

RESEARCH ON THE IMPACT OF CONSUMER BEHAVIOUR IN TIMIȘ COUNTY, ROMANIA, REGARDING THE CONSUMPTION OF BAKERY PRODUCTS AND THE POSSIBILITY OF DIVERSIFYING BY REPLACING WHEAT FLOUR WITH CHICKPEA FLOUR

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Abstract

The current trends of consumers are towards the consumption of nutritionally valuable foods with a positive impact on health, and the present work is integrated into the set of current concerns in scientific research on a domestic and international level. The aim of the work is the diversification of bakery products with functional potential based on chickpeas and fibers. For this, it was carried out a study on the impact of consumer behaviour regarding the consumption of bakery products, the knowledge of the benefits of chickpeas, the openness of consumers to the consumption of foods based on chickpeas and fibers in order to put on the market bakery products with functional potential based on chickpeas and fibers. To carry out the study, two questionnaires were applied to a number of 1,000 respondents. The sample size for each category is 500 people for each questionnaire, in total 1,000 questionnaires were applied. The obtained results were described for each sample using descriptive univariate analysis and with the help of the EXCEL program, having the database available, frequency tables containing the obtained results were generated. The questionnaires were applied between March and May 2024, in Timiș county, Romania. As a result of the study, it was found that consumers are increasingly oriented towards consuming products that offer them benefits from a nutritional point of view, and the consumption of chickpea-based bakery products represent an alternative for a healthy diet.

Key words: consumption, organic products, Romania

INTRODUCTION

Knowing and anticipating the requirements of the market, it is possible to satisfy consumer needs through rational production, and also promote and distribute efficiently the required goods and services to the general public. [4, p. 13]. The products that the consumer buys, can also be used as a tool for promoting a healthier lifestyle. Marketers, acquiring the data sent by the consumer, will be used to meet the needs of the consumer [6].

Bread is one of the most important basic foods, produced in various forms, consumed by mankind over time (Cauvain, 2015, p. 1), [3].

In modern times, shaped by technological innovation and changing consumer preferences, bread has undergone a remarkable transformation [7].

From a nutritional point of view, the nutritional value of flour largely reflects the quality of the bread obtained, bread is often fortified by adding other ingredients to compensate for some deficiencies of the flour or to improve its bioactive properties.

Data from the Trade Register show that almost 7,000 companies are active in the bread and bakery products production sector, until 2001, this figure has not undergone major changes in the last three years [11].

The high consumption of bakery products is also explained by the fact that Timiș County is among the counties in the country with a large number of companies in the bakery field, according to Map 1 presenting companies producing bread and bakery products.

Current concerns worldwide are related to obtaining products with high nutritional value and functional potential.

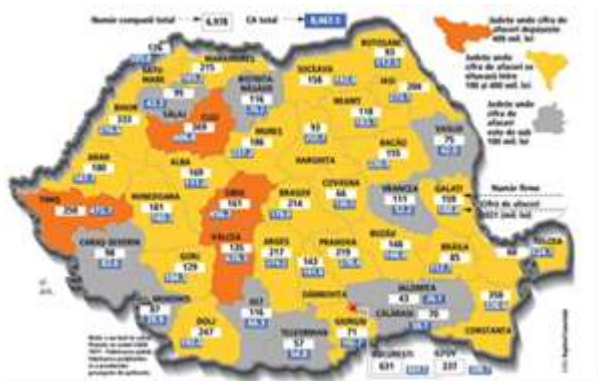


Fig.1. Map of bakery companies in Romania according to the Trade Register
Source: [5].

The introduction of chickpeas in baking brings benefits to the human body, these include blood sugar control, weight management, a healthier heart and a good digestive health [12].

Chickpeas are a member of the pulse family, which includes beans, lentils, and dry peas [9].

The nutritional value of bakery products, especially bread, represents an important element for the daily ration.

The aim of the work is the diversification of bakery products with functional potential based on chickpeas and fibers. For this, we carried out a study on the impact of consumer behavior regarding the consumption of bakery products, the knowledge of the benefits of chickpeas, the openness of consumers to the consumption of foods based on chickpeas and fibers in order to put on the market bakery products with functional potential based on chickpeas and fibers.

MATERIALS AND METHODS

Applying specific methods and techniques, used in order to complete the research, we resorted to the consultation and analysis of specialized literature, the collection and interpretation of statistical data, the construction and access of databases, direct study through statistical surveys.

The scientific approach to the research also includes the consultation of some regulations, data provided by the INS (National Institute of Statistics of Romania) and the Regional Directorate of Statistics of Timiș County, as

well as the results obtained from own research.

To carry out the study a structured questionnaire was applied to two categories of respondents: pupils aged between 14 to 18 and adults aged between 19 to 80.

The sample size was calculated using the automatic calculator [2].

This calculator computes the minimum number of necessary samples to meet the desired statistical constraints. This means 849 or more measurements/surveys are needed to have a confidence level of 98% that the real value is within $\pm 4\%$ of the measured/surveyed value.

The sample size for each category is 500 people for each questionnaire, in total 1,000 questionnaires were applied.

The stages of the study regarding the impact of education on the behavior of the consumer of bakery products, assume the materialization over time of the way of conducting the analysis process by going through the following sequences:

- drawing up an analysis plan;
- the collection of information from the area under study (Timiș county), based on the study of the specialized bibliography, referring to yearbooks and statistical breviaries;
- processing, interpretation and comparison of the collected information with the studies of other specialists;
- analysis and interpretation of the obtained results, formulation of conclusions and recommendations.

The obtained results were described for each sample using descriptive univariate analysis and with the help of the EXCEL program, having the database available, frequency tables containing the obtained results were generated. The questionnaires were applied between March and May 2024, in Timiș county. A questionnaire consisting of a number of 13 questions was applied to the 500 students, regarding the consumption of bakery products, their quantity and quality, the consumption of chickpeas and the interest in consuming bakery products based on chickpeas, as well as information about factual data.

The second type of questionnaire was given to adults of different age categories and social status. It is made up of a number of 16 questions, related to the consumption of bakery and chickpea-based products, as well as information about factual data.

The variables used in the study of the bakery products market are:

- dependent variables: consumer preferences for bakery products;
- independent variables: gender, age, place of residence, level of education, occupation and income [8].

RESULTS AND DISCUSSIONS

From the studies carried out, it was noticed that consumer behavior is different depending on the residence environment (urban/rural). Consumer behavior shows differences that can be determined by the following factors: the price of food products, their purchasing power, the production of food products in their own household and self-consumption, the degree of culture and education.

Respondents' consumption behavior for bakery products

Based on the responses to the questionnaires, the consumption preferences for bread categories differs among students compared to adults, as shown in Table 1.

Table 1. Comparative consumption preferences of some bread categories among students and adults

Preferences by bread category	Answers	
	Adults	Students
White bread	210	463
Multigrain bread	108	20
Rye bread	48	6
Black bread	134	3
TOTAL	500	492

Source: from the questionnaires applied.

From Table 1, it can be seen that, of the 500 students interviewed, 492 consume bread, a percentage of 98.40%, and 8 students declared that they do not consume bread, respectively 1.60%.

As can be seen from Fig. 1, students' preferences for white bread are higher than adults' preferences, who prefer multigrain bread and black bread.

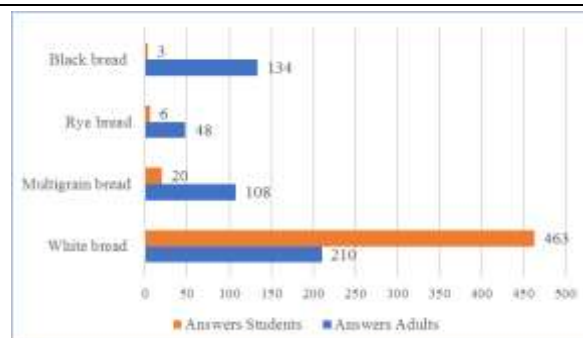


Fig. 1. Comparative study of consumer preferences among respondents

Source: from the questionnaires applied.

Thus we can conclude that adults have a balanced and healthier eating behavior, taking into account the consumption of bread.

Table 2 presents the results of the comparative study on the consumption of bakery products among respondents:

Table 2 Comparative study on the consumption of bakery products

Bakery products	Answers	
	Adults	Students
Bread	340	300
Croissants with salt	232	432
Bagels	250	350
Bars	80	220
Croissants with seeds	220	120
Other	40	65

Source: from the questionnaires applied.

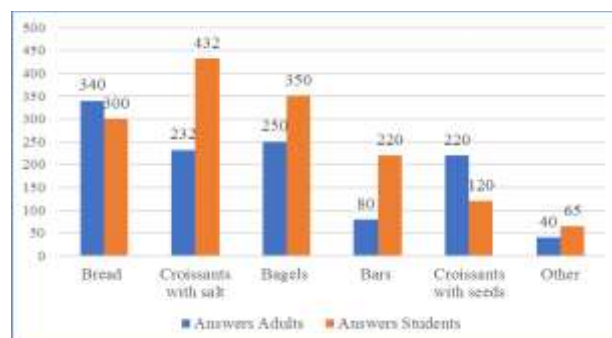


Fig. 2. Chart on the comparative study of the consumption of bakery products among the respondents.

Source: from the questionnaires applied.

According to Fig. 2, the dietary behavior of the respondents can be observed. Bakery products such as salted croissants, bagels, bars, seeded croissants have a higher share among students.

When asked about the consumption environment, "Where do you consume bakery

products?" the preferences of students and adults were as follows:

- 429 of the students declare the consumption of bakery products in the family;
- 121 students declare the consumption of bakery products in public food establishments;
- 40 students declare the consumption of bakery products in the canteen;
- 340 adults declare the consumption of bakery products in the family;
- 180 adults declare the consumption of bakery products in public food establishments;
- 80 adults declare the consumption of bakery products at work.

The preference for different consumption environments related to the number of students' answers can be seen in the Table 3.

Table 3. The options for the different consumption environments of the students

Consumer environment	Answers		Options related to the number of respondents %
	Students	Percentage %	
In the family	429	72.71	100.00
At the canteen	40	6.77	9.32
In public food establishments	121	20.50	28.20
Total	590	100	137.52

Source: from the questionnaires applied.

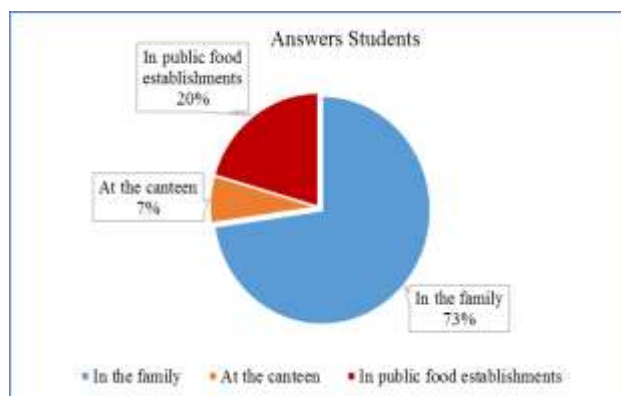


Fig. 3. The options for the different consumption environments of the students in percentages
Source: from the questionnaires applied.

As we can see from Fig. 3, most students consume bakery products at home, e.g. 73%, less than 6% at the canteen, and 20% of the

students surveyed prefer to eat in public catering establishments, such as fast food and street food.

Table 4. Options for the different adult consumption environments

Consumer environment	Answers		Options* related to the number of respondents %
	Adults	Percentage %	
In the family	340	56.67	75.22
At work	80	13.33	17.70
In public food establishments	180	30	39.82
Total	600	100	132.74

*options are represented by the percentages of those who had multiple answers.

Source: from the questionnaires applied.

As we can see from Fig. 4, most adults consume bakery products at home, e.g. 57%, 13% at work, and 30% in public catering establishments.

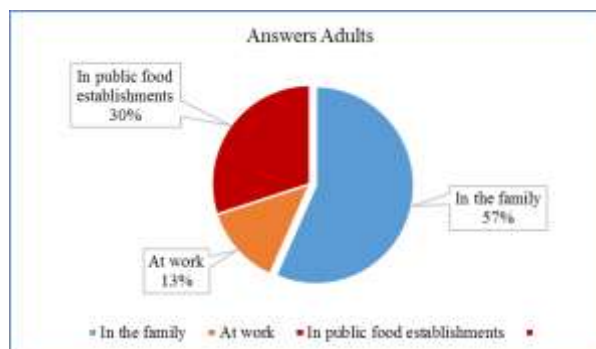


Fig. 4. The options for the different consumption environments of adults in percentage
Source: from the questionnaires applied.

Respondents' consumption behavior for chickpeas products

Following some studies, it has been shown that chickpeas, in addition to anti-allergic and anticonvulsant properties, have significant antihypertensive and hemagglutination activity, and have gastroprotective and hepatoprotective benefits [15]. The chemical composition of chickpeas flour as presented in Fig. 5.

Chickpeas are high in dietary fiber, especially galactomannans, which influence the glycemic index and cause high satiety, influencing glucose levels [16].

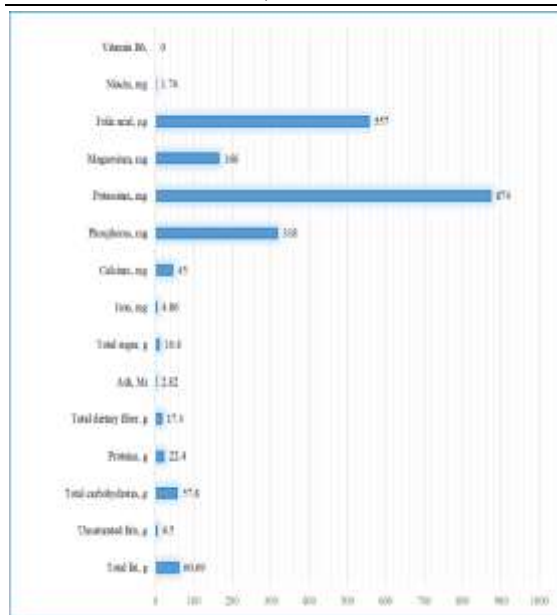


Fig. 5. Nutritional composition of chickpea flour
Source: [14].

The chickpeas contain moderately high protein (17–22%), low fat (6.48%), high available carbohydrate (50%) and crude fiber contents of 3.82% on dry basis (Saleh and El-Adawy, 2006) [13].

Chickpea flour is an excellent source of nutrients and has multiple health benefits. Being obtained from ground chickpeas, it retains most of its properties. Interest in the consumption of chickpea flour is increasing, especially due to its functional properties, such as foaming, emulsifying, gelatinization, texture and viscosity properties, water and oil absorption capacity [1].

Making a reference towards my previous question, such as knowing the nutritional value of chickpeas and chickpea-based products, after questioning the respondents the following answers resulted:

- only 10 students are unaware of nutritional value of chickpeas, e.g. a percentage of 2%;
- 498 adults answered affirmatively, e.g. a percentage of 99.6%;
- only 2 adults are unaware about the nutritional value of chickpeas, e.g. a percentage of 0.4%.

The comparative study on the consumption of chickpeas and the interest in consuming new chickpea-based products among the respondents is shown in Table 5.

Table 5. Comparative study on consumption of chickpea among respondents

Consumption of chickpeas	Answers	
	Adults	Students
Yes	290	128
No	210	372
TOTAL	500	500

Source: from the questionnaires applied.

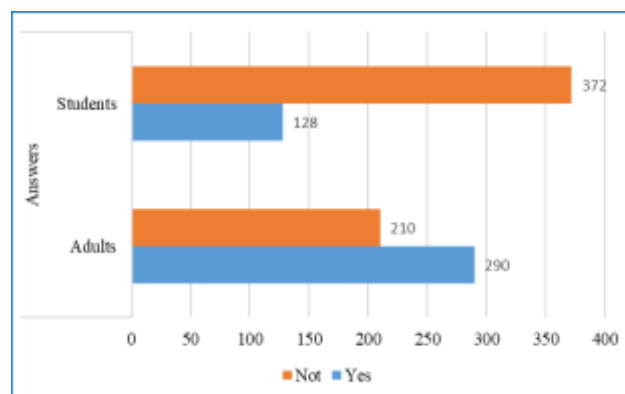


Fig. 6. Chart of the comparative study on the consumption of chickpeas among the respondents
Source: from the questionnaires applied.

Question number nine makes reference towards the consumption of chickpeas by pupils. Following the interpretation of the questionnaire, the following information resulted:

- 372 Pupils who do not consume chickpeas, measure up to, 74.4%;
- 128 Pupils who consume chickpeas, measure up to 25.6%. The high percentage of chickpea consumers among adults compared to students is influenced by tradition, the age of the respondents and the affordable price, as well as their concern to eating healthy.

Table 6. Representation of respondents' interest in consuming chickpea-based bakery products.

The interest to try consume chickpea - based bakery products	Answers	
	Adults	Students
Yes	450	385
Not	50	115
TOTAL	500	500

Source: from the questionnaires applied.

When asked about the interest in consuming chickpea-based bakery products, the following answers resulted:

- 450 Adult respondents replied affirmatively, that is, a fairly high percentage of 90%;

- 50 Adult respondents are not interested in trying new chickpea products, that is, 10%
- 385 Students answered affirmatively, that is, a fairly high percentage of 77%;
- 115 Students are not interested in trying new products based on chickpeas, that is, a percentage of 23%.

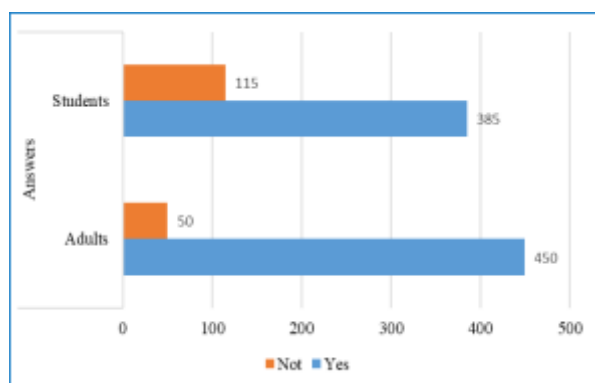


Fig. 7. Comparative study c regarding the interest of the respondents to consume chickpea - based bakery products

Source: from the questionnaires applied.

As we can see in Figure 7, the data show that most respondents are willing to consume chickpea-based bakery products. This can lead to the diversification of chickpea products on the market, given the willingness to consume them for healthier benefits.

Table 7. The influence of the media in changing the food behavior among respondents

The influence of the media on food behavior	Answers	
	Adults	Students
Yes	260	330
Not	240	170
TOTAL	500	500

Source: from the questionnaires applied.

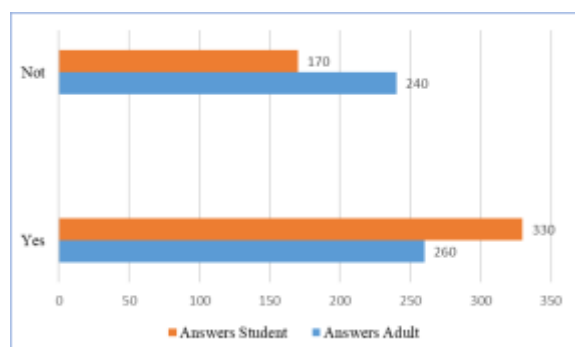


Fig. 8. Comparative study on the influence of mass media among respondents

Source: from the questionnaires applied.

For the question on how the media influences the behaviour of the consumer of bakery products, the respondents answered according to the data shown in the Table 7 and Figure 8.

The question in the questionnaire making reference towards the monthly income of the parents, the answers of the pupils were as follows:

- 48 pupils declared that the income of parents is somewhere up to 3,000 Ron.
- 122 pupils declared that the monthly income of their parents is between 3,001-5,000 Ron,
- 231 pupils declared that the monthly income of their parents is between 5,001-6,000 Ron;
- 99 pupils declared the monthly income of their parents is over 6,000 Ron.

According to INSSE data, the revenues from gross salaries and other salary rights were in 2023 as follows: 4,794.2 Ron on average per household and 1918.7 Ron on average per person, 72.2% of the income decrees from the previous year by 0.2 % [10]. From the researched data, it can be seen that most of the pupils come from families that have an income that is lower than the one established by the INSSE statistics.

At the question on the percentage of money in the income /family, which is allocated for the purchase of bakery products, respondents answered as follows:

- 340 People stated that the percentage of the amount allocated to food is 28% for the purchase of bakery products;
- 160 People stated that the percentage of the amount allocated to food is 22% for the purchase of bakery products.

The last part of the questionnaire includes factual data.

The study was conducted on a sample of 500 adults, aged between 19 and 80. According to Table 8 and 9, the second sample of 500 students are aged between 14 to 18.

Table 8. Factual data on the age of the adult

Age	Answers	
	Adults	Percentage %
19-30 years	100	20
31-50 years	340	68
51-80 years	60	12
Total	500	100

Source: from the questionnaires applied.

Table 9. Factual data on the age of students

Age	Answers	
	Students	Percentage %
14-16 years	48	9.6
16-17 years	240	48
17-18 years	212	42.4
Total	500	100

Source: from the questionnaires applied.

CONCLUSIONS

Following the study, we can conclude that the majority of respondents are bread consumers: 98.40% students and 90.40% adults, a small percentage of respondents do not consume bread due to various health problems.

The preferences of the respondents in terms of bakery products differ from one age group to another.

Bakery products such as salted croissants, bagels, bars, seeded croissants have a higher share among students than adults.

According to the survey and the questionnaires carried out, we can affirm the fact that the influences among students towards the consumption of healthy food is largely determined by the school programs and the optional subjects that the school proposes. Which contain relevant and valuable information for the training and education of the consumer of valuable products from a nutritional point of view.

Promotional adverts through media channels, influence a fairly large number of respondents among both adults and pupils, due to the impact of the media on consumers.

Preferences for traditional products are higher among adults than fast food products, and among students preferences for fast food products are higher than for organic or traditional ones.

The two categories of respondents prefer to consume bakery products in the family in a fairly large proportion. The preference for bakery products is explained by the fact that they are cheaper, and can be obtained at home.

The conclusion the research made on family income allocated to the purchase of bakery products is 25% per family's total income.

From the data obtained within the research done beforehand, it can be seen that most

respondents come from families with an income that falls within the INSSE statistics.

The study shows that the consumption of chickpea-based products is higher among adults than among students. This is due to the greater concern among adults for healthy eating.

As a result of the study, it was found that consumers are increasingly oriented towards consuming products that offer them benefits from a nutritional point of view, and the consumption of chickpea-based bakery products represents an alternative for a healthy diet.

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