

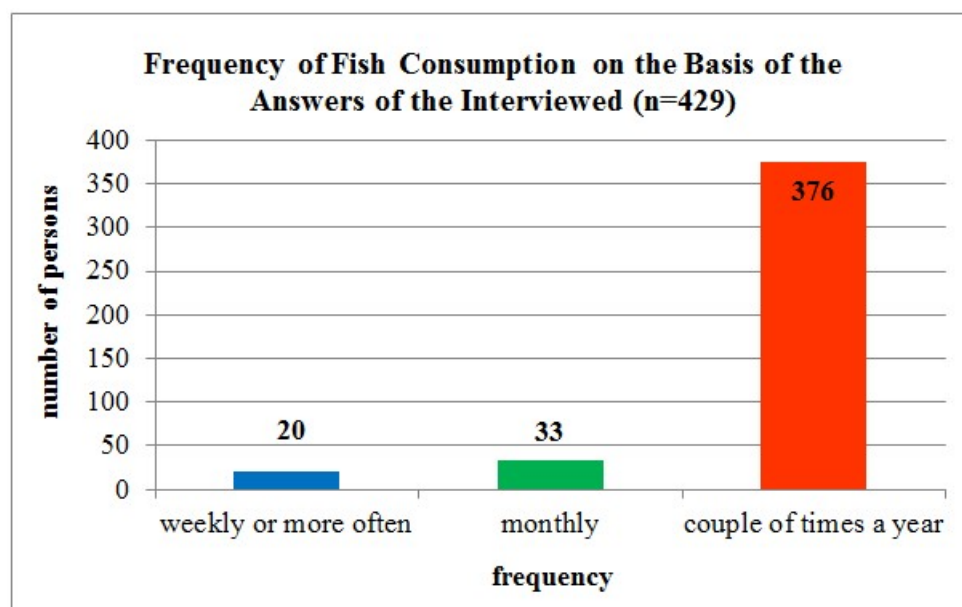
## EXAMINATION OF FISH CONSUMPTION HABITS AMONG STUDENTS OF A SECONDARY SCHOOL IN SZEGED AND OF A UNIVERSITY FACULTY

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### ABSTRACT

Due to our environment or to our own decision, we try to pay attention to healthy nutrition (SZAKÁLY ET AL, 2014). We pay attention to the composition of the products and try to exclude certain foods (KONTOR ET AL, 2016). Experts state that fish consumption is one of the indispensable conditions of a healthy diet, so we should consume fish at least once per week (SZAKÁLY, 2011). *Figure 1* shows as well that despite the fact that fish is delicious and healthy, it is not part of our everyday diet (KISS, 2017).



**Figure 1. Chart on the frequency of fish consumption**

Source: own-made chart on the basis of the evaluated questionnaires

The focus of my research was to survey the habits of fish consumption among the students of a secondary school and of a university faculty in Szeged. My goal was to uncover the causes behind the low rate of fish consumption. Furthermore, I aimed to investigate that, beside fish, which types of meats are the most commonly consumed among the interviewed. A study of last year shows the connections between nutrition attitudes and meat consumption, from which it turns out that several factors influence our meals (NÁBRÁDI ET AL, 2017). During my research it was revealed that the price of fish plays a decisive role in consumption.

**Keywords:** fish, consumption, Z-test, seasonality

## INTRODUCTION

Earlier ZSÓTÉR AND KALICZKA (2014) also dealt with the examination of consumer habits. Numerous professional works have been published on the observations of the effects of food-producing companies (ZSÓTÉR AND CSÁSZÁR, 2013) and on food-industrial

investments (ZSÓTÉR AND TÚRI, 2017). It justifies my topic choice that I consider the endeavours for a healthy life extremely important. Many food consumption risks are known, but the alternatives to handle them are also available (LEHOTA, 2006).

The major part of nutrient sources, vitamins (e.g.: A; B<sub>1</sub>; B<sub>2</sub>; D), minerals and various unsaturated and polyunsaturated fatty acids (e.g.: Omega-3 fatty acid) essential to our organism can be ensured by consuming more fish (SZAKÁLY, 2017). Fish consumption is a pivotal part of healthy way of life (KISS ET AL, 2016).

The comprehensive goal of my research was to introduce the physiological role of fish consumption and the fish consumption habits among the students in a secondary grammar school and a university faculty. On the basis of the research conducted by me I aim to investigate the following hypotheses:

1. The number of those interviewed is higher who do not consume fish than the number of those who, even if only rarely, consume different types of fish or fish meats.
2. Beside fish, fish consumers most commonly consume poultry and pork.
3. Regarding fish consumption, high seasonality can be observed—for example during Christmas period the interviewed consume more fish.

## **MATERIAL AND METHOD**

The basis of my primary research was a questionnaire compiled by me, which was filled in by Miklós Radnóti Secondary Grammar School students and by the students of University of Szeged Juhász Gyula Faculty of Education. Altogether 429 questionnaires were filled in. The interviewer was me—fostering with this the proper fill. I visited the above mentioned institutes on four different days in 2017 March and April. In the secondary grammar school my former teachers ensured possibility to fill in the questionnaire in lessons and head teacher's lessons, with which students helped my work. In the university faculty, thank to a helpful lecturer, the students could fill in the questionnaire in a lecture. My questionnaire consisted of 15 questions, of which 10 questions related to the fish consumption habits and relevant opinion of the interviewed, and 5 questions revealed demographic data. Most of the questions were closed ones. After compiling the questionnaire I have conducted a test fill-in in the end of February, 2017. With this it could turn out if the logical built-up of the questionnaire is appropriate and the types of questions are ideal (LEHOTA, 2001). The number of interviewed was 435 altogether, but 6 of the questionnaires could not be evaluated, so during the evaluation I was examining a sample of 429. I have informed the persons involved in the research both about the aim of this current work and about the fact that I have handled the given data with full respect for personal rights (MALHOTRA, 2008). I have evaluated the questionnaires with the PSPP statistical system, which substitutes the patented Statistical Package for the Social Sciences, SPSS program (SAJTOS AND MITEV 2007). I have chosen this possibility so that I could process the data effectively and fast (HUZSVAI AND VINCZE, 2012). PSPP is excellent to compare results from analyses (JÁNOSA, 2007). I have conducted hypothesis investigation using Z-test, where we claim a thing and check on the basis of a pattern appearing during the investigation if it is also true for the whole lot with given (95%) probability.

## **RESULTS AND DISCUSSION**

In the introduction of this work I formed three hypotheses where the answer to their evaluation has come from the data of my later, personal research and their assessment. In

view of the scope limits, I do not publish the details of the research results in this study, this part of this paper focuses on sharing the final results of hypothesis examination.

- 1. Hypothesis:** The number of those interviewed is higher who do not consume fish than the number of those who, even if only rarely, consume different types of fish or fish meats. With other words: in the examined lot the ratio of fish-consumers is more than (or at least) 50%.

n=429 (size of the sample) Do not consume fish: 30 prsns  
 k=30 (number of interviewed according to null hypothesis) Fish Consumers: 399 prsns  
 P=0.5000 (the expected value) Summa interviewed: 429 prsns  
 p=k/n=0.0699 (value counted from sample)

Z-test:  $H_0: p \geq 0.5$  ← Null hypothesis.  
 $H_A: p < 0.5$  ← Alternative hypothesis, on the basis of relation sign left-side test.

↓

(At a left-side test we accept null hypothesis if z-value > critical value.)

Level of Significance:  $\alpha=0.05$  (error probability)

Range of acceptance (critical value):  $Z_{0.05} = -1.645$

**Z-Test Value:**

$$Z = \frac{k-nP}{\sqrt{nP(1-P)}} \quad \text{or} \quad Z = \frac{p-P}{\sqrt{\frac{P(1-P)}{n}}} \quad -17.815$$

Statistical Conclusion: Z-test value is smaller than critical value → we reject null hypothesis at a 5% significance level, and in the case of 95% probability.

Professional Conclusion: in the examined sample there are more fish consumers than non-consumers.

- 2. Hypothesis:** Beside fish, fish consumers most commonly consume poultry and pork. With other words: among those who consume other meat beside fish the ratio of those who consume poultry and pork is bigger than (or at least) 50%.

n=379 (size of the sample) Poultry and pork: 379 prsns  
 k=379 (number of interviewed according to null hypothesis) Other meat: 0 prsns  
 P=0.5000 (the expected value) Summa interviewed: 379 prsns  
 p=k/n=1.000 (value counted from sample)

Z-test:  $H_0: p \geq 0.5$  ← Null hypothesis.  
 $H_A: p < 0.5$  ← Alternative hypothesis, on the basis of relation sign left-side test.

↓

(At a left-side test we accept null hypothesis if z-value > critical value.)

Level of Significance:  $\alpha=0.05$  (error probability)

Range of acceptance (critical value):  $Z_{0.05} = -1.645$

**Z-Test Value:**

$$Z = \frac{k-nP}{\sqrt{nP(1-P)}} \quad \text{or} \quad Z = \frac{p-P}{\sqrt{\frac{P(1-P)}{n}}} \quad 19.468$$

Statistical Conclusion: Z-test value is bigger than critical value → we accept null hypothesis at a 5% significance level, and in the case of 95% probability.

Professional Conclusion: in the examined sample among those who consume other meats beside fish the ones who consume poultry and pork are in majority.

- 3. Hypothesis:** Regarding fish consumption, high seasonality can be observed—for example during Christmas period the interviewed consume more fish. With other words: minimum 50% of the examined sample finds that there is seasonality in fish consumption in the Christmas period.

n=429 (size of the sample)

Agree with the statement above: 382 prsns

k=382 (number of interviewed according to null hypothesis) Do not agree with the

statement above: 47 prsns

P=0.5000 (the expected value)

Summa interviewed: 429 prsns

p=k/n=0.8904 (value counted from sample)

Z-test:  $H_0: p \geq 0.5$  ← Null hypothesis.

$H_A: p < 0.5$  ← Alternative hypothesis, on the basis of relation sign  
left-side test. ↓

(At a left-side test we accept null hypothesis if z-value > critical value.)

Level of Significance:  $\alpha=0.05$  (error probability)

Range of acceptance (critical value):  $Z_{0.05} = -1.645$

**Z-Test  
Value:**

$$Z = \frac{k-nP}{\sqrt{nP(1-P)}} \quad \text{or} \quad Z = \frac{p-P}{\sqrt{\frac{P(1-P)}{n}}}$$

**16.174**

**Statistical Conclusion:** Z-test value is bigger than critical value → we accept null hypothesis at a 5% significance level, and in the case of 95% probability.

**Professional Conclusion:** according to the majority of the examined sample there is seasonality in fish consumption in the Christmas period.

## CONCLUSIONS

During this research conducted in the spring of 2017 the price of fish (both live and processed) came along as a fundamental problem to this topic.

After closing my research, back in year 2017, decreasing the VAT-rate of fish and products of fishing formulated as a proposal to me. VAT on fish for consumption purposes decreased to 5% in January, 2018, may increase fish consumption, since fish is becoming more affordable, so demand for fish is expected to increase. The above-mentioned facts enable continuing the examination of the topic.

Moreover, I suggest selling healthy fish in several places, since on the basis of the survey there would be demand for fresh fish in other periods of the year too, not just during the feasts. In my view, domestic fish consumption could be increased if people could purchase excellent quality (and very importantly fresh) fish in several places (SOÓS, 2017). I also propose even a more pronounced advertising of the benefits of fish to the human organism, a clear awareness of this to the people who are currently non-consumers of fish. Since many are not aware how much the numerous vitamins, minerals and unsaturated fatty acids in fish support human organism. I am reassured that the more people are aware of these important pieces of information, the more will consume fish. I find it important that rising awareness should take place in various fields. I feel that attention should be called in schools, too, that fish consumption plays an extraordinary role for our health care. If the student meets already during school years the importance of the endeavour for a healthy way of life as well as its tools (e.g.: fish consumption), in their adulthood, while independent, will take actions for this with higher probability. It could be a solution to call people's attention to the many delicious meals prepared from fish, which will be also healthy - given they are from fish. It does not overload our organism, but all the family

consume it with pleasure. To this topic, I propose distributing recipes of fish-meals and videos demonstrating preparation in the Internet or even on community sites. Summarising information on this topic, we can state that fish consumption is healthy and at the same time it is necessary, too.

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