



Fast Food Consumption Behavior of Consumers in the Northern Region of Iraq

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ABSTRACT

Fast food is a food that can be cooked and prepared in a short time; some people enjoy (relish) fast food instead of popular food. The purpose of this research is to investigate the fast food consumption behavior of consumers in the Northern Region of Iraq. The sample size was 380 and questionnaires were distributed among the families in three main areas includes Erbil, Sulaimaniya, and Duhok. Multiple linear regressions models and ANOVA were used to analyze the fast food consumption behavior of consumers. The result shows that the share of total food expenditures spent on fast food consumption increased with incomes. Results from this research suggest that increasing household income increased household fast food consumption share, but decreased food expenditure. In addition, household size has a statistically significant and positive effect on fast food consumption expenditure. The result of statistically significant coefficient showed that household income has a positive effect on fast food consumption expenditure. The income elasticity of fast food consumption is equal to 0.56, that's mean when the income increasing by 1%, the amount of fast food consumption expenditure will increase by only 0.56%.

1. Introduction

Fast food is a mass-produced food that is prepared and served very quickly. It was first introduced in the early 1900s with automatic vending machines for simple foods and drinks could be bought by inserting coins into the machine. The first food chain, White Castle in the United States, started with producing hamburgers in 1921 (Chavadi and Kokatnur, 2008). Fast food started with the main fish and chip shops in Britain in the 1860s. Drive-through eateries were first promoted in the 1950s in the United States. The expression "fast food" was perceived in a lexicon by Merriam-Webster in 1951. As indicated by the National Institutes of Health (NIH), quick sustenance is speedy other options to home-cooked suppers (Schlosser, 2012).

The conventional family supper is progressively being supplanted by the utilization of takeaway, or eating "on the run". The idea of prepared cooked nourishment available to be purchased is firmly associated with urban advancements (Block et al., 2013). Along these lines, urbanites were urged to buy pre-arranged meats or starches, for example, bread or noodles, at whatever point conceivable. This need is the thing that drove the marvelous achievement of the early fast food monsters, which obliged the family in a hurry (Franklin A. Jacobs). Fast nourishment turned into a simple alternative for a bustling family, just like the case for some families today (Andreyeva et al., 2010).

Eating is an everyday activity and needs of every single individual. Contingent upon person's explanation behind eating at eateries, person's aim or intuition surveys a diverse arrangement of characteristics in front of picking an eatery (Warraich et al., 2013). The significance of these eatery characteristics is eventually assessed in the client's psyche and prompts by choice. A few components like age, organization, and even social divisions enhance these properties as the client settles on eating choice (Powell et al., 2007). The investigation of buyer conduct possibly manages the majority of the ways

individuals may act on their part as buyers (Schiffman and Kanuk, 1997).

Without pre-existing knowledge of these behaviors, it's difficult to ascertain what influences are important for determining the amount of fast food consumed. Menu availability suggests that traditional fast food items are more popular than healthier alternatives. In contrast, MacDonalds have cited sales from their healthy choice menu as a reason for sales growth (Green et al., 2003).

The main aim of this research is to know the costumers behaving and reactions towards fast food as well as its level. Furthermore, to clarify the budget of the families that they spend on fast food, the effect of income and other socio-demographic factors on fast food consumption of families. Eating fast food has increased in the north of Iraq due to its large number of citizens who are employees. In addition, a large number of women/girls working outside has a positive effect on increasing fast food eating. On the other hand, increasing the number of tourists coming from the middle and south of Iraq to the north has made a great change in opening more fast food restaurants. There are around 1800 restaurants in northern Iraq, 776 of them are international restaurants, and others are national or local restaurants.

The fundamental target of this research is to distinguish the determinants that impact purchase fulfillment in fast food showcasing in northern Iraq. Information was gathered from the general population in the private industry in northern Iraq. The fast food eatery industry has been growing up; the primary element which remains the achievement in the north of Iraq, buyer decision is identified with the statistic elements and the showcasing elements. One of the main thrusts behind the development of the fast administration eatery in the north of Iraq is the adjustment in the purchaser's inclination.

The purpose of the research was to investigate sociodemographic factors on consumers' fast food consumption behavior in Northern Iraq. Hence, the research depends on the plausibility of helping merchants to make reasonable systems and grow new fast food items and additionally holding clients to make a supportable upper hand. The research can help fast food industries to create suitable strategies and develop new fast food products as well as retaining customers to create a sustainable competitive advantage. The research attempts to recognize the consumers' buying behavior of fast food problem and to obtain a sale performance model of fast food restaurants in the north of Iraq.

2. Material and methods

The study was conducted in the Northern region of Iraq (Erbil, Duhok, and Sulaymaniyah), which is located north of Baghdad. Erbil city is located between Sulaymaniyah, Duhok, Mosul, and Kirkuk; it is within the borders of Turkey and Iran. Duhok is near to Mosul and Erbil. Duhok is also located on the borders of Turkey and Syria. Sulaymaniyah is near to Erbil and Kirkuk, it is the border of Iran.

The sample size was determined by utilizing the ungrouped one stage random likelihood sampling method based on families (Aydin and Kilic, 2013):

$$n = \left(\frac{Z_{\alpha/2}}{d} \right)^2 * p * q$$

Where, n is the sample size; $Z_{\alpha/2}$ is the significant level (assumed to be 95%); P is the probability of examining the state occurring ($p= 0.5$ is used to the absence of preliminary information concerning consumers' fast food demand awareness levels); d is the margin of error (assumed to be 95%); q is the probability of the situation not occurring ($q=1-p$). According to the method utilized, the sample size was found to be 380. All questionnaires were distributed randomly and all families respond to questionnaires.

To obtain the necessary data for the study, a questionnaire has been designed particularly for this

purpose collected through the family in the province (north Iraq) during 2016. Data collected by the research instrument were analyzed in line with each research question and hypothesis. Descriptive statistics (such as percentages and frequencies) were used to answer the research questions. In addition, the F-test was carried out to compute the variance within each group for the factors of more than two groups. ANOVA is a statistical technique that assesses potential differences in a scale-level dependent variable by a nominal-level variable having three or more categories.

The multiple linear regression analysis was used that allows the inclusion of any preferred variable. Moreover, multiple linear regression analysis pursues to launch a relationship between a dependent variable (in this case fast food consumption) and independent variables (the predictors). The regression model was used to analyze fast food consumption of respondents:

$$\text{Ln (Fast food consumption expenditure)} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k + \varepsilon_i$$

Where β_0 is intercepted; β_k is the regression slope or coefficient for a given independent variable k , and ε_i is the error term for the individual i based on the record of observations. The model includes independent variables covering age and education level of respondents, household size, and income. The independent variables should have slight or no correlation with each other to avoid problems initiated by multicollinearity. In order to attain valid results from the overall significance of each regression coefficient (F-test) of the equation, the residual ε_i has to be normally and independently distributed, with a mean of zero and a constant variance.

3. Results and discussion

3.1. Socio-demographic characteristics of

According to survey results, the average age of respondents was around 36.1 and 24.2% were less than 30 years old, and 43.2% were older than 35 years old. The result indicated that 6.3% of participants were non-literate, 31.6% of the respondents had degrees less than a

diploma, while the remained 62.1% of respondents had a degree of a high school diploma, bachelor or masters. The average household size in the research area was about 3.61 and 21.6% of respondents are living in a family with a size of more than 4 individuals. Out of 380 participants, 92.1% of respondents were employed, while 7.9% of them were jobless and unemployed for various reasons.

In terms of income, households have been divided into three groups; 30.3% of participants (lower-income households) have income less than 900000 Iraqi Dinars (IQD). Also, 34.7% of respondents (Middle-income households) earn between 900000-1300000 IQD, and the remained 35% of respondents (Higher-income households) have income more than 1300000 IQD. Moreover, the finding accounted 1225793.42 IQD for the average income.

Food and beverage consumption of households represent 35.0% of their total household expenditure following by transportation (13.7%), clothes (10.0%), health (8,3%) and oil and gas (7.9%), communication (6.3%), rent (5.6%), electricity and water (4.7), education (2.2%), and smoking (1.8). In a similar study in Turkey, Akbay and Boz (2005) reported that share of food expenditure on the total household expenditure was 28.6%, education was 8.4% and clothing was 5.3% (Table 1).

Table 2 shows household total expenditure and food consumption expenditures by income groups for the Northern Region of Iraq. Based on the results, there is a positive relationship between income and total expenditure and food expenditure. Results revealed that lower-income households spent a higher share of their household income (91.5) compare to higher-income households (67.1%). Results showed that the poorest households spent more than their household income.

Nonetheless, there is a strong relationship between food expenditures and income. Therefore, it is suggested that the actual amount spent on food may rise because lower-income households may make a change in the

composition of their food bunch as their income increases. The share of food expenditure in total income decreases from 34.86% for lower-income households to 22.72% for higher-income households.

According to the results, there is a positive relationship between household income and fast food consumption ($P < 0.01$). However, the share of fast food expenditure in total food expenditure increase when the income level increase from the lowest (27.2%) to the highest income (32.4%) ($P < 0.05$). According to result by Gül et al. (2007), the share of food away from home expenditure in total expenditure in Turkey is 21.7% for lowest-income households, 20.3% for medium-income households, and 21.7% for higher-income households. On the other hand, by using USA national consumer expenditure 2004-2005 survey data, French et al. (2010) reported that low-income households spend 26% of their food dollars to eating out, compared with 47% among high-income households. According to the results, there is a positive relationship between household income and fast food consumption ($P < 0.01$). However, the share of fast food expenditure in total food expenditure increase when the income level increase from the lowest (27.2%) to the highest income (32.4%) ($P < 0.05$). According to result by Gül et al. (2007), the share of food away from home expenditure in total expenditure in Turkey is 21.7% for lowest-income households, 20.3% for medium-income households, and 21.7% for higher-income households. On the other hand, by using USA national consumer expenditure 2004-2005 survey data, French et al. (2010) reported that low-income households spend 26% of their food dollars to eating out, compared with 47% among high-income households.

Table 1. Household expenditure by income group

Income Groups	Total food	Smoking	Rent	Education	Clothes	Health	Electricity and water	Liquid fuel/oil/gas	Telephone/ internet	Transportation /travel	Other	Total expenditure
Lower-income household	37,89	1,34	3,43	1,18	10,21	9,04	5,17	8,48	6,72	12,19	4,35	100,00
Middle-income household	34,74	2,12	5,23	1,98	10,40	8,38	4,85	8,50	6,53	13,04	4,23	100,00
Higher-income household	33,69	1,90	7,05	2,87	9,68	7,89	4,36	7,18	5,88	14,88	4,62	100,00
Average	34,98	1,85	5,62	2,19	10,04	8,31	4,71	7,92	6,29	13,66	4,43	100,00
F-test (P-value)	41.64 (0.000)	8.52 (0.000)	10.06 (0.000)	16.58 (0.000)	50.67 (0.000)	25.18 (0.000)	42.56 (0.000)	29.13 (0.000)	48.03 (0.000)	71.52 (0.000)	11.35 (0.000)	-

Table 2. Food and Fast food consumption expenditure share by income groups

Income Groups	Total Expenditure (IQD)	Total Food Expenditure (IQD)	Share of food expenditure in total expenditure (%)	Total Fast Food Expenditure (IQD)	Share of fast food in total food expenditure (%)
Lower-income household	685915,22	259897,83	38,19	71906,52	27,16
Middle-income household	905018,94	314412,88	34,65	95473,48	28,91
Higher-income household	116086,47	392146,62	33,73	137695,49	32,38
Average	929384,87	325121,71	35,40	103119,08	29,59
F-test (P-value)	141.070 (0.000)	41.646 (0.000)	15.26 (0.000)	17.914 (0.000)	9.298 (0.000)

3.2. Types of fast food consumption by respondents and household

The empirical findings in Table 3 revealed that there is a significant difference between the household expenditure on the fast food consumer products according to the income group in Northern Iraq. When income increases kebab, pizza and fast food from KFC consumption are increasing significantly ($P < 0.01$). The results represent that a single individual share of each fast food group reports a significant difference based on income strata in Northern Iraq. The share of pizza for lower-income households was 26,28% and rose to 31.36% for higher-income households, while the share of KFC for lower-income was 11.07% and increased to 19.46% for higher-income households. However, an increase in income does not affect of the share of some fast food consumption product, for example, the share of kebab for lower-income is 38.58% but it decreased to 33.43% for higher income, while the share of shawarma for lower-income is 12.19% but it decreased to 7.05% for higher-income, also the share of burger for lower-income was 5.50% but it decreased to 4.12% for higher-income. The reason for this result is that when the income

increased then the household may consume another fast food consumption product such as pizza and KFC. According to the result by Prabhavathi et al. (2014), 45% of the respondents preferred Sandwich followed by Pizzas (30%) and Burgers (23%).

In another study in Kampala district, Sserunkuuma et al. (2012) indicated that deep-fried chicken (14.5%), Pizzas (6.7%), Kebabs (4.4%), and hamburgers (1.1%) were the main fast-food consumed. The outcome of the previous study by Yardimci et al. (2012) is different from this study as it showed that 15.5% of the participant eats pizza, 19.5% of respondent eat meat dough, 21.4% eat the kebab, 35.2% eat burger and 22.2% eat chicken.

Table 4 explains the prevalence of several food types of consumption during defined periods. For instance, in the last one month period, most of the participants eat kebab (96.84%), pizza (83.95%), shawarma (76.84%), falafel (61.15%). Consumers generally go fast food restaurants with their family but they prefer to eat falafel, shawarma, and burger alone. In addition, most consumers (on average 70.1%) prefer to go fast food restaurant weekdays instead of weekends. This result is different from Yardimci et al. (2012). They reported that

43.8% of consumers prefer to go to a fast-food restaurant both on weekdays and weekends, 20.8% on weekdays, and 35.4% on weekends. Further, the finding indicates that most consumers (62.4%) prefer to eat fast food for lunch. According to a study by Prabhavathi et al. (2014),

81% of participants' favorite time to eat fast food is evening. On the other hand, results indicated that 95% of respondents consumed go KFC and burger in the mall. On the other hand, 34.47% of respondents consume falafel outside the mall.

Table 3. Fast food consumption expenditure share (%)

Income Groups	Kebab	Shawarma	Falafel	Meat mixture	Pizza	Burger	KFC	Fast food (%)
Lower-income household	38.58	12.19	4.12	2.26	26.28	5.50	11.07	100.00
Middle income household	34.06	8.26	5.48	2.01	33.62	5.34	11.24	100.00
Higher-income household	33.43	7.05	2.30	2.27	31.36	4.12	19.46	100.00
Average	34.72	8.53	3.71	2.18	31.01	4.80	15.04	100.00
F-test (P-value)	5.92 (0.000)	0.56 (0.57)	1.68 (0.18)	20.83 (0.06)	6.36 (0.000)	1.90 (0.15)	35.35 (0.000)	-

Table 4. Fast food consumption behaviour of household by fast food type

Fast food	Percentage of consumers consume fast food (%)	With family (%)	Single (%)	With wife (%)	With children (%)	Lunch (%)	Dinner (%)	Night (%)	Weekdays (%)	Weekend (%)	The mall (%)	Outside the mall (%)
Kebab	96.84	53.26	8.42	27.17	11.14	51.36	42.66	5.98	47.63	52.37	20.38	79.62
Shawarma	76.84	21.16	49.49	21.50	7.85	85.67	11.26	3.07	78.95	21.05	5.82	94.18
Falafel	36.84	21.58	61.15	11.51	5.76	87.86	10.00	2.14	90.79	9.21	65.53	34.47
Meat dough	20.53	30.77	37.18	29.49	2.56	82.05	17.95	0.00	94.74	5.26	100.00	0.00
Pizza	83.95	44.83	8.46	33.86	12.85	50.78	35.42	13.79	64.21	35.79	37.93	62.07
Burger	43.95	20.24	48.81	22.62	8.33	77.11	16.87	6.02	86.84	13.16	5.39	94.61
KFC	40.53	39.61	14.94	34.42	11.04	24.03	52.60	23.38	76.05	23.95	95.54	4.46
Average	57.068	36.21	27.70	29.39	11.53	62.44	28.99	8.10	70.73	29.26	30.23	64.50

3.3. Fast food consumption behavior of households

According to survey results, 95% of the respondents cooked at home, and only 5% of them don't cook at home. Consuming food type is usually vary between individuals. For instance, in this study, the number of participants who were eating national foods, including meat dough, shawarma, kebab was 52.4 % of total participants, while those who were eating international foods like KFC, Burger, Pizza were comprising 47.6 %.

The consumption of fast foods in restaurants differs between the participants as the results of this study showed that a high percentage of consumers (51.1%) are likely to eat fast foods several times in a month. Whereas, those who were eating fast food every day were lowest and compromised 6.3 %, while equal shares responded with eating fast food several times a week or in a year, as they both compromised 21.3 % each. As found in the

outcome by Akbay et al. (2007), approximately 55% of consumers claimed to consume fast food as a way of diversified their diets. According to their study, 45.3% indicated that they never consumed fast food in the last one-month period, 21.4% ate fast food once or twice a month, 20.5% consumed once a week and surprisingly only 12.8% consumed fast food on a daily basis.

Table 5 explains the evaluation of food by participants and when asked about regularity in cooking at home, we found that a high percentage (84.7%) of the participants agree while this percentage decreased to 9.5% and 5.8% responding disagree and somewhat agree respectively. The highest percentage of the participants (73.2%) responded that they pay attention to the food they eat. Furthermore, most people (72.1%) usually get food from where it is the most appropriate price in all kinds of shopping. On the other hand, the highest percentage (67.9%) agreed with consuming foods rich in proteins and vitamins. Eating healthy foods is always in concern of human health cholesterol level in the food is

increased worry in recent years among peoples, so when we asked participants about their view on this matter, 57.9% of them agreed with the statement. Eating white meat and red meat are usually depend on the individuals, thus when the participants asked about their preferable type of meat, this study found that highest percentage of the participant (49.2%) prefer to have white meats (chicken and fish). Eating outside is not always useful. Thus when the participants were asked about wasteful of money and time to eat outside, the highest response (56.3%) disagreed with that statement. A high percentage of the participants (65.5%) responded with disagreement on the eating outside are cheaper than eating at home. Moreover, 71.8% of the participants responded with disagreement on “consumption of fast food does not harm health”.

Table 6 explains consuming fast food by customers and their behavior about fast food. The comfort of the environment within the fast food restaurant is very important for most of the consumers. According to this result, showing respect and appreciating fast food consumption is the key to produce a better quality consuming. Most of the consumers go fast food restaurant because they like to eat in different

environments. Moreover, participants believed that meat products in local fast-food restaurants are more reliable than international restaurants. It indicates that to some extent, fast food consumers are happier to consume local meats in their fast foods. Furthermore, promotions have a great impact on customer choice for the foods, most of the participants prefer fast food that have been promoted. Addiotanlly, the presence of children playgrounds is convenient for the parents. However, for most consumers, fast food restaurants are not in easily reachable places.

Table 7 outlines the reasons for not eating outside rather than at home. Most of the participants indicated that they do not have enough time to visit restaurants to eat fast food. Eating healthy foods is in concern of so many people, thus most of the participants found it's not healthy to eat outside.

Moreover, most of the consumer believed that the price of foods in restaurants are usually higher than cooking food at home. Other most important reasons not eating fast food are having limited time, discomfort in the self-service facility, having health problems, limited income, and the cost of fast food.

Table 5. General evaluation of the fast food consumption characteristic of the respondents

Variable		Frequency	Percentage	Mean	S. D
The food is cooked at home regularly.	Disagree	36	9.5	2.75	0.614
	Somewhat agree	22	5.8		
	Agree	322	84.7		
I usually get from where it is the most appropriate price in all kinds of shopping.	Disagree	21	5.5	2.67	0.578
	Somewhat agree	85	22.4		
	Agree	274	72.1		
The food I eat should be healthy (I pay attention to it).	Disagree	39	10.3	2.63	0.663
	Somewhat agree	63	16.6		
	Agree	278	73.2		
I choose foods that contain protein, vitamins and, energy values.	Disagree	33	8.7	2.59	0.645
	Somewhat agree	89	23.4		
	Agree	258	67.9		
I drink at least 2.5 liters of water a day.	Disagree	50	13.2	2.49	0.717
	Somewhat agree	92	24.2		
	Agree	238	62.6		
I prefer low-cholesterol foods.	Disagree	62	16.3	2.42	0.755
	Somewhat agree	98	25.8		
	Agree	220	57.9		
I prefer white meat (chicken or fish) when I go outside for eating.	Disagree	65	17.1	2.32	0.749
	Somewhat agree	128	33.7		
	Agree	187	49.2		
I try to do a little provident (austerity) each month.	Disagree	94	24.7	2.13	0.783
	Somewhat agree	141	37.1		
	Agree	145	38.2		
To eat a balanced diet, meaty foods should be eaten.	Disagree	98	25.8	2.08	0.770
	Somewhat agree	153	40.3		
	Agree	129	33.9		
I eat at least 5 servings of fruits and vegetables a day.	Disagree	126	33.2	1.94	0.779
	Somewhat agree	149	39.2		
	Agree	105	27.6		
I think the food made from the healthy ingredients that I eat outside.	Disagree	151	39.7	1.81	0.805
	Somewhat agree	128	33.7		
	Agree	101	26.6		
Expensive foods are healthier.	Disagree	176	46.3	1.79	0.825
	Somewhat agree	106	27.9		
	Agree	98	25.8		
I think it is "wasteful" to eat outside.	Disagree	214	56.3	1.66	0.818
	Somewhat agree	82	21.6		
	Agree	84	22.1		
Eating outside is generally less costly than cooking at home.	Disagree	249	65.5	1.52	0.774
	Somewhat agree	65	17.1		
	Agree	66	17.4		
There is no harm to the health of the constant consumption of fast food.	Disagree	273	71.8	1.43	0.73
	Somewhat agree	50	13.2		
	Agree	57	15.0		

Table 6. Reasons of choosing fast food restaurants

Variable		Frequency	Percentage	Mean	S.D
I like the environment (atmosphere).	Disagree	34	8.9	2.58	0.651
	Somewhat agree	92	24.2		
	Agree	254	66.8		
I find the food in accordance with the type of palate (my own palate)	Disagree	28	7.4	2.54	0.630
	Somewhat agree	120	31.6		
	Agree	232	61.1		
I like to eat in different environments	Disagree	48	12.6	2.53	0.709
	Somewhat agree	84	22.1		
	Agree	248	65.3		
I always find the same quality	Disagree	49	12.9	2.43	0.710
	Somewhat agree	118	31.1		
	Agree	213	56.1		
I am pleased with the easiness of ordering by phone	Disagree	85	22.4	2.28	0.807
	Somewhat agree	103	27.1		
	Agree	192	50.5		
I usually prefer promotional products	Disagree	67	17.7	2.27	0.743
	Somewhat agree	143	37.6		
	Agree	170	44.7		
I think they are not easily reachable places	Disagree	83	21.8	2.19	0.768
	Somewhat agree	143	37.6		
	Agree	154	40.5		
I find it convenient to have play areas for children	Disagree	151	39.7	2.07	0.930
	Somewhat agree	50	13.2		
	Agree	179	47.1		
I am going because children prefer	Disagree	148	38.9	2.06	0.913
	Somewhat agree	63	16.6		
	Agree	169	44.5		
I am going there in order to meet and talk with my friends	Disagree	127	33.4	2.04	0.844
	Somewhat agree	109	28.7		
	Agree	144	37.9		
I think that the meat products in local fast-food restaurants are more reliable	Disagree	104	27.4	2.03	0.763
	Somewhat agree	159	41.8		
	Agree	117	30.8		
I see the service is fast	Disagree	120	31.6	1.98	0.782
	Somewhat agree	148	38.9		
	Agree	112	29.5		
I don't like the quality of service	Disagree	114	30.0	1.97	0.754
	Somewhat agree	164	43.2		
	Agree	102	26.8		
I think the products are not satisfactory according to the fees I paid	Disagree	127	33.4	1.94	0.782
	Somewhat agree	147	38.7		
	Agree	106	27.9		
The waiting time is less at checkout	Disagree	150	39.5	1.91	0.833
	Somewhat agree	114	30		
	Agree	116	30.5		
Prices are more expensive than other restaurants	Disagree	200	52.6	1.72	0.830
	Somewhat agree	88	23.2		
	Agree	92	24.2		
I think it was the high nutritional value of preferred foods	Disagree	199	52.4	1.70	0.814
	Somewhat agree	95	25.0		
	Agree	86	22.6		

Table 7. Reasons for not preferring meals outside of home

Variable	Frequency	Percentage	Mean	S. D	
I don't have enough time	Disagree	69	18.2	2.41	0.779
	Somewhat agree	86	22.6		
	Agree	225	59.2		
I have doubts about that healthy	Disagree	70	18.4	2.32	0.767
	Somewhat agree	118	31.1		
	Agree	192	50.5		
Prices are very high compared to food cooked home	Disagree	97	25.5	2.24	0.835
	Somewhat agree	93	24.5		
	Agree	190	50.0		
There is no opportunity to sit for a long time	Disagree	77	20.3	2.24	0.768
	Somewhat agree	134	35.3		
	Agree	169	44.5		
I don't like the environment (atmosphere)	Disagree	105	26.8	2.13	0.809
	Somewhat agree	125	32.9		
	Agree	153	40.3		
I have no habits	Disagree	101	26.6	2.11	0.796
	Somewhat agree	135	35.5		
	Agree	144	37.9		
I see the service is inadequate (disqualify)	Disagree	94	24.7	2.07	0.748
	Somewhat agree	166	43.7		
	Agree	120	31.6		
I don't like their customers	Disagree	113	29.7	2.06	0.810
	Somewhat agree	130	34.2		
	Agree	137	36.1		
I don't like self-service	Disagree	126	33.2	2.05	0.844
	Somewhat agree	109	28.7		
	Agree	145	38.2		
My income is inadequate	Disagree	150	39.5	1.92	
	Somewhat agree	110	28.9		
	Agree	120	31.6		
Having health problems	Disagree	87	22.9	1.92	0.840
	Somewhat agree	86	22.6		
	Agree	207	54.5		

3.4. Results of multiple linear regression

Descriptions of the variables used in the model are given in Table 8. In the Multiple Linear Regression Model, fast food consumption expenditure, age, and income are continuous variables and enter the model as a logarithmic form. According to the correlation analysis, there is no multicollinearity between independent variables. The coefficient of determination, R^2 which does not only indicate the goodness of fit but can also be interpreted as the amount of variation of the dependent variable explained by the regression equation, shows that 0.35 of the variation in the dependent variable was explained by independent variables. For a model estimated with cross-section data, this R^2 values not unusual because of the large degree of stochastic variation in survey data. The F-value of the regression model is 25.20 and the p-value is smaller than 0.01, meaning that regression models can be used to predict the dependent variable (Table 9).

Table 8. Descriptive statistics of variables in the model

Variable	Definition	Mean	Standard deviation
LnFfood	Fast food consumption expenditure of respondents		
DEDU2	1: Graduated from primary school or secondary school; 0: other	0.316	0.465
DEDU3	1: Graduated from high school; 0: other	0.221	0.415
DEDU4	1: University graduated respondents; 0: other	0.400	0.490
DHHS2	1: Household size between 3 and 4 individual 0: other	0.516	0.500
DHHS3	1: Household size more than four individual; 0: other	0.216	0.412
LnAge	Age of respondents	3.560	0.225
LnIncome	Household income	13.941	0.380
FF_frequeny	Except the workplace cafeteria how many times did you eat outside the home in the last month	2.130	1.071

According to model results, the first variable in Table 9 represents the constant. This is the predicted value of a degree when all other variables are 0. This estimated value of 2.068 is found to be statistically significant ($P < 0.05$). According to results from the model, as the

result of the statistically significant coefficient, "size of the household more than four individual", has a positive effect on the fast food consumption expenditure ($P < 0.05$). This result showed that when the number of household size increases, fast food consumption expenditure of respondents will increase too. According to the finding of Akbay et al. (2007), a decreasing affinity to eat fast food as size household increases, as well as the results, smaller households are more frequently consume fast food products than greater households.

Moreover, the age of respondents has a positive effect on the fast food consumption expenditure ($P < 0.01$). As well as to the results from the model when the age of respondents increases by 1%, the fast food consumption will increase by 0.338%. In a similar study, Uzunoz et al. (2009) found different results and show that as the age of respondents increases, the ratio of consuming food away from home decreases.

Household income statistically affects fast food consumption expenditure positively ($P < 0.01$). The coefficient value of income is equal to 0.557, that's mean when the income increasing by 1%, the value of fast food consumption expenditure will increase by 0.557%. These results were similar to Akbay et al. (2007) and Gül et al (2007) but different than Sserunkuuma et al. (2012). According to the results of Sserunkuuma et al. (2012), disposable monthly income had the negative and significant effects on fast food expenditure. On the other hand, the education level of respondents has positive effects on fast food consumption expenditure but the results were not found to be statistically significant ($P > 0.05$). The output of the statistically significant coefficient represents "Except the workplace cafeteria how many times did you eat outside the home in the last month" shows positive effects on fast food consumption ($P < 0.01$).

Table 9. Regression results for fast food consumption expenditure

Variables	Coefficients	Std. Error	t-values	P-values
Constant	2.068	0.912	2.266	0.024
DEDU2	0.169	0.097	1.750	0.081
DEDU3	0.142	0.103	1.384	0.167
DEDU4	0.141	0.101	1.399	0.163
DHHS2	0.003	0.053	0.059	0.953
DHHS3	0.262	0.074	3.556	0.000
LnAge	0.338	0.121	2.799	0.005
LnIncome	0.557	0.069	8.062	0.000
FF_frequeny	0.067	0.021	3.160	0.002
F-test: 25.203; P value: 0.000; R ² : 0.352				

4. Conclusion and recommendations

Fast food is a kind of mass-produced food that is prepared and served very quickly. The purpose of the research was to investigate the fast food consumption behavior of consumers in the Northern Region of Iraq. According to the result of the multiple linear regression, there is a statistically important relationship between the size of household, household income, age of consumers and fast food consumption. Firstly, large families in which the families with an extent more than 4 persons were high responded to than small families to consume fast food. Moreover is a positive and statistical relationship between the age of consumers and fast food consumption expenditure. Older consumers eat fast food more than others due to their business and working time.

Consumers are price sensitive who purchase low price but they are willing to pay extra for improvement in intrinsic cues such as ingredients and taste, but not for extrinsic cues like the packaging. Can take this as consideration for the strategy of building in the future. Health concerns have been found to be adversely related to fast food consumption. The results of the study also revealed that consumers criticize fast foods primarily for their high content of additives and preservatives. This was a common comment on fast food products from the consumers who participate.

The results of this study will help to fast food manufactures and restaurants to plan their advertising methodologies which are most reasonable to fit with the customers' states of mind and desires and their purchasing conduct of fast food eateries. Consumers

demand that fast food points of sale provide additional information about the nutritional value of the products as well as the stipulations of the kitchen. The results will help fast-food managers grasp the key factors that affect consumers' fast food consumption behaviors and likewise make improvements. Food managers can better anticipate successful entry into new markets by understanding the attitudes of fast food consumers. The study is limited to three cities of the Northern region of Iraq and the sample size is small due to time and resource constraints. In subsequent studies, it is useful to examine fast food consumption behaviors across the country.

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