

**FAST FOOD CONSUMPTION AMONG VISITORS OF SHOPPING
COMPLEXES AT KOTA KINABALU**

TAN SING EE

**THESIS SUBMITTED IN FULFILLMENT OF THE QUALIFICATION FOR
THE DEGREE OF BACHELOR (HONOURS) OF FOOD SCIENCE
(FOOD SCIENCE AND NUTRITION)**

PROGRAMME FOOD SCIENCE AND NUTRITION

SCHOOL OF FOOD SCIENCE AND NUTRITION

UNIVERSITY MALAYSIA SABAH

2005



UMS
UNIVERSITI MALAYSIA SABAH

UNIVERSITI MALAYSIA SABAH

BORANG PENGESAHAN STATUS TESIS

JUDUL: FAST FOOD CONSUMPTION AMONG VISITORS OF SHOPPING COMPLEXES
AT KOTA KINABALU

IJAZAH: SARJANA MUDA SAINS MAKANAN DAN PEMAKANAN

SESI PENGAJIAN: 2002/2003

Saya TAN SING EE

(HURUF BESAR)

mengaku membenarkan tesis (LPS/ Sarjana/ Doktor Falsafah) ini di simpan di Perpustakaan Universiti Malaysia Sabah dengan syarat-syarat kegunaan seperti berikut:

1. Tesis adalah hakmilik Universiti Malaysia Sabah.
2. Perpustakaan Universiti Malaysia Sabah dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. ** Sila tandakan (/)

☐

SULIT

(Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)

☐

TERHAD


(Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)

☒

TIDAK TERHAD

Disahkan oleh


 (TANDATANGAN PENULIS)


 (TANDATANGAN PUSTAKAWAN)

mat Tetap: 116, LEBUH MELAKA

10400 PULAU PINANG

Pn. RAMLAH MOHD. ROSLI

Nama Penyelia

Tarikh: 28-3-2005

Tarikh: 28-3-2005

CATATAN: * Potong yang tidak berkenaan.

* Jika tesis ini SULIT atau TERHAD, sila lampiran surat daripada pihak berkuasa/organisasi berkenaan dengan menyatakan sekali sebab dan tempoh tesis ini perlu dikelaskan sebagai SULIT dan TERHAD.

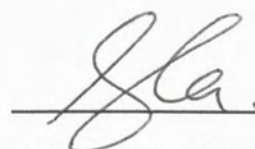
* Tesis dimaksudkan sebagai tesis bagi Ijazah Doktor Falsafah dan Sarjana secara penyelidikan, atau disertasi bagi pengajian secara kerja kursus dan penyelidikan, atau Laporan Projek Sarjana Muda (LPSM).



UMS
UNIVERSITI MALAYSIA SABAH

DECLARATION

The materials in this thesis are original except for quotations, excerpts, summaries and references, which have been duly acknowledged.



TAN SING EE
HN2002-3686
26 FEB 2005



VERIFIED BY

Signature

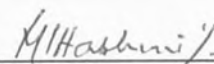
1. SUPERVISOR

PUAN RAMLAH MOHD ROSLI



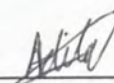
2. EXAMINER 1

DR. MUHAMMAD IQBAL HASHMI



3. EXAMINER 2

CIK ADILA MD RAMLI

4. DEAN OF SCHOOL OF FOOD
SCIENCE AND NUTRITION

PROF. MADYA DR. MOHD. ISMAIL ABDULLAH



ACKNOWLEDGEMENTS

I would like to express my gratitude and appreciation to my project supervisor, Pn Ramlah Mohd Rosli, for her guidance and precious advice along the progress of my research project. The research project was carried out in order to fulfill my qualification for Degree of Bachelor of Food Science and Nutrition.

I would like to acknowledge the assistance given by Ms. Leong Soo Fong during the survey and data collection. I would like to thank the management of shopping complexes (Center Point, Wisma Merdeka, Karamunsing Complex and Wawasan Plaza) for giving me permission and opportunity to carry out my survey. I am indebted to the subjects participated in this study.

Finally yet importantly, I would like to express my gratitude to my parents for their endless support and courage all the time. Thanks to all my friends and course mates who have help me out in one way or another. I would like to thank all those that involved directly or indirectly to the completion of this research project.



ABSTRAK

PENGAMBILAN MAKANAN SEGERA DI KALANGAN PENGUNJUNG PUSAT MEMBELI-BELAH DI KOTA KINABALU

Kajian ini dijalankan untuk mengkaji pengambilan makanan segera di kalangan pengunjung pusat membeli-belah, faktor-faktor yang mempengaruhi pengambilannya, serta hubungan di antara kekerapan pengambilan makanan segera dengan Index Jisim Tubuh (BMI) dan lilitan pinggan (WC). Kajian ini dijalankan di 4 buah pusat membeli-belah di Kota Kinabalu dan merangkumi 500 orang responden yang merupakan pengunjung pusat beli-belah. Survei ini dijalankan dengan menggunakan borang soal selidik. Data yang dikumpul dianalisis dengan menggunakan *Statistical Package for Social Science* (SPSS) versi 11.0. Responden dikategorikan kepada tiga kumpulan umur, iaitu umur 10-19, 20-39 dan 40-59. Terdapat lebih banyak responden perempuan (52.8%) daripada responden lelaki (47.2%). Kekerapan pengambilan makanan segera dibahagikan kepada lima kategori. Keputusan analisis menunjukkan kebanyakan responden (30.4%) mengatakan bahawa mereka jarang makan di premis makanan segera, hanya 4.0% daripada jumlah responden yang melaporkan bahawa mereka mengambil makanan segera 2-3 kali seminggu. Secara umumnya, kebanyakan responden (52.4%) suka makanan segera, dan tahap penerimaan makanan segera berkurang secara signifikan apabila umur meningkat ($p = 0.000$). Remaja (umur 10-19) dan dewasa (umur 20-39) menunjukkan kesukaan makanan segera yang lebih tinggi dan pada masa yang sama, mengambil makanan segera lebih kerap berbanding dengan responden yang berumur 40-59. Sebab yang paling utama pengambilan makanan segera yang diberikan ialah memudahkan (79.6%). Premis makanan segera yang paling popular ialah Kentucky Fried Chicken (63.4%). Ini mungkin kerana KFC menawarkan menu yang sesuai dengan citarasa kebanyakan pengguna. Ayam goreng pula merupakan item makanan segera yang paling digemari (61.6%). Walau bagaimanapun, kebanyakan responden (77.2%) tidak berpuas hati dengan harga makanan segera yang ditawarkan sekarang. Rasa makanan segera merupakan kriteria yang paling dipentingkan manakala saiz hidangan adalah kriteria yang tidak begitu dititik-beratkan. Iklan ($p = 0.037$), promosi ($p = 0.016$) dan rakan sebaya ($p = 0.023$) merupakan faktor-faktor yang mempengaruhi kekerapan pengambilan makanan segera. Daripada jumlah responden yang mempunyai anak, majoriti (85.0%) mengakui bahawa anak mereka yang mempengaruhi mereka untuk makan makanan segera. Analisis menunjukkan tidak terdapat hubungan signifikan di antara kekerapan pengambilan makanan segera dengan Index Jisim Tubuh (BMI) dan juga lilitan pinggan (WC). Walaupun terdapat beberapa faktor yang mempengaruhi pengambilan makanan segera, namun, trend pengambilan makanan segera di Kota Kinabalu menunjukkan pengambilan makanan segera mungkin masih minina.



ABSTRACT

FAST FOOD CONSUMPTION AMONG VISITORS OF SHOPPING COMPLEXES AT KOTA KINABALU

This survey was conducted mainly to investigate fast food consumption among visitors of shopping complexes at Kota Kinabalu, factors that influence their fast food intake, and to examine the frequency of fast food consumption in relation to body mass index and waist circumference. The survey involved 500 respondents, and was carried out through questionnaires. Data collected were analyzed using Statistical Package for Social Science (SPSS) version 11.0. Respondents were categorized into three age groups; aged 10-19, 20-39 and 40-59. There were more female respondents (52.8%) than male respondents (47.2%). Frequency of fast food restaurant visits was categorized into five categories. Analysis revealed that majority of the respondents (30.4%) reported they seldom visited fast food restaurants, only 4.0% of the total respondents frequented fast food places 2-3 times a week. Most respondents (52.4%) like fast food, and level of acceptance towards fast food decreased significantly with age ($p = 0.000$). Teenagers (aged 10-19) and young adults (aged 20-39) showed greater acceptance towards fast food, and at the same time, consumed fast food more frequently compared to middle-aged adults. Convenience was reported as the main reason of eating at fast food restaurants (79.6%). The most popular fast food outlet was Kentucky Fried Chicken (63.4%). This is probably because KFC offered menus that suit most consumers' taste and is suitable for all races. Fried chicken expectedly topped the list of favourite fast food items (61.6%). Most of the respondents (77.2%) were not satisfied with the price offered by the fast food restaurants. Taste of foods was the most emphasized criterion while portion size of fast food was ranked as the least important criterion. Advertisements ($p = 0.037$), value promotion ($p = 0.016$) and friends ($p = 0.023$) were factors identified to have significantly influenced frequency of fast food consumption. Out of the total number of respondents who have kids, majority of them (85.0%) admitted that their kids influenced their fast food consumption. Frequency of fast food consumption and an increase in body mass index and waist circumference were not significantly related. Although some factors do influence fast food intake, the present trend of fast food intake showed that fast food consumption in Kota Kinabalu is still minimal.



LIST OF ABBREVIATIONS

BK	Burger King
BMI	Body Mass Index
CHO	Carbohydrate
KFC	Kentucky Fried Chicken
NRA	National Restaurant Association
McD	McDonalds
RDA	Recommended Daily Allowance
RM	Ringgit Malaysia
SPSS	Statistical Package for Social Science
UK	United Kingdom
US	United States
USDA	United States Department of Agriculture
WC	Waist circumference
WHO	World Health Organization



LIST OF SYMBOLS AND UNITS

%	Percentage
g	gram
kg	kilogram
kcal	kilocalories
kJ	kilojoules
m	meters
<	less than
>	more than
n	number
\$	dollar



CONTENTS

	Page
TITLE OF THESIS	i
DECLARATION	ii
VERIFICATION	iii
ACKNOWLEDGEMENTS	iv
ABSTRAK	v
ABSTRACT	vi
LIST OF ABBREVIATIONS	vii
LIST OF SYMBOL AND UNITS	viii
CONTENTS	ix
LIST OF TABLES	xiii
LIST OF FIGURES	xiv
LIST OF APPENDICES	xv
CHAPTER 1 INTRODUCTION	1
1.1. Introduction	1
1.2. Objectives	3
CHAPTER 2 LITERATURE REVIEW	4
2.1. Fast food	4
2.1.1. Definition of fast food	4
2.1.2. Fast food restaurant	5
2.2. Fast food industry	6
2.2.1. Development of fast food industry	6
2.2.2. Fast food industry in the world	7
2.2.3. Fast food industry in Malaysia	8
2.3. Concept of fast food restaurant	10



2.3.1. Simple and limited	11
2.3.2. Labour skills	11
2.3.3. Standardization	12
2.3.4. Cleanliness	12
2.3.5. Unique characteristics of fast food premises	13
2.3.6. Test marketing	14
2.4. Types of fast food consumers	14
2.4.1. Children	14
2.4.2. Teenagers	15
2.4.3. Marital status	16
2.5. Perception of consumers toward fast food	16
2.6. Fast food consumption	18
2.7. Fast food choices	21
2.8. Factors that influence fast food choices	22
2.8.1. Demographic	24
2.8.2. Advertising	24
2.8.3. Promotion	27
2.8.4. Lifestyle	28
2.8.5. Family and friends	28
2.9. Nutrients in fast food	29
2.10. Undesirable qualities of fast food	31
2.11. Fast food consumption link to health	33
2.12. Future of fast food industry	37
CHAPTER 3 MATERIALS AND METHODS	40
3.1. Questionnaire	40
3.2. Respondents	41
3.3. Locations of study	41



3.4.	Application to conduct study	42
3.5.	Pre-test	42
3.6.	Actual survey	42
3.7.	Anthropometry measurement	43
3.7.1.	Body Mass Index	43
3.7.2.	Waist circumference	44
3.8.	Statistical analysis	44
CHAPTER 4 RESULTS AND DISCUSSION		45
4.1.	Respondents' profile	45
4.2.	Acceptance towards fast food	47
4.3.	Fast food consumption	50
4.3.1.	Frequency of fast food consumption	50
4.3.2.	Portion size	52
4.3.3.	Meal time	53
4.3.4.	Money spent for fast food	55
4.3.5.	Side order	58
4.3.6.	Reasons of eating at fast food restaurants	59
4.4.	Fast food premises choice	60
4.5.	Fast food items preference	62
4.6.	Price of fast food	64
4.7.	Criteria that respondents give emphasis to in fast food	64
4.8.	Respondents' opinion on fast food	66
4.9.	Factors that influence fast food consumption	67
4.9.1.	Advertising	67
4.9.2.	Promotion	69
4.9.3.	Family	71
4.9.4.	Friends	72
4.9.5.	Kids	74



4.10. Frequency of fast food consumption in relation to body mass index and waist circumference	75
CHAPTER 5 CONCLUSIONS AND SUGGESTIONS	77
5.1. Conclusions	77
5.2. Suggestions	78
REFERENCES	80
APPENDICES	92



LIST OF TABLES

Table numbers		Page
Table 2.1	Reasons of eating out	22
Table 2.2	The expenditure in advertising by a few fast food chains in US	26
Table 2.3	Comparison of a few items at McDonald's and Burger King	29
Table 2.4	Comparison of three different types of chicken breast at KFC outlet	30
Table 4.1	Distribution of respondents according to demographic factors	46
Table 4.2	Respondents' acceptance towards fast food based on ethnic	48
Table 4.3	Meal time according to occupation	54
Table 4.4	Meal time according to age group	55
Table 4.5	Respondents' spending and their opinion on whether the money spent is worthwhile	58
Table 4.6	Criteria of fast food according to degree of importance	65
Table 4.7	Respondents' opinion on what fast food is	67
Table 4.8	Kids influence on fast food consumption	75



LIST OF FIGURES

Figure Numbers		Page
Figure 4.1	Respondents' acceptance towards fast food	47
Figure 4.2	Respondents' acceptance towards fast food based on age group	49
Figure 4.3	Frequency of fast food consumption	51
Figure 4.4	Frequency of fast food consumption base on age group	52
Figure 4.5	Companion when visiting fast food restaurants according to age group	55
Figure 4.6	Money spent for fast food according to income	57
Figure 4.7	Reasons of eating at fast food restaurants	60
Figure 4.8	Respondents' favourite fast food restaurant choice	61
Figure 4.9	Respondents favourite fast food items choice	63
Figure 4.10	Advertisements influence on frequency of fast food consumption	68
Figure 4.11	Promotions influence on frequency of fast food consumption	70
Figure 4.12	Toys promotion influences on frequency of fast food consumption	71
Figure 4.13	Family influences on frequency of fast food consumption	72
Figure 4.14	Friends influence on frequency of fast food consumption	74



LIST OF APPENDICES

		Page
Appendix A	Questionnaire	92
Appendix B	BMI Calculation and Classification	110
Appendix C	Output SPSS (Results of descriptive statistics and frequency)	113
Appendix D	Output SPSS (Results of Chi-square analysis)	116
Appendix E	Output SPSS (Results of analysis on Body Mass Index and Waist Circumference)	121
Appendix F	Fast Food Nutritional Data	123
Appendix G	Application letter to conduct survey	127



CHAPTER 1

INTRODUCTION

1.1. Introduction

According to Stanton (1996), fast food is food prepared and served quickly at a fast food restaurant or shop. Fast foods are generally cooked items which are available with minimal waiting time. Fast food is usually finger food that can be eaten quickly and without cutlery (Stanton, 1996). Fast food is often highly processed and prepared in an industrial fashion, that is, with standard ingredients and methodical cooking and production methods. The food in fast food restaurants is commonly cooked in bulk in advance and kept hot, or reheated to order. Many fast food restaurants are part of restaurant chains or franchise operation, which distribute standardized foodstuffs to individual restaurants from central location (Bingham, 1977).

Fast food, in the context of this study, refer to foods such as fried chicken, hamburgers, French fries, pizza, and soft drink which are accessible in most franchise fast food restaurants, such as KFC, McDonald's, Pizza Hut, and Burger King. Due to global travel, communication and media, the globalizing market has led to a common culture worldwide. The fast food restaurant is one typical form of global business (Emerson, 1990).

Fast food has become an increasingly popular form of eating in Malaysia (Neo, 2003). Together with local franchises such as Sugar Bun, US-based chains



such as McDonald's, KFC, Burger King and Pizza Hut have mushroomed across urban and rural Malaysia. The number of fast food restaurants has increased more than double from 1972 to 1995, and by now estimated there were 247,113 nationwide (Wainwright, 2002). Fast food has historically been thought of as a younger generation consumer product. Fast food is especially popular among adolescents, who on average visit a fast food outlet twice per week (Paeratakul *et al.* 2003). In Malaysia, at present, 70 percent of the customers who patronize fast-food outlets are students in their teens (Neo, 2003).

People eat fast food for reasons such as convenience, availability, trends, busy lifestyle, fun, taste and social interaction. Many Malaysian adolescents are becoming increasingly more westernized (Berita Harian, 2000) and people pursue greater convenience when eating. Therefore, the increase in fast food consumption is likely to continue (Paeratakul *et al.* 2003). There are other factors that influence the fast food intake such as social influence and fast food advertising (Rashad, Chou & Grosman, 2004), which greatly impact the development of fast food industry.

Trends in fast food restaurant visit show that the quality of diet, especially of children and adolescent has deteriorated over the past several years (St-Onge, Keller & Heymsfield, 2003). It is an evident from the study by Paeratakul and colleagues (2003), that fast food consumption may lead to excess energy intake and, in turn, increase the risk of overweight and obesity (Pereira, Kartashov & Ebbeling, 2003). The increases in energy intake have been shown to be associated with five main food habits, namely increased food consumption away from home, increased energy from salty snacks, increased in soft drink, increased in pizza and increased portion (Nielsen, Siega-Riz & Popkin, 2002). All the five main food habits are of relevant to trends in fast food consumption. An earlier study showed that children who eat fast food more than twice a week are 86 percent more likely to end up obese than those



who rarely or never consume fast food (Bowman *et al.* 2004). However, the national prevalence of overweight and obese individuals in Malaysia is not as high as the European countries and United States (Flegal *et al.* 1998).

Consequently, many people have raised concerns about the nutritional quality of fast food, not only for children and adolescents but also for adults (French *et al.* 2001a). Previous studies have shown that despite its high fat content, fast food provides an adequate intake of protein and carbohydrate (Paeratakul *et al.* 2003). However, few studies were done to examine the actual fast food intake and its effects on any nutrition or health-related outcome (Bowman *et al.* 2004; French, Harnack & Jeffery, 2000), and most of these are cross-sectional design. Several factors inherent to fast food as it now exist could promote a positive energy balance (Ludwig, Ebbeling & Pawlak, 2002; Flegal *et al.* 2002), and thereby increase risk of weight gain and obesity, including excessive portion size, with single large meals often approaching or exceeding individual daily energy requirement. This study may be contribute due to the concern of the increase availability of fast food, and that fast food consumption might be one potentially important dietary factor affecting health and obesity epidemic (Flegal *et al.* 2002; Jebb & Prentice, 2003).

1.2. Objectives

1. To investigate the fast food consumption among visitors of shopping complexes in Kota Kinabalu, Sabah.
2. To examine the factors that influence fast food consumption of the respondents.
3. To examine the frequency of fast food consumption in relation to Body Mass Index and waist circumference of respondents.



CHAPTER 2

LITERATURE REVIEW

2.1. Fast Food

2.1.1. Definition of fast food

Fast food is food prepared and served quickly at fast food restaurant (Scanlon, 1993). Fast food is a multi-billion dollar industry, which is continuing to grow at rapid pace in the early 21st century in many countries as less people cook at home. Fast food is often highly processed and prepared in an industrial fashion, for instance, with standard ingredients and methodical cooking and production methods (Rande, 1996). Fast food outlets often provide take-away or take-out food in addition to a sit-down service. Drive-through allows food to be ordered and delivered without leaving the car to further speed service. Fast food is usually finger food that can be eaten quickly and without cutlery (Stanton, 1996).

Fast food menu often consists of hamburgers, French fries, chicken, nuggets, pizza, ice cream and soft drink although many fast food restaurants offer some other less easily consumed choices like mashed potatoes or salads. Chinese cuisine, although often served as take-away, is not always considered as fast food. McDonalds is a noted company which supplies fast food. It is a phenomenally successful enterprise, in terms of financial dominance and world-wide expansion.



Many people equate fast foods with convenience foods. This is incorrect since convenience products are often eaten at home. They require active participation because they must be heated, stirred, baked, thawed, and are supplemented with other foods (The Swiss Association of Nutrition, 2003). The characteristics of fast food, therefore, are that they require little time, offer a limited selection (Dittmer & Griffin, 1997), are finger food, and the silverware and plates are disposable. These characteristics readily illustrate the difference from traditional dining culture.

Fast foods are quick, reasonably priced, and readily available alternative to home cooking. While convenient and economical for a busy lifestyle, fast foods are typically high in calories, cholesterol, fat, saturated fat, salt and sugar (The National Alliance for Nutrition and Activity, 2002). The fast food chains and restaurants have responded to the increasing awareness of the public about nutrition and have attempted to help people who concerned about their health. For example, they now make ingredient and nutrition information available on their menus. Despite these changes, however, in order to have a balanced and healthy diet, it is necessary to choose fast foods wisely and carefully.

2.1.2. Fast food restaurant

Fast food restaurant is a restaurant characterized by food that is supply quickly after ordering and using minimal service. The food in these restaurants is commonly cooked in bulk in advance and kept hot, or reheated to order. Many fast-food restaurants are part of restaurant chains or franchise operations, which ship standardized foodstuffs to the individual restaurants from central locations. There are also simpler fast-food outlets, such as stands or kiosks, which might or might not provide shelter or chairs for customers.



Generally, a fast food restaurant has a simple and limited menu. Each food in the menu will be processed to increase its convenience, uniformity of production and service (Powers, 1995). Fast food restaurant exist since the late 1940's. Some franchise fast food restaurants that are popular all over the world are such as McDonald's, Kentucky Fried Chicken, and Pizza Hut. For example, the first McDonald's was opened in 1948 in San Bernardino, California. McDonald's has the most restaurants with 12,380 locations and has over 364,000 employees (Burskey *et al.* 2002). Its "golden arches" logo and mascot Ronald McDonald are famous trademarks that are recognized worldwide.

2.2. Fast Food Industry

2.2.1. Development of fast food industry

In rapidly urbanizing Asia, where the fast food market is estimated to be worth at least US \$ 200 billion, there exists much potential for growth for both trans-national giants such as McDonald's and KFC, as well as for home-grown chains (Neo, 2003). Industry experts agree that the combination of convenience and affordability will continue to drive the growth of the fast food industry worldwide. Malaysia, like other Asian neighbours, is witnessing a trend towards fast foods, also including semi-prepared foods and take-away meals. Some 36 percent of its 23 million population are aged 15 years and below (Neo, 2003), and this points to a potentially large consumer base for the fast food business.

Fast food establishments date back to 1905, when the Sears and Roebuck mail-order firm in Chicago opened a restaurant for their employees that could feed 8400 people in 1 hour and 20 minutes (Chaudhry, 1993). Franchising (the selling of individual food service units by a food service chain to investors who own and



operate their units under the name of the chain) originated with the A&W Corporation which started a small root beer stand in 1919. The fast food industry has enjoyed a phenomenal growth. In 1955, McDonald's one and only fast food restaurant was located in Des Plaines, Illinois (Uebelherr, 2004). In 1992, McDonald's has over 12,000 restaurants in more than 59 countries, worldwide. The U.S National Restaurant Association estimates that 45.8 million people eat at fast food restaurants each day (Ensminger *et al.* 1995).

The astounding success of the fast food industry is not an accident. It is primarily attributable to the dual achievements of uniformity and mass production (DeMaria, 2003). Providing an identical product at multiple locations has created familiarity and induced confidence regarding quality among customers. The industry now enjoys the success begotten by a product that suit most consumers' tastes and has the attributes of being quick, convenient, inexpensive, and hand-held. The formula for success employed by the fast food industry has now been adopted as the standard model for business in virtually every segment of society (DeMaria, 2003).

2.2.2. Fast food industry in the world

Based on the data by Consumer Reports on Eating Share Trends (CREST) on 1990, sales of fast food in the world is roughly \$109.5 billion and increase by 2% every year (Clauson, 1998). The like towards fast food is not only limited to the western countries, but also the Middle East countries. For instance, in Egypt, there are more than ten types of fast food chains opened since 1993. In Singapore alone, more than 200 fast food restaurants can be found. The first fast food premise was opened in the late 1970s (Neo, 2003). The increase demand of fast food might be due to the rapid economy change of that country. A study done by Kassim Chan Management Sdn. Bhd., showed that demand in the frozen raw materials increases tremendously in



conjunction with the increase demand in fast food. The world demand toward fast food and convenient food are estimated to cost US \$400 billion (Salam, 2000).

The key to fast food industry worldwide success is that people everywhere know what to expect when they pass through these restaurants. This does not mean, however, that the fast food corporations have resisted change or refused to adapt when local customs require flexibility. For example, McDonald's restaurants in India serve Vegetable Mac Nuggets and a mutton-based Maharaja Mac, innovations that are necessary in a country where Hindus do not eat beef, Muslims do not eat pork and others. Another instance, in Malaysia and Singapore, McDonald's underwent rigorous inspections by Muslim clerics to ensure ritual cleanliness; the chain was rewarded with *halal* certificate, indicating the total absence of pork products.

The growth of fast food industry has been nothing less than astonishing. According to DeMaria (2003), fast food has become "so routine, so thoroughly mundane, that it is now taken for granted like brushing teeth". In the United States, more dollars are now spent on fast food than on higher education, newspapers, magazines, books, movies, videos and recorded music combined: \$ 110 billion in 2001 (Schlosser, 1998). It is not surprising, therefore, that this enormous growth has had a proportionate impact on economic, social, and cultural aspect of American life (Schlosser, 1998). Scenario in Malaysia will soon become like what happen in the US. The fast food sector in Asia is estimated to be worth a massive US\$ 200 billion (Neo, 2003).

2.2.3. Fast food industry in Malaysia

Industry experts say the fast food market in Malaysia is poised for a growth of between 20 to 30 percent per annum in the coming years (National Restaurant



REFERENCES

- Alper, D.H., Stenson, W. F. & Bier, D.M. 1995. Nutritional Analysis of Fast Food. *Manual of Nutritional Therapeutics*. 3rd edition. Boston. Little, Brown and Company.
- Anderson, S.C. 2003. Press release in response to an article in the Washington Press linking fast food to obesity. Available at <http://www.restaurants.org>. Assessed May 2004.
- Astrup, A. 2005. Super-sized and diabetic by frequent fast food consumption. *The Lancet*. **365**: 4 – 5.
- Banff, L. 1998. Raising the standard of living? : The problem of obesity. *The sociology of food*. **30**(2): 149 – 172.
- Bednar, C., Czajka-Narins, D. & Elahi, F. 1998. Knowledge of fat/oil content of foods by fast food restaurant managers. *Journal of American Dietetic Association*. **98**(9): A106.
- Benjelloun, S. 2002. U.S Fast food consumption characteristics. *Public Health Nutrition*. **5**:10 – 15.
- Berita Harian. 2000. Makanan segera antara punca masalah berat badan. *Berita Harian* , 4 Februari 2000:8.
- Bingham, S. 1977. *Dictionary of nutrition: A Consumer's guide to the facts of food*. London: Barrie & Jenikins.
- Block, J.P., Scribner, R.A. & DeSalvo, K.B. 2004. Fast food, race/ethnicity and income. *American Journal of Preventive Medicine*. **27**(3):211 – 217.
- Bowman, A. S., Gortmaker S.L., Ebbeling, E.B., Pereira M.A. & Ludwig, D.S. 2004. Effects of Fast Food Consumption on Energy Intake and Diet Quality among Children in a National Household Survey. *Pediatrics*. **113**: 112 -118.
- Brown, A.C. 1998. Consumer guide to fast foods based on caloric and gram fat limitations. *Journal of American Dietetic Association*. **98**(9): A42.
- Brownell, K. 2002. Comparison of price change and health message interventions in promoting healthy food choices. *Health Psychology*. **21**: 505 – 512.



- Buchholz, T.G. 2003. *Burger, fries & lawyers: the beef behind obesity lawsuits*. Case File: Conducted for the U.S. Chamber of Commerce.
- Burdette, H.L. & Whitaker, R.C. 2004. Neighborhood playground, fast food restaurants and crime: relationships to overweight in low-income preschool children. *Preventive Medicine*. **38**(1): 57 – 63.
- Burger King Corporation. 1999. Burger King Nutrition Facts. Available at <http://www.burgerking.com>. Assessed May 2004.
- Burskey, C., Truesdell, M., Hellow, A. & Shepherd D. 2002. *An analysis of the fast food industry*. News Forge Article.
- Chaudhry, R. 1993. *R&I Forecast: Fast Food, Restaurant and Institutions*. Hollow Essex: England. Prentice Hall.
- Cheang, M. 2002. Older adults' frequent visits to a fast food restaurant: nonobligatory social interaction and the significance play in a "third place". *Journal of Aging Studies*. **16**(3): 303 – 321.
- Cheng, T.O. 2003. Fast food and Obesity in China. *Journal of American College of Cardiology*. **42**(4):773.
- Cheng, T.O. 2004. Fast food, automobiles, television and obesity epidemic in Chinese children. *International Journal of Cardiology*. **96**: 425 – 439.
- Choo, V. 2002. WHO reassesses body mass index for Asian populations. *The Lancet*. **360**(9328): 235.
- Clauson, A. 1998. Food Market Indicators Briefing room. United State Department of Agriculture. Massachusetts, USA.
- Clements, L.H., Slawson, D.L. & Klesges, R.C. 1999. The effect of eating out on quality of diet in premenopausal women. *Journal of American Dietetic Association*. **99**: 442 -444.
- Coon, K.A. & Tucker, K.L. 2002. Television and children's consumption pattern: a review of the literature. *Minerva Pediatric*. **54**: 423 – 436.
- Dalmeny, K. 2003. Food Marketing: The role of advertising in child health. *Consumer Policy review*. **13**(1).



- DeBoer, M., McCarthy, M., Cowan, C. & Ryan, I. 2004. The influence of lifestyle characteristics and belief about convenience food on the demand for convenience foods in Irish market. *Food Quality and Preference*. **15**:155 – 165.
- DeMaria, A. N. 2003. Editor's page: Of Fast Food and Franchises. *American College of Cardiology*. **41**: 1227 – 1228.
- Diliberti, N., Bordi, P.L., Conklin, M.T., Roe, L.S. & Rolls, B.J. 2004. Increased portion size leads to increased energy intake in a restaurant meal. *Obesity Research*. **12**: 562 – 568.
- Dittmer, P.R. & Griffin, G.C. 1997. *Dimension of the Hospitality Industry*. 6th edition. New York: Van Nostrand Reinhold.
- Drewnowski, A. & Popkin, B. 1997. The nutrition transition: New trends in global diet. *Nutrition Review*. **55**(2).
- Ebbeling, C.B., Sinclair, K.B., Pereira, M.A., Garcia-Lago, E., Feldman, H.A. & Ludwig, D.S. 2004. Compensation for energy intake from fast food among overweight and lean adolescents. *Journal of American Medical Association*. **291**: 2828 – 2833.
- Emerson, R.L. 1990. *The New Economics of Fast Food*. New York: Van Nostrand Reinhold.
- Ensminger, M.E., Ensminger, A., Konlande, J. E. & Robson, J. K. 1995. *The concise encyclopedia of foods and nutrition*. CRC Press.
- Euromonitor. 1996. *Fast Foods: researched and published by Euromonitor*. Euromonitor PLC.
- Fogle, C. 2000. Nutrition for teen boys: Eating well in the fast food lane. *Healthy Families*. November 2000. Also available at <http://www.montanadieteticassociation.org>
- Fernandez, P.M. & Juan, S. 2002. Fatty acid composition of commercial Spanish fast food and snack food. *Journal of Food Composition and Analysis*. **13**(3): 275 – 281.
- Flegal, K.M., Carroll, M.D., Kuczmarski, R.J. & Johnson, C.L. 1998. Overweight and Obesity in the United States: Prevalence and Trends. *Journal of the International Association for the study of obesity*. **22**(39): 205 – 211.



- Flegal, K.M., Carroll, M.D., Ogden, C.L. & Clifford, L. 2002. Prevalence and trend in obesity among US adults, 1999-2000. *Journal of American Medical Association*. **288**: 1723 – 1727.
- Freeland, G.J & Nitzke, S. 2002. Position of the American Dietetic Association: total diet approach to communicating food and nutrition information. *Journal of American Dietetic Association*. **102**: 100 – 108.
- French, S.A., Harnack L. & Jeffery R. 2000. Fast food restaurant use among women in the Pound of Prevention study: dietary, behavioral, and demographic correlates. *International Journal of Obesity*. **24**: 1353 - 1359.
- French, S.A., Story, M., Neumark-Sztainer, D., Fulkerson, J.A. & Hannan, P. 2001a. Fast food restaurant use among adolescents: association with nutrient intake, food choices and behavioral and psychosocial variables. *International Journal of Obesity*. **25**: 1823 -1833.
- French, S.A., Jeffery R., Story M., Breitlow K., Baxter J., Hannan P. & Snyder M. 2001b. Pricing and promotion effects on low-fat snack purchases: The CHIPS study. *American Journal of Public Health*. **91**: 112 – 117.
- French, S.A., Lin, B.H. & Guthrie J.F. 2003a. National trends in soft drink consumption among children and adolescent age 6 to 17 years: Prevalence, amounts and source, 1977/78 to 1994/98. *Journal of American Dietetic Association*. **103**(10): 1326-1331.
- French, S.A. 2003b. Pricing effects on food choices. *Journal of Nutrition*. **133**: 841 – 843.
- Gallo, A.E. 1999. Food Advertising in United States. *America's Eating Habits: Changes and consequences*. USDA Economic Research Service, Washington. 173 – 180.
- Gamble, M. & Cotunga, N. 1999. A quarter century of TV food advertising targeted at children. *American Journal of Health Behavior*. **23**: 261 – 267.
- Geoffrey, M. 2000. *Children and food*. Cambridge: Moulton Press.
- Glanz, K., Basil, M., Maibachi, E., Goldberg, J. & Snyder, D. 1998. Taste, nutrition, cost, convenience, and weight control concerns as influences on food consumption. *Journal of American Dietetic Association*. **98**(10): 1118 – 1126.



- Greenwood, B. & Leslie, A. 1998. *A healthy diet for a healthy life*. Edinburgh: Healday Press.
- Gross, S.M. & Cinelli B. 2004. Coordinated school health and dietetic professionals: partners in promoting healthful eating. *Journal of American Dietetic Association*. **104**(4): 793 – 798.
- Hilgenberg, M.F. & Morelock, T. 2001. Making fast food more nutritious. *Earth Times: Public Health*. University of Arkansas.
- Hollingsworth, P. 2003. Note to McDonald's: To Everything There Is A Reason. *Food Technology*. **57**(2):17.
- Hollingsworth, P. 2002. Fast Food Today Means Food, Fast. *Food Technology*. **56**(2):18.
- Hurley, J. & Corcoran, L. 1998. Meals to go. *Nutrition Action Healthletter*. **25**: 12.
- Ismail, M. & Tan, C. 1998. *Prevalence of Obesity in Malaysia*. Country report at the regional advisory board meeting on obesity. August 1998. Manila, Philippines.
- Jahns, L., Siega-Riz, A.M. & Popkin, B.M. 2001. The increasing prevalence of snacking among US children from 1977 to 1996. *Journal of Pediatric*. **138**: 493 – 498.
- Jawatankuasa Teknikal Kajian Diet. 2003. Kajian Pengambilan Makanan Malaysia 2002/2003. Kementerian Kesihatan Malaysia.
- Jebb, S.A. & Prentice, A.M. 2003. *Fast foods encourage over-eating and weight gain*. Medical Research Council. Nutrition and Health Research.
- Jeffery, R.W. & French, S.A. 1998. Epidemic obesity in the United States: are fast foods and television viewing contributing? *American Journal of Public Health*. **88**: 277 – 280.
- Jekanowski, M.D. 1999. Causes and Consequences of Fast Food Sales Growth." *Food Review*. **11**: 33 – 35.
- Jekanowski, M.D., Binkley J.K. & Eales J. 2001. Convenience, Accessibility, and the Demand for Fast Food." *Journal of Agricultural and Resource Economics*. **58**: 1032 – 1039.



- Kentucky Fried Chicken Corporation. 2002. KFC nutrition guide. Available at <http://www.kfc.com>. Assessed May 2004.
- Keynote. 1996. *Market Review – US Catering Market*. United State Department of Agriculture. Massachusetts, USA.
- Khan, M.A. 1991. *Concepts of food service operations and management*. New York: John Wiley & Sons Inc.
- Knutson, B.J. 2000. College students and fast food – how students perceive restaurant brands. *The Cornell Hotel and Restaurant Administration Quarterly*. **41**(3): 68 – 74.
- Koplan, J. & Dietz, W. 1999. Caloric imbalance and public health policy. *Journal of American Medical Association*. **282**: 1579 – 1582.
- Krebs, J. 2003. *Consumer question fast food hygiene*. Food Standard Agency Restaurant Association. United Kingdom. Also available at www.bbc.com
- Lee, R.D. & Nieman, D.C. 1996. *Nutritional Assessment*. 2nd edition. Missouri: Mosby-Year Book, Inc.
- Leidner, R., 1993. *Fast Food, Fast Talk: Service Work and the Routinization of Everyday Life*. California: University of California Press.
- Lewis, M.K. & Hill, A.J. 1998. Food advertising on British children's television. *International Journal of Obesity Related Metabolism Disorder*. **22**:206 – 214.
- Lin, B., Frazao, E & Guthrie, J. 1999. Contribution of away from home foods to American diet quality. *Family Economics and Nutrition Review*. **12**: 85 - 89.
- Lin, B. & Frazao, E. 1997. Nutritional quality of foods at and away from home. *Food Review*. **20**: 33 – 40.
- Lin, B., Guthrie, J. & Blaylock, J.R. 1996. The diets of children: influence of dining out, household characteristics and nutrition knowledge. *Agriculture and Economic Report*. **746**: 1-37.
- Ludwig, D.S., Ebbeling, C.B. & Pawlak, D.B. 2002. Childhood Obesity: public crisis, common sense cure. *Lancet*. **360**: 473 – 482.



- Ma, G.S., Li, Y.P., Hu, X.Q., Ma, W.J. & Wu, J. 2002. Effect of television viewing on pediatric obesity. *Biomedical and Environmental Science*. **12**: 291 – 297.
- Market Power. 1995. *Who eats out?* United State Department of Agriculture. Massachusetts: Gould Street.
- Marsh, T.L., Fanning, J. & Stiegert, K. 2003. *Bayesian estimation and socio-economic determinants of fast food consumption*. Biennial Research Conference of the Food System Research Group. University of Wisconsin.
- Masaharu, K., Masami, Ki, Masako, K. & Nobuko, K. 2002. Nutritional evaluation of Japanese take out lunches compared with western-style fast foods supplied in Japan. *Journal of Food Composition and Analysis*. **15**(1): 35 – 45.
- Matheson, D.M., Killen, J.D., Wang, Y., Varady, A. & Robinson, T.N. 2004. Children's food consumption during television viewing. *American Journal of Clinical Nutrition*. **79**: 1088 – 1094.
- McCracken, L. & Brandt, S. 1999. Away from home foods increasingly important to quality of diet. *Agricultural Economic Report*. **749**.
- McDonald's Corporation. 2004. McDonalds Food and Nutrition Facts. Available at <http://www.mcdonlads.com.html>. Accessed March 2004.
- McGregor, R. 2003. China swallows fast food at an ever more rapid rate. *Financial Times*. p.12.
- Mello, M.M., Rimm, E.B. & Studdert, D.M. 2003. The McLawsuit: the fast-food industry and legal accountability for obesity. *Health Affairs*. **22**(6): 141 - 145.
- Miranda, G. 1995. *Franchising: An overview*. Malaysian Franchise Association, Kuala Lumpur.
- Mohamad Nordin A.K. & Mohd Nasir A. 1989. The intake and popularity of Malaysian franchised fast food. *Proceedings of the Nutrition Society Malaysia*. **4**:19 – 24.
- Moser, P. 1998. McDonald's Mystique. *Fortune*. July 4, 1998.
- Moy, F.M. & Atiya, A.S. 2003. Waist circumference as a screening tool for weight management. *Asia Pacific Journal of Public Health*. **15**(2): 99 – 104.



Murphy, J. 2000. The Super-sizing of American: Are Fast Food Chains to blame for the Nation's Obesity? *Washington Post, the Nation, Time*. June 2000.

National Center for Health statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion. 2000. *Body mass index-for-age Growth Chart module*. Also available at <http://www.cdc.gov/growthcharts>

National Restaurant Association. 2000. Restaurant Industry Pocket Fact book. National Restaurant Association. Washington, DC.

Neo, D. 2003. Fast Food Industry in Asia. *Asia Pacific Food Industry*. Jan-Feb 2003.

Nestle, M. & Jacobson, M. 2000. Halting the obesity epidemic: A public health policy approach. *Public Health Report*. **115**:12 -24.

Neumark-Sztainer, D., Story, M., Perry, C. & Casey, M.A. 1999. Factors influencing food choices of adolescent. *Journal of American Dietetic Association*. **99**(8): 929-937.

Newby, P.K., Muller, D., Hallfrisch, J., Qiao, N., Andres, R. & Tucker, K.L. 2003. Dietary patterns and changes in body mass index and waist circumference in adults. *American Journal of Clinical Nutrition*. **77**(6):1417 – 1425.

Nicklas, T.A., Baranowski, T., Cullen, K. W. & Berenson, G. 2001. Eating patterns, dietary quality and obesity. *Journal of the American College of Nutrition*. **20**(6): 599 – 608.

Nielsen, S.J., Siega-Riz, A.M. & Popkin, B.M. 2002. Trends in energy intake in U.S. between 1977 and 1996: similar shifts seen across age groups. *Obesity Research*. **10**(5): 370 – 378.

Nielsen, S.J. & Popkin, B.M. 2003. Patterns and trends in food portion sizes, 1977-1998. *Journal of American Medical Association*. **289**: 450 – 453.

Paeratakul, S., Ferdinand, D.P., Champagne, C.M., Ryan D.H., & Bray, G.A. 2003. Fast-food Consumption among US adults and Children: Dietary and Nutrient Intake Profile. *Journal of American Dietetic Association*. **103**(10): 1332 - 1338.

Park, C. 2004. Efficient or enjoyable? Consumer value of eating out and fast food restaurant consumption in Korea. *International Journal of Hospitality Management*. **23**: 87 – 94.



- Pepper A.W. & Milson A. 2002. The use and acceptability of convenience and fast foods in the food service industry in Scotland. *International Journal of Hospitality Management*. 3(2): 63 – 69.
- Pereira M.A., Kartashov A.I. & Ebbeling C.B. 2003. Fast Food meal frequency and the incidence of obesity and abnormal glucose homeostasis in young white and black adults: the CARDIA study. *Circulation*. 107: 35.
- Pereira M.A., Kartashov A.I., Ebbeling C.B., VanHorn L., Slattery M.L., Jacobs D.R. & Ludwig D.S. 2005. Fast food habits, weight gain and insulin-resistance (the CARDIA study): 15-year prospective analysis. *Lancet*. 365(9453): 36 – 42.
- Perlman, S. 2004. Fast food consumption on the rise. CNN reports link between fast food and obesity. Available at www.cnn.com. Assessed August 2004.
- Pettijohn, L.S., Pettijohn, C.E. & Luke, R.H. 1997. An evaluation of fast food restaurant satisfaction: determinants, competitive comparisons and impact on future patronage. *Journal of Restaurant and Foodservice Marketing*. 2:3 – 20.
- Popkin, B.M., Siega-Riz, A.M., Haines, P.S. & Jahns, L. 2002. Where's the fat? Trends in U.S. diet 1965 – 1996. *Preventive Medicine*. 32(3): 245 – 254.
- Pizza Hut Corporation. 2002. Pizza Hut Nutrition Guide. Available at <http://www.pizzahut.com>. Assessed may 2004.
- Pollack, A. 1996. Food poisoning outbreak alarms Japan. *New York Times*. July, 1996.
- Powers, T. 1995. *Introduction to the Hospitality Industry*. 3rd edition. New York: John Wiley & Sons Inc.
- Powers, T. & Barrows, C.W. 2003. *Management in the Hospitality Industry*. 7th edition. New York: John Wiley & Sons, Inc.
- Prentice, A.M. & Jebb, S.A. 2003. Fast foods, energy density and obesity: a possible mechanistic link. *Obesity Reviews*. 4: 187 – 194.
- Prentice, A.M. & Jebb, S.A. 1995. Obesity in Britain: Gluttony or Sloth? *British Medicine Journal*. 311: 1545 – 1549.
- Rachagan, S.S. 2004. *The junk food generation, a multi-country survey of the influence of TV advertisement on children*. Consumer International Asia Pacific.



- Rande, W.L. 1996. *Introduction to Professional Food Service*. New York: John Wiley & Son Inc.
- Rashad, I., Chou, S.Y. & Grossman, G. 2004. Fast food advertising on television and its influence on childhood obesity. *International Journal of Obesity*. **28**.
- Rizek, RL. 2001. Natiowide Food Consumption Survey. *Family Economics and Nutrition Review*. **4**: 3 – 7.
- Rolls, B. 2003. The super sizing of America. *Nutrition Today*. **38**: 42 -53.
- Sackett, D., Haynes, R. & Tugwell, P.1985. *Clinical Epidemiology: a basic science for clinical medicine*. Boston. Little Brown and Company.
- Salam, A. B. 2000. *Study on Marketing of Chilled and Frozen food in Malaysia*. Kassim Chan Management Sdn. Bhd.
- Scanlon, N. 1993. *Restaurant Management*. New York: Nostrand Reinhold.
- Schau, H. J. & Gilly, M. C. 1997. Social Conventions of a Fast Food Restaurant: An Ethnomethodological Analysis. *Advances in Consumer Research*. **24**:183 – 213.
- Schlosser, E. 1998. *Fast food Nation Pt 1: The True Cost of America's Diet*. New York. Harper Collins.
- Schlosser, E. 2002. *Fast Food Nation: The Dark Side of the all – American meal*. New York. Harper Collins.
- Sharetto, C. 2004. Study exposes fast food health dangers. *Health News*. Dec 2004.
- Spear, M.C. & Grogoire, M.B. 2004. *Food Service Organizations: A Managerial & System Approach*. Upper Saddle River: Prentice Hall.
- St.-Onge, M.P., Keller, K.L. & Heymsfield, S.B. 2003. Changes in Childhood food consumption patterns. *American Journal of Clinical Nutrition*. **78**(6): 1068 - 1073.
- Stanton, R. 1996. *Complete Book of Food and Nutrition*. Australia: Simon & Schuster.



- Story, M. & French, S. 2004. Food advertising and marketing directed at children and adolescent in US. *International Journal of Behavioral Nutrition and Physical Activity*. 1(3).
- Story, M., Neumark-Sztainer, D. & French S. 2002. Individual and environmental influences on adolescent eating behaviours. *Journal of American Dietetic Association*. 103(3): S40 - S51.
- Taras, H.L. & Gage, M. 1995. Advertised foods on children's television. *Journal of food and Nutrition*. 149: 605 – 609.
- Tee, E.S. 1998. Nutrition of Malaysian: where are we heading? *Malaysian Journal of Nutrition*. 5:87-109.
- The National Alliance for Nutrition and Activity. 2002. *From Wallet to Waistline: The Hidden Costs of Super Sizing*. Washington DC: The National Alliance of Nutrition and Activity.
- The Swiss Association of Nutrition. 2003. *Fast Food*. Available at <http://www.sve.org>. Assessed June 2004.
- Uebelherr, J. 2004. Fast food icon's first franchise. *Milwaukee Journal Sentinel*. 2004 Journal Sentinel, Inc.
- Ursin, C. 1998. Quick quality: Serving food fast and with finesse. *Restaurant USA*. April 1998. Also available at <http://www.restaurant.org>. Assessed January 2005.
- Wainwright, M. 2002. *US Food service Industry Forecast*. Chicago: Technomic Inc.
- Wang, J. 2003. Waist circumference: a simple, inexpensive, and reliable tool that should be included as part of physical examinations in the doctor's office. *American Journal of Clinical Nutrition*. 78: 902-903
- Wardlaw, G.M. 1999. *Perspectives in Nutrition*. 4th edition. New York: Mc-Graw Hill.
- Watson, J. L. 1997. Transnationalism, Localization, and Fast Foods in East Asia. *Golden Arches East*. Stanford University Press.
- Whelan, E. 2003. Health Issues: Fast food fallacy. *American Council on Science and Health: Articles*



- Willett, W.C. 2000. Dietary fat plays a major role in obesity. *Obesity Review*. **3**: 556 – 562.
- World Health Organization. 1995. *Physical status: The use and interpretation of anthropometry*. World Health Organization Technical Report. Geneva:WHO
- World Health Organization International Obesity Task Force. 2000. *Proposed classification of weight by BMI in adult Asians*. Geneva: WHO.
- Wu, Y.H. 1997. McDonald's in Taipei: Hamburgers, Betel Nuts, and National Identity. *Golden Arches East*. Stanford University Press.
- Yan, Y.X.. 1997. McDonald's in Beijing: The localization of American. *Golden Arches East*. Stanford University Press.
- Young, L. & Nestle, M. 2002. The contribution of expanding portion sizes to the obesity epidemic. *American Journal of Public Health*. **92**:246 – 249.
- Young, L. & Nestle, M. 2003. Expanding portion sizes in the U.S. market place: implication for nutrition counseling. *Journal of American Dietetic Association*. **103**:231 – 234.

