

A STUDY OF SOME FACTORS AFFECTING CONSUMER BEHAVIOR TOWARDS THE HEALTH AND SAFETY OF FOOD AVAILABLE IN BAGHDAD GOVERNORATE

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ABSTRACT

The purpose of this study is to identify some demographic factors that affect consumer behavior towards food health and safety in Baghdad Governorate. For this purpose, the descriptive analysis method was used to identify these factors and their impact by collecting information from a questionnaire that included some questions to determine consumer behavior towards food health and safety. The questionnaire was distributed to a random sample of the community, consisting of 144 individuals from the Karkh and Rusafa areas in Baghdad. The results of the study showed that there were no significant differences between males and females in their behavior towards food health and safety, it was found that the age factor affects consumer behavior and there are significant differences between the first age group (18-29 years) and the third age groups (40-50 years) and the fourth group (over 50 years). There are significant differences in the factors of family size and educational qualification, meaning that they affect consumer behavior, The percentage of bachelors was 3.48%, and the percentage of typical families of 3-5 individuals was 57.63%. It became clear that there are significant differences between the primary education category and the rest of the categories, as well as differences between the university and postgraduate categories, and that the monthly income factor has an impact on consumer behavior towards food health and safety, as significant differences appeared between the lowest income category and the rest of the categories, and there are differences between the second and third income categories.

Keywords: Consumer behavior, food health and safety, demographic factors.

دراسة بعض العوامل المؤثرة في سلوك المستهلك تجاه صحة وسلامة الاغذية المتوفرة في محافظة بغداد

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الخلاصة

الغرض من هذه الدراسة هو تحديد بعض العوامل الديموغرافية التي تؤثر في سلوك المستهلك تجاه صحة وسلامة الأغذية في محافظة بغداد، حيث استخدم لذلك منهج التحليل الوصفي لتحديد هذه العوامل وتأثيرها عن طريق جمع المعلومات من الإستبانة الخاصة بذلك والتي شملت بعض الاسئلة لتحديد سلوك المستهلك تجاه صحة وسلامة الأغذية، وزعت الاستبانة على عينة عشوائية من المجتمع بواقع 144 فردا من مناطق الكرخ والرصافة في بغداد، بينت نتائج الدراسة عدم وجود فروق معنوية بين الجنسين الذكور والإناث في سلوكهم تجاه صحة وسلامة الأغذية، وتبين أن عامل العمر يؤثر في سلوك المستهلك وهناك فروق معنوية بين الفئة العمرية الأولى وهي من (18- 29 سنة) والفئات العمرية الثالثة (40 - 50 سنة) والفئة الرابعة (أكبر من 50 سنة)، وهناك فروق معنوية لعوامل حجم الاسرة والمؤهل العلمي أي إنها تؤثر في سلوك المستهلك، فقد بلغت نسبة العزاب 3.48% وكانت نسبة العوائل النموذجية 3-5 أفراد 57.63%، وأتضح أن هناك فروق معنوية بين فئة التعليم الابتدائي وبقية الفئات، وكذلك فروق بين فئات الجامعي والدراسات العليا، وأن عامل الدخل الشهري له تأثير في سلوك المستهلك تجاه صحة وسلامة الأغذية إذ ظهرت فروق معنوية بين الفئة الأقل دخلا وبين بقية الفئات، وهناك فروق بين فئة الدخل الثانية والثالثة.

الكلمات المفتاحية: سلوك المستهلك، صحة وسلامة الاغذية، العوامل الديموغرافية.



INTRODUCTION

The largest and most important sources of income for economic and productive activities around the world are represented by the food industry, due to its importance in achieving self-sufficiency and food security, in addition to providing the necessary needs of the consumer on an ongoing basis. The food industry is important in stimulating various economic sectors such as agriculture, industry, and trade, and providing job opportunities for individuals. Quality is the basic criterion for the success of the food industry, and the consumer occupies the most important position in this process, as he represents the party benefiting from it, and his opinion on the quality and acceptance of food is a decisive factor in the success and spread of food products (Alsoufi, 2021).

Consumer health and safety has become a priority for individuals, governments, producers, distributors, wholesalers, retailers, and many parties concerned with consumer protection, this requires taking the necessary measures from all parties concerned that seek to achieve their general and specific goals related to consumer protection (Ghbout, 2016). Some grocery stores witness major violations and breaches of health rules in the handling and storage of food that may be exposed to spoilage and damage as a result of poor storage and display, in addition to the weakness in applying health conditions in the preparation and handling of food, which contributes to its contamination with pathogens and toxins of various types (Gurbuz & Macabangin, 2019).

Consumer behavior is one of the types of human behavior, and therefore it is affected by several factors, variables, or influences. Therefore, the art of studying consumer behavior is a complex process, and understanding the motives and behavior of consumers is not a simple matter. The American Association defined consumer behavior as a dynamic process in which the consumer's feelings, thoughts, experiences, perceptions, and actions interact with the surrounding environment that directs the areas of interaction and communication in the consumer's life (Al- Aisdoudi, 2023), therefore, most institutions have turned to paying attention to the consumer and studying his needs and desires in an attempt to understand his consumer behavior, because he is the starting and ending point of marketing activity. Since institutions always seek to survive and continue in the market, they have begun to work on balancing the goal of achieving profits and preserving the interests of the consumer, and this is through adopting the philosophy of marketing ethics, which has become one of the primary concerns of the institution, in addition to its interest in the society in which it operates through adopting social responsibility (Saputra & Pasaribu, 2023).

The consumer is exposed to a set of factors that influence his purchasing behavior for goods and services. The factors that influence this behavior are divided into psychological and personal factors such as motives, needs, sensory perception, memory, attitudes, beliefs, learning, type of work, and lifestyle, and social and economic factors such as income, social class, culture, social groups, family, and lifestyle (Ali, 2020).

The concept of food health and safety is of interest to the consumer, food producers and governments because of its importance to the health and safety of the consumer, and thus affects the health of society and the general economy of the state, as the illness of an individual related to food safety costs the family, society and state treatment expenses, which burdens the budget and causes a decline in the individual's ability to work (Ali et.al, 2021). Therefore, this study aimed to identify some of the factors that affect the consumer's behavior towards food health and safety, and thus this affects his choice of healthy food, which is positively reflected on his health, the health of his family and society as a whole.

MATERIALS AND METHODS

The study was conducted on random samples of consumers in the markets of Baghdad city, where the number reached 144 people. A questionnaire was prepared for this purpose to determine some of the demographic factors that affect consumer behavior towards food health and safety through some questions related to food safety (Figure 1). The studied factors included gender, age, family size, educational qualification, and monthly income. The questionnaire was distributed among consumers in Baghdad city and the required data was collected.

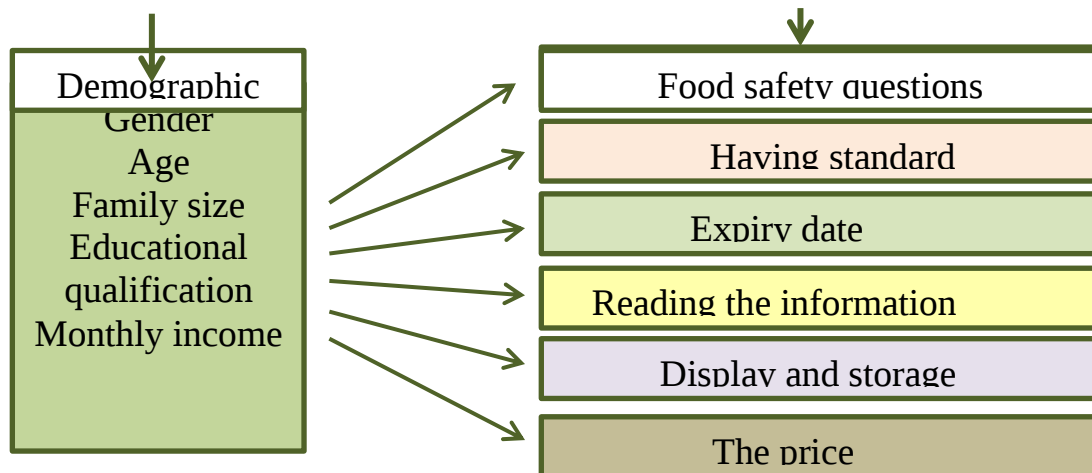


Figure (1): Demographic factors studied according to food safety questions.

Statistical analysis

The SAS program was used in the statistical analysis of the data for the purpose of analyzing the variance between the studied factors and testing the study hypotheses (SAS, 2018).

RESULTS AND DISCUSSION

First: Distribution of study samples according to variables

Table, 1 shows the distribution of the study sample according to the independent variables affecting consumer behavior. Most of the sample was male, 93, while females were 51, ages from 30-39 and 40-50 occupied the largest proportion of the sample, with 48 individuals for the former and 49 individuals for the latter, the percentage of married to single people was close, 54.17% and 45.83%, the results showed that about half of the sample, 47.92%, had a university education, followed by 32.64% who had completed secondary education, statistics indicated that half of the sample had a monthly income ranging from 500,000 to 1,000,000, Iraqi dinars (I.d) an average level.

**Table (1):** The distribution of the study sample according to the independent variables affecting consumer behavior.

Independent variables	Levels of variables	Frequency	Percentage %
gender	Males	93	65.28
	Females	51	34.72
Age	18-29	31	21.54
	30-39	48	33.33
	40-50	49	34.03
	50 and more	16	11.11
Marital Status	Married	139	96.52
	Single	5	3.48
Academic Qualification	Primary	5	3.48
	Secondary	47	32.64
	University	69	47.92
	Postgraduate	23	15.97
Income (in Iraqi dinars)	Less than 500,000	32	22.22
	500000-900000	97	67.36
	More than 1000000	15	10.42

Second: Gender factor

The results in table, 2 shows that there are no significant differences at the level ($P \leq 0.05$) for the gender factor in consumer behavior towards purchasing food, i.e. males and females are equal in their behavior. The results reached by (Ali, 2020) are consistent with the results of this study in that there are no significant differences in consumer purchasing options between males and females with regard to purchasing juices and soft drinks, while (Nasser & Makhous, 2020) indicated in them study that needs and behavior towards the purchasing decision are affected according to the consumer's gender.

Table (2): T-test results for the effect of gender factor on consumer purchasing behavior.

gender	No.	Mean	Standard Deviation	Standard Error	Degree of Freedom	T-Value	Significance Level
Males	93	77.41	8.100	0.840	142	0.957	0.094
Females	51	95.98	9.354	1.310			

Third: Age factor

Table, 3 shows the effect of variation in the age factor on consumer food purchasing behavior, significant differences appeared at a value of 0.029 at the level ($P \leq 0.05$), meaning that the age factor has a role in consumer behavior towards food health and safety, (Al-Aisdoudi, 2023) indicated that individuals change their choices of services and goods as they age according to each stage of their life, and the process of choosing food products, clothing, types of



entertainment and comfort is linked to age, (Lafta & Hussein, 2018) stated in them study that age has a significant impact on changing and modifying consumers' online purchasing decisions according to the change in age stage.

Table (3): The effect of age factor variation on consumer food purchasing behavior.

Source of Variance	Sum of Squares	Degree of Freedom	Mean Square	(F) Value	Significance Level
Between Groups	649.177	3	216.392	3.082	0.029
Within Groups	9829.462	140			
Total	10478.639	143	143		

To find out these differences between age groups, the Least Significant Difference (LSD) test was conducted, after conducting the test, the results showed that there were significant differences between the first age group (18-29 years) and the third age groups (40-50 years) and the fourth (over 50 years), as shown in Table 4, this means that the older the consumer, the more aware he is in choosing foods, which in turn affects his behavior towards food health and safety, in a study conducted by (Fahad *et.al*, 2024) in China on consumer behavior towards food safety and quality in the context of technological innovation and the impact of demographic and environmental factors on nutrition and food safety, they noted that 67% of the study sample from the youth group aged 18-34 years are affected by electronic marketing of food and meals via social media, meaning that age has a clear impact on directing individuals' behavior towards purchasing food.

Table (4): Least significant difference (LSD) test for age groups for the age factor.

Age group	Over 50	40- 50	30- 39
18- 29	0.009	0.014	0.122
30- 39	0.110	0.291	-
40- 50	0.388	-	-

Fourth: Social status factor and family size

Table 5 shows the distribution of the study sample according to family size, the results show that 57.63% of the study sample members have typical family sizes ranging from (3 to 5) individuals, while the sizes of families that include 6 individuals or more were 31.95%, and the percentage of individuals living alone did not exceed 3.48%, this is due to the nature of the interconnected Iraqi society and the high number of individuals within one family in the eastern society in general, which has a low percentage of unmarried individuals living alone without their families, the results of this study were close to what was found by (Ali, 2020), where 71.5% of the sample size had individuals ranging between 3-5 and 3.75% living alone, (Nasser & Makhous, 2020) explained that the family is the most important consumer nucleus in society,



and the size of the family has an impact on shopping choices, the more the number of family members increases, the more demand for appropriate goods in terms of price and quality increases, meanwhile, (Yacoub *et.al*, 2014) stated that the social status factor affects consumer behavior towards food health and safety, i.e. married people are more aware than unmarried people, and this affects their behavior towards food health and safety, (Fenteng *et.al*, 2023) indicated in their study on the behavior of individuals who frequent popular street restaurants in Takoradi metropolis in Ghana that single people constituted about 63% of the total responses, while married people constituted 28%, and separated or divorced people constituted only 4% of the total responses, they concluded that single people who live alone consume more food offered in the streets regardless of its quality and safety.

Table (5): Distribution of the study sample according to family size.

Statement	Category	Repetition	%
Family size (person)	1	5	3.48
	2	10	6.94
	3	19	13.19
	4	25	17.36
	5	39	27.08
	6 and more	46	31.95
	Total	144	100%

Fifth: The educational qualification factor

The results in Table (1) showed that 32.64% of the sample members have a high school diploma, and 47.64% of them have a university degree due to the free university admission policy implemented since the seventies of the last century in Iraq, it is known that the values, needs and desires of individuals may change at different educational stages, and hence the importance of the educational factor in demographic studies of members of society emerges.

The significance level p-value for the academic qualification factor was (0.004) as shown in Table 6, thus, it is clear that there are statistically significant differences between the respondents' answers attributed to the academic qualification factor, i.e. it affects the consumer's behavior towards food health and safety, (Ghbout, 2016) indicated that the academic qualification refers to the academic degree that the individual obtained in his academic life, which means that learning directs the consumer to the possibility of increasing demand for a specific product by supporting him with a strong incentive and the use of motivational factors to enhance the positive aspects of that product, while (Nasser & Makhous, 2020) mentioned that the academic qualification has a great impact on the consumer's behavior towards green marketing to preserve his health and the safety of the environment, as significant differences appeared between the study samples of individuals who hold an initial or higher university degree and others who hold a secondary school certificate or less, (Alsoufi, 2022) indicated in his study on the opinion of the Iraqi consumer and his awareness of the risks associated with consuming canned foods, that approximately 64% of people answered that they are interested in reading the list of ingredients on the package to ensure that it is safe for them, while 25% of people indicated that they are not interested in the information mentioned on the package.



Table (6): Analysis of variance in the effect of the educational qualification factor on consumer behavior towards food health and safety.

Source of Variance	Sum of Squares	Degree of Freedom	Mean Square	(F) Value	Significance Level
Between Groups	649.771	3	321.590	4.7321	0.024
Within Groups	9513.868	140	67.956		
Total	10478.639	143			

To determine these differences between the categories of the educational qualification factor, the Least Significant Difference (LSD) test was conducted between these categories. The results showed that there are significant differences between the first category, which is basic primary education, and the rest of the categories, as well as differences between the third category, which is university, and the fourth category, which is postgraduate studies, as shown in Table 7, this means that the higher the educational qualification, the higher the individual's nutritional awareness, and this affects the consumer's behavior towards food health and safety.

Table (7): Test of the least significant difference for sample categories according to the academic qualification factor.

Academic qualification	Postgraduate studies	University	Intermediate or secondary
Basic education	0.001	0.038	0.009
Intermediate or secondary	0.136	0.160	-
University	0.008	-	-

In a study conducted by (Sharma *et.al*, 2016) in a group of modern cafes in Mumbai, India, on the behavior of individuals in purchasing organic foods, this study found that 52% of the respondents have a university education level or higher, thus, they prefer to buy organic foods, as they believe that eating them helps reduce stress levels and maintain an active lifestyle, and they are willing to pay higher prices because they are beneficial to health.

Sixth: Average monthly income

Statistically significant differences ($P \leq 0.05$) amounting to 0.024 appeared between the studied categories according to the income factor variable, as Table 8 shows the effect of the average monthly income factor on consumer behavior towards food health and safety.



Table (8): The effect of monthly income rate factor on consumer behavior towards food health and safety.

Source of Variance	Sum of Squares	Degree of Freedom	Mean Square	(F) Value	Significance Level
Between Groups	542.611	3	271.306	3.850	0.024
Within Groups	9936.027	140	70.468		
Total	10478.639	143			

When referring to Table 1, it is clear that 77.36% of the study sample are of average income, and 10.42% are of high income, meaning they have the ability to choose high-quality food products regardless of the price, (Al-Aisdoudi, 2023) indicated that the income factor is one of the personal factors that influence an individual's choice of his products, and marketing experts who work in the field of marketing products with price sensitivity have drawn attention to those matters related to income and spending.

The Least Significant Difference (LSD) test was conducted for the study results related to monthly income, the test results, as shown in Table 9, showed that there are significant differences between the first income category, which is the lowest income, and the rest of the income categories. There are significant differences between the second income category, which has an income of 500,000 to 1,000,000 dinars, and the third category, which has an income higher than 1,000,000 dinars. This means that the higher the individual's income, the more it affects consumer behavior towards food health and safety.

Table (9): Least Significant Difference (LSD) test results for income categories for the monthly income factor (in Iraqi dinars).

Income	Over than 1000000	500000- 1000000
Less than 500000	0.032	0.01
500000- 1000000	0.666	-

Income is one of the personal factors that influence an individual's choice of products, as the person's economic status is reflected in his choice of the commodity, actual purchasing behavior in the market is not achieved unless it is accompanied by purchasing power (Sanyal *et.al*, 2014), there is also an important role played by pricing policies in the consumer's sensitivity to the prices of companies' products, one of the basic factors that private companies consider to be a basic factor influencing the consumer's reaction to the prices of their products is the relationship between price and quality, and between price and income on the other hand (Hamaad, 2014).

In a study conducted by (Kilic & Eryilmaz, 2015) to determine the factors influencing shopping behavior among students in the dormitories of Turkish universities, it was stated that 74.98% of them work in professions outside of working hours, 37.13% of them have a relatively high income that allows them to buy high-quality foods, while 20.57% of them are forced to



consume cheap foods due to their low monthly income or their dependence on the allowance sent to them by their families, (Dung *et.al*, 2014) reported in their study results in Vietnam that consumer demographic factors such as income level and educational status differ when purchasing a food product. In other words, customers with higher incomes are more likely to demand higher quality food products than those with lower incomes.

CONCLUSIONS

The results of the study clearly indicate that the social and demographic factors of consumers affect the consumer's behavior in his decision to purchase healthy foods. We can conclude from this study that there is an effect of the size of the consumer's family on the purchasing behavior, and that the level of education and the average monthly income have a clear effect on the consumer's behavior towards the health and safety of food, the higher the educational level, the more the consumer tends towards healthy foods.

REFERENCES

1. Al-Aisdoudi, N. (2023). The effect of the behavioral marketing mix on the consumer (Starbucks case study). *Egyptian Journal of Media Research*, 38 (1) :575- 619.
2. Ali, T., Alam, A. & Ali, J. (2021). Factors affecting consumers' purchase behaviour for health and wellness food products in an emerging market. *Global Business Review*, 22 (1). <https://doi.org/10.1177/0972150918795368>.
3. Ali, G.A. (2020). The effect of advertising and demographic factors on the consumer market share of juices and soft drink in Latakia Governorate. *International Journal of Agriculture and Environmental Science*, 7 (5):102-107. doi:10.14445/23942568/IJAES-V7I5P115
4. Alsoufi, M.A. (2021). Iraqi consumer opinion of the quality and safety of local food products. *Iraqi Journal of Market Research and Consumer Protection*, 13(1): 140-147. DOI: [http://dx.doi.org/10.28936/jmracpc13.1.2021.\(14\)](http://dx.doi.org/10.28936/jmracpc13.1.2021.(14))
5. Alsoufi, M.A. (2022). Iraqi consumer awareness off the risk associated with consuming canned food. *Iraqi Journal of Market Research and Consumer Protection*, 14(1): 75-83 DOI: [http://dx.doi.org/10.28936/jmracpc14.1.2022.\(8\)](http://dx.doi.org/10.28936/jmracpc14.1.2022.(8))
6. Dung, D.V., Dung, N.T.T, Nguyen, G. & Dao, Q.T. (2019). Factors affecting the consumers purchase decision safe food: Case study in Vietnam. *Turk Turizm Arastirmalari Dergisi*, 1(2):43-52. DOI: 10.26677/TR1010.2019.72
7. Fahad, S., Zheng, S., Su, F. & Antonio, D. G. (2024). Editorial: Consumer behavior around food safety and quality in the context of technological innovation . *Frontiers in Nutrition*, 11:1440242. doi: 10.3389/fnut.2024.1440242
8. Fenteng, R.A., Atakpa, S.A. & Donkor-Boateng, N.A. (2023). Perception and concerns of consumers on food safety and factors influencing purchase of vended foods. *Open Access Library Journal*, 10: e10892. <https://doi.org/10.4236/oalib.1110892>
9. Hamaad, G. (2014). Inflation and its social affect : A field study on a sample of poor citizens in Menoufia governorate. *Annals of the faculty of arts*, Ain Shams University, Egypt, 42 (4): 37-80.
10. Ghbout, M. (2016). The determinants of consumer awareness and behavior towards food safety in their purchase and consumption 'applied case of Bethlehem city – Palestine. Master thesis, Al- Quds university- Palestine.



11. Gurbuz, I.B. & Macabangin. M. (2019). Factors affecting consumer's behaviour on purchasing and consumption of food products. *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*, 19 (1): 215- 222.
12. Kilic, O. & Eryilmaz, G.A. (2015). Factors affecting consumers' awareness of food safety. *Agro FOOD Industry Hi Tech*, 26(3): 43- 46.
13. Lafta, B. & Hussein, H. (2018). Valuation of consumer buying behavior over the internet and its relation to personal variables /exploratory research. *Journal of Accounting and Financial Studies*, 13 (43): 15-26. DOI: <https://doi.org/10.34093/jafs.v13i43.49>.
14. Nasser, M. & Makhous, D. (2020). The role of the affecting factors on the consumer behavior in making the purchasing decision. *Tishreen University Journal for Studies and Scientific Research- Economic and Legal Sciences Series*, 31 (4): 147-166.
15. Sanyal, S. N., Datta, S. K., & Banerjee, A. K. (2014). Attitude of Indian consumers towards luxury brand purchase: an application of attitude scale to luxury items. *International Journal of Indian Culture and Business Management*, 5 (3): 316-339.
16. Saputra, W. & Pasaribu, L. H. (2023). Analysis of factors influencing consumer behavior on plant-based foods products through theory of planned behavior and green marketing approach. *Budapest International Research and Critics Institute-Journal*, 6 (1): 98-109. DOI: <https://doi.org/10.33258/birci.v6i1.7427>
17. SAS. (2018). Statistical Analysis System, User's Guide. Statistical. Version 9.6th ed. SAS. Inst. Inc. Cary. N.C. USA.
18. Sharma, G., Dewan, R. & Bali, S. (2016). Factors influencing consumer buying behavior & awareness towards organic food: A study of chandigarh & panchkula consumers. *International Journal of Science and Research*, 5(2): 696- 689.
19. Yacoub, G., Sultaneh, A., & Ali, G. (2014). The consumer behavior of buying towards packaging size of the preserved food and the place and the time of shopping. *ALBaath University Magazine for Engineering Sciences*, 36 (6): 109- 140.