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Letter to Editor

Impact of Fast Food Consumption on Body Weight and Body Mass Index among Adults

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Dear Editor

Body weight is closely linked to body mass index (BMI), a widely used indicator for categorizing individuals as underweight, normal weight, overweight, or obese, based on their height-to-weight ratio (1). The wide adoption of fast food as a choice of diet stems from its combination of convenience and affordability (2). Fast food contains excessive calories together with saturated fats and sodium and limited nutritional content of fiber (2, 3). It was shown that regular fast food consumption leads to obesity while producing insulin resistance along with metabolic problems and producing a positive energy balance (3). This study inspected fast-food eating behavior among Iraqi adults while exploring BMI relationships to food intake along with analyzing dietary differences due to sociodemographic conditions including age, marital status, occupation, educational level and salary.

In a cross-sectional descriptive study from December 2024 to February 2025 in a non-probability convenience sampling method, the association between BMI and fast-food consumption among those attending nutrition outpatient clinics in Al-Hilla teaching hospitals was investigated. The inclusion criteria were any adults aged ≥18 who consumed fast food once weekly at least. Data were collected using a structured questionnaire divided into three parts of (i) sociodemographic data including 7 items of age, gender, marital status, occupation, educational level, income, and residence area; (ii) BMI assessment covering participants' height and weight by a standardized equipment and BMI that was calculated using the formula of weight (kg)/height² (m²); (iii) Fast-food consumption habits including 11 items assessing the frequency of intake, preferred types of fast food (e.g., burgers or pizza), reasons for consumption (e.g., convenience), meal replacement patterns, and perceptions about the nutritional value of fast food compared to healthy alternatives such as fruits. A pilot study involving 15 participants was conducted from December 8 to 19, 2024, to test the questionnaire reliability using Cronbach's alpha; while the results indicated an acceptable internal consistency (α=0.785).

Ethical approval was obtained from the Babylon

Health Department and IRB of the College of Nursing at the University of Babylon under code No. 28 on 27/11/2024. The participants provided informed consent after being briefed about the purpose of the study and ensured confidentiality. Data analysis involved descriptive statistics for sociodemographic characteristics; Pearson's correlation coefficients for relationships between BMI and fast-food intake and Kruskal-Wallis test for differences in dietary habits across demographic groups at significance level of $p \leq 0.05$.

The sociodemographic characteristics of the participants were shown in Table 1 revealing the majority to be 20-29 years, female, urban resident, married, employed, having bachelor's degree and a monthly income of ≤600,000 ID. Table 2 categorizes the participants based on their BMI classifications showing the mean BMI was 31.04 indicating that obesity was prevalent among the participants. The participants' fast-food consumption habits were shown in Table 3. The primary motivations for consuming fast food were status, convenience owing to time constraints, and treating it as a normal meal. The majority replaced at least one daily meal with fast food and consumption was highest in the evening; while many participants consumed more fast food outside the house.

Table 1: Demographic characteristics of the study population.

Variable	Classification	No.	%
Age/ years	<20	11	5.6
	20-29	81	41.5
	30-39	53	27.2
	40-49	33	16.9
	50-59	13	6.7
	≥60	4	2.1
	Total	195	100
	M±SD.		32.72±10.380
Sex	Men	40	20.5
	Women	155	79.5
	Total	195	100
Residents	Urban	148	75.9
	Rural	47	24.1
	Total	195	100
Marital status	Single	70	35.9
	Married	118	60.5
	Divorced	5	2.6
	Widowed	2	1.0
	Total	195	100
Occupation	Unemployed	55	28.2
	Students	14	7.2
	Self-employed	27	13.8
	Employed	94	48.2
	Retired	5	2.6
	Total	195	100
Education level	Illiterate	18	9.2
	Read and write	24	12.3
	Primary school graduate	22	11.3
	Intermediate school graduate	16	8.2
	High school graduate	17	8.7
	Diploma graduate	34	17.4
	Bachelor's degree graduate	58	29.7
	Higher degree graduate	6	3.1
	Total	195	100
Family monthly income (ID)	≤600,000	106	54.4
	601,000-900,000	47	24.1
	901,000-1,200,000	21	10.8
	1,201,000-1,500,000	12	6.2
	≥1,501,000	9	4.6
	Total	195	100

No.: Number; %: Percentage; M: Mean; SD: Standard deviation.

Table 2: Distribution of body mass index among the studied samples.

	Classification	No.	%
BMI	Normal (18.5- 24.9)	33	16.9
	Overweight (25.0- 29.9)	69	35.4
	Obesity (30.0 and above)	93	47.7
	Total	195	100.0
	M±SD.	31.04±7.177	

No.: Number; %: Percentage; M: Mean; SD: Standard deviation.

Table 3: Distribution of fast food among studied samples (Adults).

Scale	Classification	No.	%
Why do you like to eat fast food?	Status symbol	63	32.3
	For limited time	62	31.8
	As a normal meal	70	35.9
	Total	195	100
How many meals do you replace with fast food in a day?	One	136	69.7
	Two	45	23.1
	>Two	14	7.2
	Total	195	100
When do you prefer to eat fast food?	During the day	40	20.5
	In the evening	84	43.1
	All the time	71	36.4
	Total	195	100
Do you think your fast food consumption habit increases when you are outside the house?	Never	38	19.5
	Sometime	68	34.9
	Always	89	45.6
	Total	195	100
Is your fast food consumption increasing per day?	Never	57	29.2
	Sometime	78	40.0
	Always	60	30.8
	Total	195	100
Do you eat fast food in 5 different days or more per week?	Never	59	30.3
	Sometime	72	36.9
	Always	64	32.8
	Total	195	100
Do you think that fast food can be a good alternative to healthy food?	Never	55	28.2
	Sometime	48	24.6
	Always	92	47.2
	Total	195	100
Do you think that fruits can be a better option for good health?	Never	13	6.7
	Sometime	47	24.1
	Always	135	69.2
	Total	195	100
Does eating fast food make a person overweight?	Never	19	9.7
	Sometime	49	25.1
	Always	127	65.1
	Total	195	100
Do you think that fast food consuming habit may change one's attitude towards a normal balanced diet?	Never	10	5.1
	Sometime	72	36.9
	Always	113	57.9
	Total	195	100
Did you think advertisements attract and influence your behavior toward fast food eating?	Never	36	18.5
	Sometime	72	36.9
	Always	87	44.6
	Total	195	100

Scale	Classification	No.	%
Burger	Never	24	12.3
	Sometime	75	38.5
	Always	96	49.2
	Total	195	100
Pizza	Never	19	9.7
	Sometime	71	36.4
	Always	105	53.8
	Total	195	100
French fries	Never	19	9.7
	Sometime	66	33.8
	Always	110	56.4
	Total	195	100
Fried chicken	Never	22	11.3
	Sometime	71	36.4
	Always	102	52.3
	Total	195	100
Sandwich	Never	8	4.1
	Sometime	77	39.5
	Always	110	56.4
	Total	195	100
Nuggets	Never	27	13.8
	Sometime	84	43.1
	Always	84	43.1
	Total	195	100
Doughnut	Never	40	20.5
	Sometime	71	36.4
	Always	84	43.1
	Total	195	100
Soda beverages	Never	33	16.9
	Sometime	72	36.9
	Always	90	46.2
	Total	195	100
Ice cream	Never	24	12.3
	Sometime	83	42.6
	Always	88	45.1
	Total	195	100
Spaghetti	Never	56	28.7
	Sometime	73	37.4
	Always	66	33.8
	Total	195	100
Steak	Never	40	20.5
	Sometime	88	45.1
	Always	67	34.4
	Total	195	100

No.: Number; %: Percentage.

The correlations between fast-food consumption and BMI were presented in Figure 1 suggesting that as fast food intake increases, BMI also increases. The variations in fast food consumption based on sociodemographic characteristics were shown in Table 4. Women were demonstrated to consume significantly more fast-food than men. Also, the unemployed group consumed the most fast food (Table 5).

Our findings align with the existing literature, which has consistently shown that fast food contributes to obesity owing to its high caloric density, excessive saturated fats, and low nutritional value (4, 5). Moreover, obesity was linked with a high potential for oral diseases, like periodontal disease or dental caries, owing to dietary customs and systemic body inflammation (6). Our demographic distribution is consistent with a survey from analogous contexts, where suburbanization and varying lifestyles have increased dependence on fast food (5).

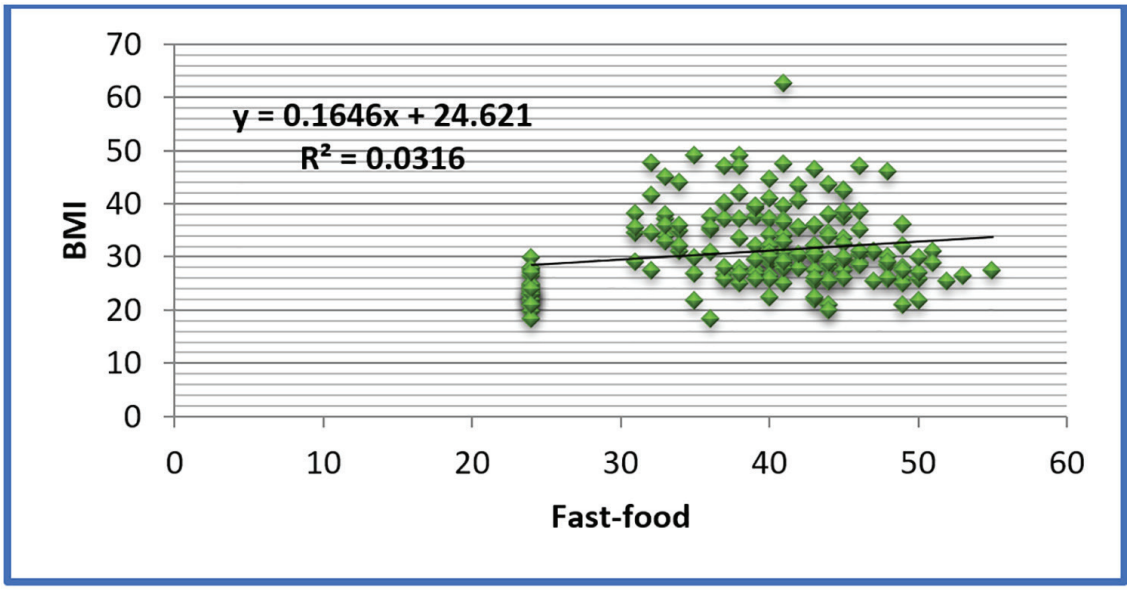

Figure 1: Association between body mass index and fast-food consumption.

Table 4: Differences in fast-food consumption between groups in relation to socio-demographic factors.

Variable	Ranks			[b]χ^2	Sig.
	Class	No.	Mean Rank		
Age (years)	<20	11	70.00	5.956	0.310
	20-29	81	94.10		
	30-39	53	105.80		
	40-49	33	97.32		
	50-59	13	104.85		
	≥60	4	134.00		
Sex	Male	40	79.18	5.631	0.018
	Female	155	102.86		
Residents	Urban	148	99.20	0.279	0.597
	Rural	47	94.22		
Marital status	Single	70	90.86	2.074	0.563
	Married	118	101.50		
	Divorced	5	115.10		
	Widowed	2	98.50		
Occupation	Unemployed	55	109.48	9.505	0.040
	Students	14	82.32		
	Self-employed	27	71.81		
	Employed	94	101.07		
	Retired	5	99.20		
Educational levels	Illiterate	18	103.56	5.978	0.542
	Read and write	24	86.63		
	Primary-school	22	91.23		
	Intermediate-school	16	83.47		
	High-school	17	97.65		
	Diploma graduate	34	93.03		
	Bachelor's degree	58	111.07		
	Post-graduate	6	93.25		
Family monthly income (ID)	≤600,000	106	98.29	5.029	0.284
	601,000-900,000	47	96.40		
	901,000-1,200,000	21	81.40		
	1,201,000-1,500,000	12	126.46		
	≥1,501,000	9	103.72		

B: Kruskal Wallis Test; n: Number; Sig.= Significant value at $p \leq 0.05$.

Table 5: Analysis of body mass index regarding fast-food consumption and socio-demographic variables.

Predictor	Coefficient (β)	Standard error	T value	*P* value	Confidence interval (Lower)	Confidence interval (Upper)
Constant	25.9221	1.594	16.267	0.000	22.317	29.527
Fast-Food Consumption	1.5529	0.304	5.115	0.001	0.866	2.240
Age	-0.1167	0.059	-1.975	0.080	-0.250	0.017
Gender	1.4332	0.733	1.956	0.082	-0.224	3.091
Occupation	-0.6750	0.561	-1.203	0.260	-1.944	0.594
Income Level	0.9194	0.377	2.439	0.037	0.067	1.772

Urban people often had more access to fast food channels, which may clarify the higher frequency of ingesting fast food in this group as described before (4). Females reported greater intake due to lifestyle issues, like employment forms and family charges, which may restrict mealtime preparation and encourage reliance on appropriate food selections (7). Our results oppose recent data which showed a higher frequency of fast-food consumption among men than among women (5) that may be due to variations in resident sampling and the increased propensity of males in outdoor daily activities.

Our study revealed job-influenced dietary customs as economy can limit and restrict the access to healthy substitutes and can lead to higher reliance on low-cost fast-food choices (3, 5, 7). We showed that social standards and marketing influence might be more vital elements affecting nutritional behavior (5, 8). We showed a significant direct link between BMI and fast-food consumption because fast foods are rich in calories; but lack crucial nutrients, like vitamins and fiber that cause a gradual weight gain and a positive energy balance (9). Our study described not replacing less than one meal/day with fast food, frequently through the evening that can worsen weight gain since late-night eating has been linked with metabolic instabilities and less energy expenses (9).

Our study found no significant differences in fast food consumption based on age or marital status that contrast with one study reporting that younger individuals and single people were more likely to consume fast food because of their active social lives and lack of cooking responsibilities (10). Our findings have also highlighted the influence of advertising on dietary habits that emphasize the need for stricter regulations on marketing unhealthy foods, particularly among young adults (7). Public health campaigns should focus on educating individuals about the health risks associated with frequent fast food consumption and promoting healthier eating habits (11). Plans to include tax on unhealthy nutrients can help promote healthier substitutes and refine access to cheap fresh food in urban zones (12). The density of fast-food businesses in residential neighborhoods can be restricted through urban planning policies to reduce street-level accessibility to junk food establishments (12).

It is essential to acknowledge the limitations in this study as convenience sampling can limit the generalizability of our findings. Self-reports can also unintentionally be affected by participants' poor memory or their tendency to present themselves more positively regarding their eating behavior. Longitudinal trials are vital to creating causal relations between fast-food consumption and BMI variations over time in a larger sample size and assess the nutritional education plans and tax rules on unhealthy foods. In conclusion, our research demonstrated that people who consumed fast food had an increased BMI level as obesity impacted about half of people. So public health initiatives must encourage healthy dietary habits via education.

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Authors' Contribution

The introduction was written by Duaa Salman, the methodology was developed by Professor Amin Ajeel Yasser, and the rest of the manuscript was written by Duaa Salman under the guidance of Professor Amin Ajeel Yasser.

Conflict of Interest

No conflict of interest to disclose.

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