14/34 = 41.18%) than an extended menu (15/25 = 60%) when dining was for special purposes.

As for fish, results show that 84.44% (38/45) of the respondents chose healthy cooking methods for normal dining occasions compared to 72.22% (26/36) for special occasions. Meanwhile, 73.68% (28/38) of the respondents chose healthy items when a limited menu was provided compared to 83.72% (36/43) when an extended menu was provided. The effect of menu was similar for different dining occasions. Specifically, the proportion of respondents who selected healthy items in the normal dining context was lower for a limited menu (20/25 = 80%) than for an extended menu (18/20 = 90%). A comparable finding was noted for special dining occasions (8/13 = 61.54% for limited menu vs. 18/23 = 78.26% for extended menu).

DISCUSSION AND CONCLUSION

Consumers are said to be increasingly concerned about their health but they were reported to be consuming unhealthy diets, especially during social occasions. The result supports the proposition that dining occasion affect consumers' menu selection. It confirms the qualitative finding reported by Martens (1997) that consumers in fact actively seek foods that are fat and carbohydrate-rich when eating out on special occasions. The effect of

Table 5: Menu preference of respondents

Menu Item	Limited Menu		Extended Menu		Total
	Normal	Special	Normal	Special	
Chicken					
Deep fried	7	12	8	3	30
Battered	3	3			6
Steamed*			7	1	8
Grilled*	24	14	20	14	72
Breaded deep fried	2	5	1	7	15
Total	36	34	36	25	131
Beef					
Grilled*	3	1	3	3	10
Pan fried	0	1			1
Stewed*			0	0	0
Roasted in fat	0	2	0	0	2
Fried stew	0	0	0	0	0
Total	3	4	3	3	13
Fish					
Roasted in fat	2	1			3
Baked*			4	0	4
Breaded deep fried	1	2	0	3	6
Grilled*	20	8	14	18	60
Battered deep fried	2	2	2	2	8
Total	25	13	20	23	81
Lamb					
Pan fried	0	0	0	0	0
Roasted in fat	0	0	2	0	2
Fried stew	0	1			1
Braised*			0	1	1
Grilled*	2	1	1	4	8
Total	2	2	3	5	12
Noodle					
Clear soup*	2	4	5	3	14
Thick coconut gravy	0	0	0	0	0
Creamy coconut curry	0	1	2	0	3
Fried	6	2			8
Tomyam soup*			10	2	12
Total	8	7	17	5	37

* Healthy items

dining occasion on food eating behavior can be understood from the meaning associated with food. Following the gastronomic rules, the meanings of foods are evoked when specific foods are consumed. The texture of crispy foods arouses emotions of play, pleasure and delight (Devasahayam, 2003). Thus, fried items are popular for consumption on special occasions.

However, no research to date has looked into the effect of number of menu items provided to consumers. Consistent with the theory of choice constraint and probability theory, the results of this study showed that the odds of choosing healthy foods during special dining occasions provided with extended menus and in normal dining occasions given limited menu are comparable. This

finding further substantiates the effects of an extended menu. Researchers have studied several ways to promote healthy food items in the food service industry, such as using menu labeling (Almanza *et al.*, 1993; Guthrie *et al.*, 1995), providing menu information (Stubenitsky *et al.*, 2000), and enhancing food flavor and presentation (Solheim, 1992; Tuorila *et al.*, 1994). The results of this study suggests that providing consumers with more healthy food items will increase the probability of eating healthily even when it is a special occasion. Thus, the reason for the food service industry not offering healthy items is not justifiable. In fact, the industry practitioners should offer more simply because when more choices are

offered, there is a greater probability that the healthy choices suit the consumers' tastes.

The high proportion of consumers choosing chicken and fish items may be specific to the student population who generally understand that white meat (e.g. fish and chicken) is healthier than red meat (e.g. lamb and beef). Nonetheless, the popularity of these two categories of food may be attributed to the unique multicultural background of Malaysia. Specifically, the foods consumed by Malaysians are guided by their religion. For example, Muslims are prohibited from taking pork, Hindus and Tau believers do not take beef. With the exception of vegetarians and Buddhists, chicken and fish are the two categories of food enjoyed by all ethnic groups in Malaysia. Hence, in the effort to create a healthy community, restaurant operators may want to offer more healthy chicken and fish items.

This research also sheds light on the popular food preparation methods. The wide acceptance of grilled food items could be associated with the impressions left on the food from grilling. This is consistent with the success of McDonald's Grilled Chicken Foldover. In view of the increasing number of restaurants featuring grilled items in Malaysia, such as Roadhouse Grill Restaurant, 'Fandango's Mexican Restaurant and Grill,' American Chili's Grill and Bar, Outback Steakhouse, and Euro Deli Grill, we speculate that grilled food is not only healthy but also tasty.

In summary, this study contributes to the existing literature on the effects of menus on consumer selection. Specifically, the study indicates that the number of healthy menu items offered influences consumer choice. It also shows the robustness of dining occasion on consumer dining selection. From the managerial perspective, this study implies that consumers are more likely to choose healthy food items if extended healthy choices are given even when the dining is a special occasion. The focus of the type of food offered should be placed on chicken and fish, while emphasis of the cooking method may be on grilling.

LIMITATIONS AND SUGGESTIONS FOR FUTURE STUDIES

There are several caveats and qualifications to the conclusions and interpretations of the current research findings. First, although we sought to make a contribution by demonstrating an empirical support for the hypotheses, we used female university students in this study. Thus, generalizations must be made with greater care. The internal and external validity can certainly be

strengthened with larger scale and more diversified groups of subject in any future study.

It is important to note that although the use of experimental scenarios is justified in theoretical tests, the interaction with friends during the dining situation is highly likely to affect consumers' decision making. In addition, the catchy menu title and description of the menu item can also influence consumers' choice. Hence, a generalization of the research findings can be challenged. Researchers could investigate consumers' responses in the actual restaurant setting.

Finally, the focal point of this study was healthy entree cooking method. When eating away from home, healthy eating includes the types of food and the side dishes. It is very likely consumers may choose fries over baked potatoes or other types of vegetables for their side dishes. Furthermore, the sizes of portions also play an important role in the total energy intake (Diliberti *et al.*, 2004). Future studies may be extended to investigate the entire meal rather than the main course or side dish.

REFERENCES

- Almanza, B.A., Mason, A.P.C., Widdows, R. and Girard, F.J. 1993. Consumer responses to nutrition guidelines labeling in a university restaurant. *Journal of the American Dietetic Association*, 93 (5): 580-581.
- Binkley, J.K., Eales, J. and Jekanowski, M. 2000. The relation between dietary change and rising US obesity. *International Journal of Obesity*, 24 (8): 1032-1039.
- Bogert, L.F., Briggs, G.M. and Calloway, D.H. 1979. *Nutrition and physical fitness*. 10th edn. Philadelphia: W.B. Saunders.
- Davies, J. and Dickerson, J. 1989. *Food facts and figures: A comprehensive guide to healthy eating*. London: Faber and Faber.
- Devasahayam, T.W. 2003. When we eat what we eat: Classifying crispy foods in Malaysian Tamil cuisine. *Anthropology of Food*, 1 (September): 1-13.
- Diliberti, N., Bordi, P.L., Conklin, M.T., Roe, L.S. and Rolls, B.R. 2004. Increased portion size leads to increased energy intake in a restaurant meal. *Obesity Research*, 12 (3): 562-568.
- Dollongeville, J., Marecaux, N., Cottel, D., Bingham, A. and Amouyel, P. 2001. Association between nutrition knowledge and nutritional intake in middle-aged men from Northern France. *Public Health Nutrition*, 4 (1): 27-33.

- Filiatrault, P. and Ritchie, J.R.B. 1988. The impact of situational factors on the evaluation of hospitality services. *Journal of Travel Research*, 26 (4): 29-37.
- Guthrie, J.F., Fox, J.J., Cleveland, L.E. and Welsh, S. 1995. Who uses nutrition labeling, and what effects does label use have on diet quality? *Journal of Nutrition Education*, 27 (4): 163-172.
- Hertzler, A.A. and Frary, R.B. 1999. Dietary guidelines – A self-assessment. *Journal of Consumer Studies and Home Economics*, 23 (3): 155-160.
- Internet: ACNielsen, Inc. 2004. Consumer in Asia-Pacific— Our fast food/take away consumption habits. Downloaded from http://www2.acnielsen.com/reports/documents/2004_ap_fastfood.pdf on 24/7/2007.
- Internet: Kumar, D., Mittal, P.C. and Singh, S. 2006. Socio-cultural and nutritional aspects of fast food consumption among teenagers and youth. *Indian Journal of Community Medicine*, 31(3). Downloaded from <http://www.indmedica.com/journals.php?journalid=7&issueid=79&articleid=1034&action=article> on 25/7/2007.
- Internet: Euromonitor International. 2007, May. Travel and tourism in Malaysia. Downloaded from <http://www.portal.euromonitor.com/portal/server.pt?control=SetCommunity&CommunityID=206&PageID=719&cached=false&space=CommunityPage> on 13/6/2007.
- Kahn, B., Moore, W.L. and Glazer, R. 1987. Experiments in constrained choice. *Journal of Consumer Research*, 14 (1): 96-113.
- LaVonna, B.L., Sloane, D.C., Nascimento, L.M., Diamant, A.L., Guinyard, J.J., Yancey, A.K. and Flynn, G. 2005. African Americans' access to healthy food options in south Los Angeles restaurants. *American Journal of Public Health*, 95 (4): 668-673.
- Lin, B.H., Frazao, E. and Guthrie, J. 1999a. Contribution of away-from-home foods to American diet quality. *Family Economics and Nutrition Reviews*, 12 (3&4): 85-89.
- Internet: Lin, B.H., Guthrie, J. and Frazao, E. 1999b. Away-from-home foods increasingly important to quality of American diet. In *Agriculture Information Bulletin No. 749*. Downloaded from <http://www.ers.usda.gov/publications/aib749/aib749.pdf> on 23/6/2007.
- Malhotra, N.K., Jain, A.K. and Lagakos, S.W. 1982. The information overload controversy: An alternative viewpoint. *Journal of Marketing*, 46 (2): 27-37.
- Martens, L. 1997. Gender and the eating out experience. *British Food Journal*, 99 (1): 20-26.
- Michalczyk, I. 2002. Healthy strategy? *Leisure & Hospitality Business*, May: p. 32.
- Monneuse, M.O., Bellisle, F. and Koppert, G. 1997. Eating habits, food and health related attitudes and beliefs reported by French students. *European Journal of Clinical Nutrition*, 51 (1): 46-53.
- Internet: Singh, D. 2007. Fast-food ads banned from kids' shows. *The Star*. Downloaded from <http://thestar.com.my/news/story.asp?file=/2007/6/23/nation/18109396&sec=nation> on 24/7/2007.
- Smith, A.K., Bolton R.N. and Wagner, J. 1999. A model of customer satisfaction with service encounters involving failure and recovery. *Journal of Marketing Research*, 36 (3): 356-372.
- Solheim, R. 1992. Consumer liking for sausages affected by sensory quality and information of fat content. *Appetite*, 19: 285-292.
- Stepoe, A., Pollard, T.M. and Wardle, J. 1995. Development of a measure of the motives underlying the selection of food: The food choice questionnaire. *Appetite*, 25: 267-284.
- Perkins-Porras, L., McKay, C., Rink, E., Hilton, S. and Cappuccio, F.P. 2003. Psychological factors associated with fruit and vegetable intake and with biomarkers in adults from a low-income neighborhood. *Health Psychology*, 22 (2): 148-155.
- Stubenitsky, K., Aaron, J.I., Catt, S.L. and Mela, D.J. 2000. The influence of recipe modification and nutritional information on restaurant food acceptance and macronutrient intakes. *Public Health Nutrition*, 3 (2): 201-209.
- Story, M., Neumark-Sztainer, D. and French, S. 2002. Individual and environmental influences on adolescent eating behaviors. *Journal of the American Dietetic Association*, 102 (3 Suppl.): S40-S51.
- Tuorila, H., Meiselman, H.L., Bell, R., Cardello, A.V. and Johnson, W. 1994. Role of sensory and cognitive information in the enhancement of certainty and liking for novel and familiar foods. *Appetite*, 23: 231-246.
- Tversky, A. and Sattath, S. 1979. Preference trees. *Psychological Review*, 86 (6): 542-593.
- Wardle, J., Haase, A. M., Steptoe, A., Nillapun, M., Jonwutiwes, K. and Bellisle, F. 2004. Gender differences in food choice: The contribution of health beliefs and dieting. *Annals of Behavioral Medicine*, 27 (2): 107-116.
- Warwick, J., McIlveen, H. and Strugnell, C. 1997. Food choices and the younger generation. *Journal of Consumer Studies and Home Economics*, 21 (2), 141-149.