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## CONSUMER HABITS OF FOOD SUPPLEMENTS FROM THE PERSPECTIVE OF FOOD SAFETY

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### ABSTRACT

The topicality of the subject has been shown by the fact that the number of food supplements has been increasing. These products are different from the traditional food products and the risks associated with them may also differ from the traditional food risks. Meanwhile, in the market customers are given significant amounts of information about food supplements, but this information sometimes can be misleading and may influence consumer habits.

The aim of my research therefore is to examine the consumption patterns of adult food supplements users, highlighting some of the determinants of food safety, such as quality, availability of information and risks.

Within the framework of primary research, focus group interviews were conducted and a survey was also used. Based on both the focus group and the survey results, it can be seen that the uses of food supplements are judged differently by the respondents. In data processing, factor- and cluster analysis were used to segment consumers based upon how they consider the use of food supplements. Four homogenous groups were identified among the respondents and the research examined which consumer characteristics were applicable to each group.

Keywords: segmentation, marketing strategy, quality, information, risk

### 1. INTRODUCTION

According to different surveys, in Central Europe the average life expectancy and health condition of people are worse than the average of the EU. Thus, health conscious behavior and nutrition play an important role in health protection.

Because of a change in living conditions, people being in constant stress, not doing enough physical activities and living in polluted cities need vitamins, micro- and macro elements with greater effects. Eating habits have changed; there are plenty of ready-to-eat meals that often do not contain necessary nutrients. Nowadays, it is not enough to consume traditional foods only. Food supplements are those products that can supply us with essential nutrients.

In literature, there are many possible definitions for the term 'functional food', but so far there is no global consensus on its meaning. The term was first used in Japan in the 1980's for food products fortified with special constituents that possess advantageous physiological effects. Functional foods may improve the general conditions of the body and decrease the risk of some diseases. The Japanese interest for functional food has brought awareness for the need of such products in places like Europe and the United States. Experts in these countries realised that besides being able to lower the cost of healthcare of the aging population, functional food might also give a commercial potential for the food industry [4]. This new category of products also bring science and high technology into everyday life by promising certain health benefits [2].

The food industry is one of the most important branches of the national economies in the European Union, playing a central role for the processing of agricultural raw materials and food supply. In this industry, innovations are recognized as an important instrument for companies belonging to the food industry in order to stand out from competitors and to satisfy consumer expectations [1]. Markets for this category show intense competition and in order to survive, companies must carefully plan new product processes. This competitive atmosphere suffers from a lack of information and understanding of consumer attitudes and behaviour and this could lead to poor market acceptance [6].

In the last few years the market of food supplements has increased extremely. A general trend can be observed on health market: consumers tend to switch from Rx (medical prescription) to OTC (over-the-counter) products increasingly. Based on a literature review, prospects of OTC market seem to be good in future, however this requires the accurate understanding of constantly increasing consumer demands.

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As in Ref. [5] globally, Western Europe and The United States are the biggest regions of OTC market - representing about 43% of the sales in the sector. However, the real drivers of the changes are South-East Asia, Latin America and the emerging countries of Central-Eastern Europe, especially the V4 countries (Fig. 1.) As for the yearly change of the expenditure, the most significant development was taken by Russia and Poland.

Tisman in Ref. [5] pointed out that growth of almost a quarter in the European OTC market recently had come from innovation. *"So innovating to provide better products with additional benefits for which consumers are willing to pay more money is really the key"*. Tisman advised innovation should be more than just product development. He emphasized: *"the majority of innovations come from line extensions which probably are not adding huge benefits to the consumer"*. For example, social media is now present in consumers' daily lives, so it should be used better by consumer health care. As well as innovation is dosage or delivery technologies also could add benefits to customers.

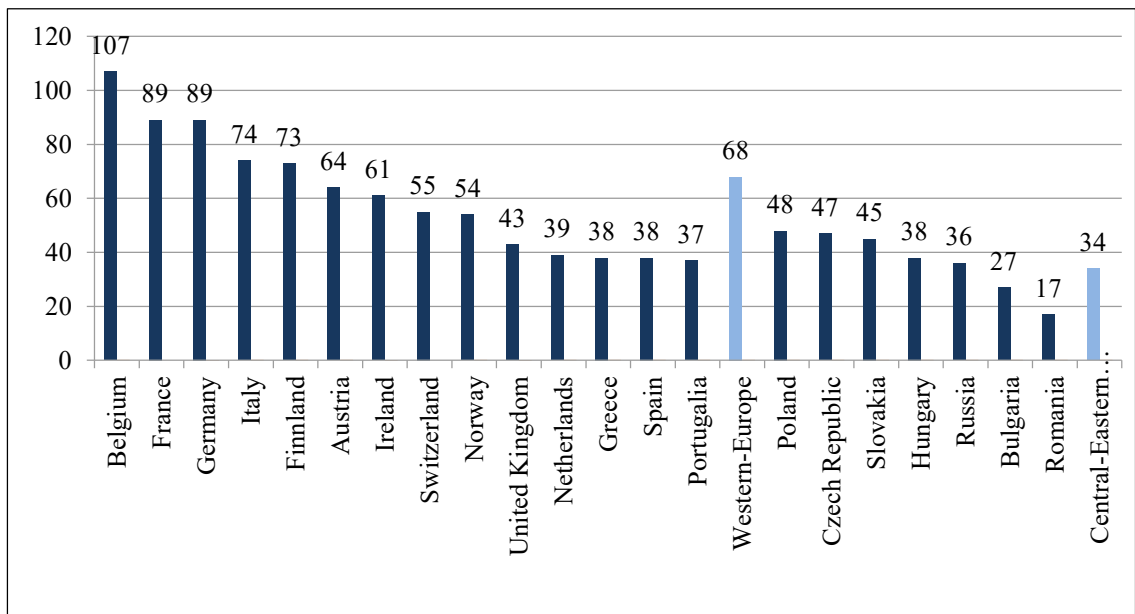


Figure 1. OTC expenditures per capita in the European countries, euro [5]

## 2. MATERIALS AND METHODS

To base the research, focus group interviews were used as a qualitative technique. The group discussion was conducted twice - with 6-6 persons in each - to identify trends and patterns in perceptions. The results provide clues and insights as to how a product is perceived by the group (Tab. 1).

Table 1. Demographic composition of participants in focus group interviews, person

| Educational level  | Age   |       |       |       |          |
|--------------------|-------|-------|-------|-------|----------|
|                    | 18–29 | 30–39 | 40–49 | 50–59 | 60 yrs + |
| Basic level        | 0     | 0     | 0     | 0     | 2        |
| Intermediate level | 1     | 2     | 0     | 1     | 2        |
| Higher level       | 1     | 2     | 1     | 0     | 0        |



Criteria for participation in the group: the age of 18 or above and earlier experience in the use of food supplements. A total of 12 individuals participated (3 men and 9 women) in the interviews. In the quantitative technique, online survey was used as the main primer method. The following table shows the definition of target population of the survey.

*Table 2. The definition of target population*

| Basic file (population)                                  | Unit of sampling | Geographical area   | Period of survey      | Sampling frame   |
|--|------------------|---------------------|-----------------------|--|
| The adult population of Hungary (women and men, 18 yrs+) | Individuals      | The area of Hungary | August-September 2014 | Predefined list of individuals (database with names and email addresses) |

280 survey were sent by email and 104 were successfully completed and returned. The response rate in adult men and women was 37,14% in the research. As a research tool a standardized questionnaire was applied. Questions were grouped around 4 main topics:

1. Attitudes toward health and healthy lifestyle.
2. Consumer judgement of the use of food supplements.
3. Consumption patterns of food supplements.
4. Factors influencing purchase decision; especially
  - quality;
  - information and
  - risks.

The applied sampling is convenience sampling, thus it may limits generalizability. The survey was carried out in August-September 2014, in Hungary. SPSS statistical softwer was used for data processing and MS EXCEL for presenting the results [3].

### 3. RESULTS

Participants in focus group interviews shared similar opinion about health and healthy lifestyle. Among factors influencing healthy lifestyle, participants emphasized the importance of healthy nutrition. They agreed that in healthy nutrition diversity is the key. Participants also agreed that there can be different situation in life when the use of food supplements is unavoidable.

Data from the survey results show that respondents feel health protection is rather important (4,58 average). It can also be seen from the results that consumers pay attention to the quality of food (3,97). They are willing to pay extra money in order to protect their health (3,67) and are willing to apply health care products (3,61). Respondents pay attention to their family nutrition moderately (3,06). Doing regular physical activity usually is not applicable to them (2,30).

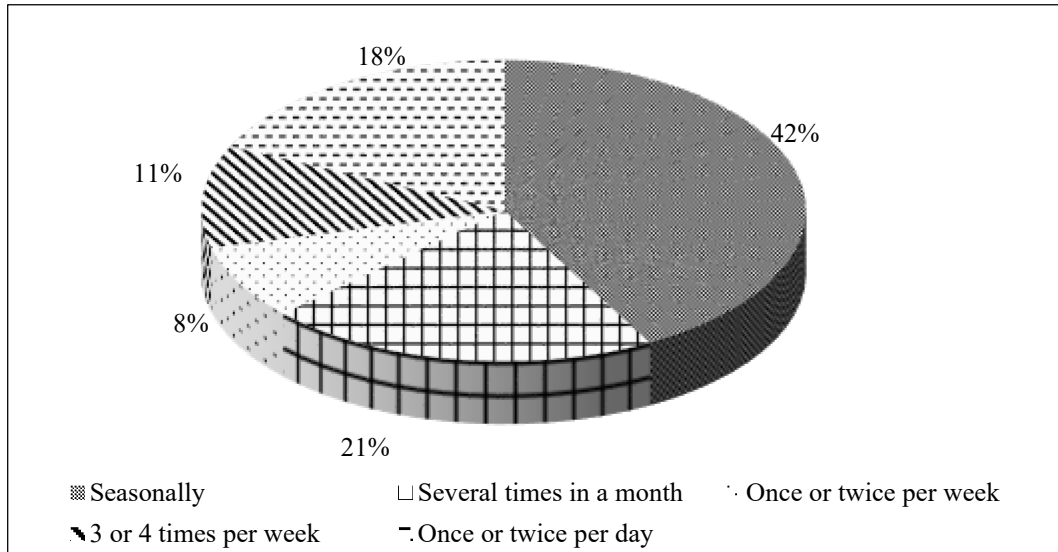
As for the motivation of food supplement consumption, the most frequent reason of consumption is vitamin intake, followed by health protection and than attractive appearance. Treatment of diseases and pregnancy were chosen less by the respondents.

In this paper, I studied the correlation between gender and the motivation factors and I found that 43,7% of women choosed health protection as their main motivation ( $p = 0,0$ ). Around 41% of men and 33% of



women chose vitamin intake as the reason of consumption. Attractive appearance was chosen by 19% of women and only 3% of men ( $p = 0,02$ ).

As for the consumption patterns of food supplements, most of the respondents use food supplements seasonally (42%), followed by the customers who consume such kind of products several times in a month (21%). 18% of respondents use the products daily and 11% consume food supplements relatively frequently (3 or four times in a week). Finally, 8% of customers use them once or twice in a week (Fig. 2.).



*Figure 2. Frequency of consumption of food supplements, percent (n=104)*

I examined whether there is a relationship between the different motivation factors and the frequency of consumption. I found that there is a significant relationship between health protection and the frequency of consumption: those customers, who have chosen health protection as a main motivation, they tend to consume food supplements more frequently: once or twice per day (18%), several times per month (21%) and 3 or 4 times per week (11%). Those customers who consume food supplements for the reason of vitamin intake consume these products seasonally; whereas those customers who want to be attractive use the products once or twice per day.

Among factors influencing customer decision making, experience in earlier food supplement consumption received the highest value (4,30), followed by quality (4,28) and price (4,02). Other influencing factors, such as function, manufacturer, safety, taste or brand affect consumer behavior less (Fig. 3.)

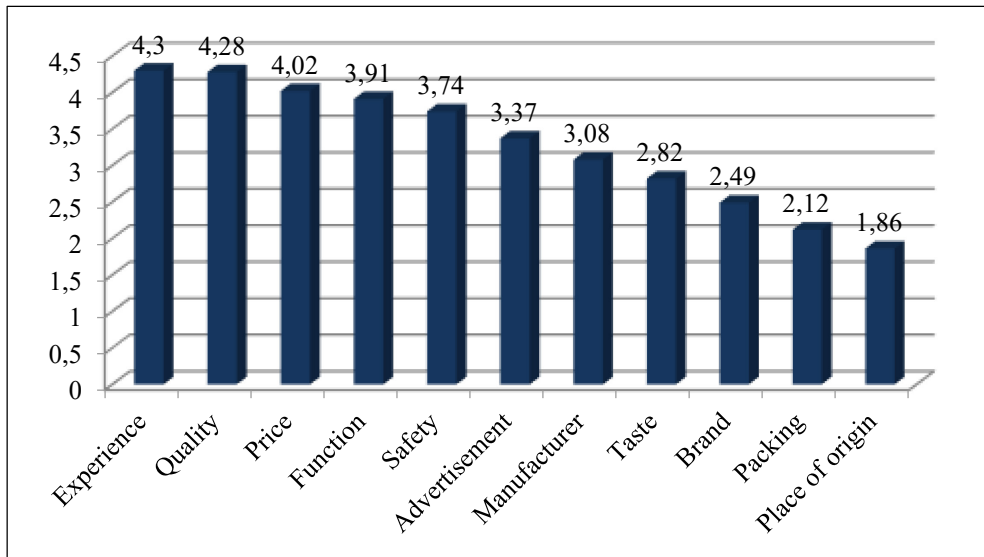


Figure 3. Factors influencing food supplement consumption on 1-5 range scale, based on the average of the answers, (n=104)

Fig. 4. shows the most important sources of information. Respondents believe that the opinion of healthcare professionals (doctors, pharmacists) is the most authentic source of information, followed by sales persons, and then articles and tv/radio programmes connected to the topic. Customers obtain information from the acquaintances moderately. Examining the question on basis of gender, 94% of women and 56% of men listen to health care professionals completely. Whereas, 44% of men and only 3% of women mostly accept doctor's and pharmacist's advice.

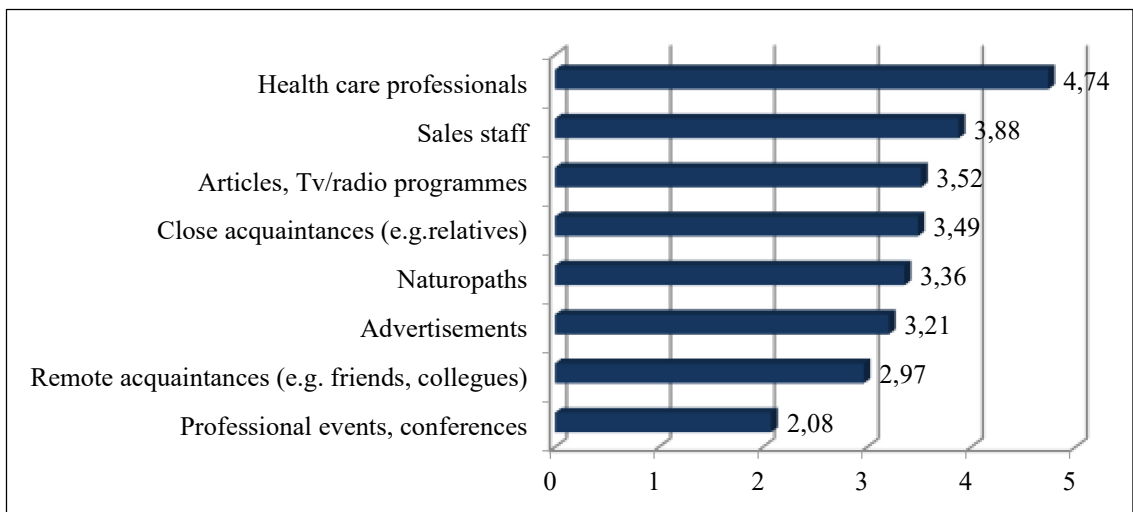


Figure 4. The most important sources of information in the case of food supplements, based on the average of the answers, (n=104)

In the research I examined how customers judge the characteristics of food supplements. To measure respondents' attitude, a five point Likert-scale was applied, where "1" means customers strongly disagree



with the particular statement and "5" means they strongly agree with the statement. Statements that have received the highest values are as follows:

Food supplements can be purchased without a prescription (4,63), they play an important role in disease prevention (4,59), they must be applied in specific doses (4,50), they supply improper diet (4,34). Since respondents had to assess 12 possible answers at this question, in data processing my aim was to reduce the number of statements for easier legibility (Tab. 3.)

*Table 3. Name and contents of the factors, Rotated Component Matrix*

| Name of the factor                      | Factor statement  | Component |       |       |       |       |
|---|---|-----------|-------|-------|-------|-------|
|   |   | 1         | 2     | 3     | 4     | 5     |
| F1 – consideration of health protection | K5_1. Food supplements supply improper diet.                    | 0,77      | -0,10 | -0,02 | -0,04 | 0,03  |
|   | K5_2. They play an important role in prevention of diseases.    | 0,72      | 0,29  | 0,17  | 0,04  | 0,14  |
|   | K5_4. They can be purchased without a prescription.             | 0,56      | 0,18  | 0,45  | 0,00  | -0,05 |
| F2 – factors of uncertainty             | K5_7. A lot of information is required for their use.           | -0,21     | 0,75  | -0,06 | -0,19 | 0,20  |
|   | K5_8. There is no need for a permission for their distribution. | 0,15      | 0,74  | 0,29  | 0,11  | -0,03 |
|   | K5_12. Their unnecessary use can be dangerous.                  | 0,32      | 0,68  | 0,04  | 0,09  | -0,23 |
| F3 – knowledge of ingredients           | K5_5. They might interact with other medicines.                 | 0,00      | 0,01  | 0,84  | -0,11 | -0,24 |
|   | K5_6. They contain natural ingredients only.                    | 0,32      | 0,28  | 0,61  | 0,25  | 0,37  |
| F4 – importance of dosage               | K5_9. They can be used without a doctor's supervision.          | 0,06      | -0,12 | -0,08 | 0,74  | 0,35  |
|   | K5_11. They have to be used in specific doses.                  | 0,40      | 0,42  | -0,10 | 0,63  | -0,26 |
|   | K5_10. Food supplements are costly.                             | -0,42     | 0,00  | 0,12  | 0,60  | -0,06 |
| F5 – perception of necessity            | K5_3. Everybody needs food supplements.                         | 0,08      | -0,02 | -0,12 | 0,07  | 0,85  |

I have classified the respondents into homogenous groups by the means of the variables that were generated during factor analysis. 104 cases could be included in the analysis. Clusters contain 24, 40, 12, 28 elements respectively in a 4-cluster-solution (Fig. 5).



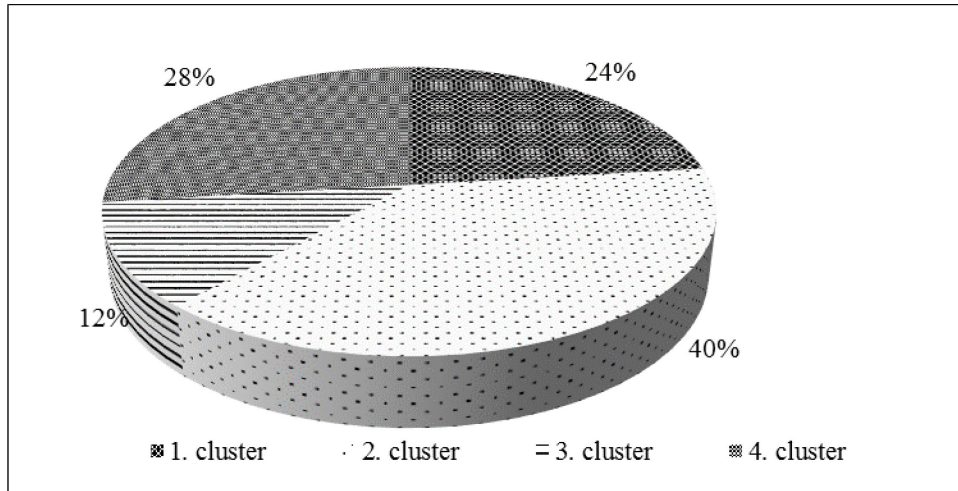


Figure 5. Distribution of respondents in the four cluster, percent

The clusters were characterized by the analysis of clustercentroids, i.e. I defined the average of the factor within each group and I have made our consequencies to the specic group. In the case of each segment, the elements of marketing-mix have been identified. I have characterised the generated groups by demograpfic variables as well. Based on chi-square test, I studied the relationship between cluster membership and the following variables:

- gender ( $P=0,004$ ): significant
- age ( $p=0,11$ ): no significant
- qualification ( $p=0,0$ ): significant
- location ( $p=0,281$ ): no significant
- marital status ( $p=0,173$ ): no significant relationship.

In summary, the four consumer segments in the food supplement market can be described as follows:

Cluster 1 – the segment of *Comfortable* customers contain those customers, who consider health protection very important, but who are tend to do less in order to protect their health. On the other hand, they are willingly use alternative health products. Customers of this group believe that everybody needs to consume food supplements. Most of them are women (80%); mainly from the young age groups. The main motivation for them is health protection. Attractive appearance is another imortant motivation factor in this segment. In the consumption of food supplements, they are afraid the most that the product is not of a proper quality and they might overuse them. In order to avoid the risks, they usually choose those products that have already been tried by themselves or by their relatives and friends. One of the main characteristics of this cluster is that customers listen to their close or distant acquaintences' opinion.

Cluster 2 – Customers, belonging to the segments of *Skeptics*, think that their health is important, but - unlike Comfortable customers - they live a more active life; however they tend to use alternative therapies less. Skeptic customers answered negatively to the questions regarding to health protection as well as safety. They considered the importance of necessity of food supplements negatively. In this group, men can be found mainly (65%), who are mostly over the age of 40. They purchase food supplements in order to vitamin supplements mostly. Customers of the segment are afraid that food supplements might cause allergy.

Cluster 3 – the members of *Careful users* seem to be rather careful in the usage of food supplements. It is very important for them to use these products carefully: they read the instructions and dosage thoroughly, They take it into account that food supplements might interact with medicines. Their knowledge of



ingredients is high. Gender ratio is well-balanced in this cluster. Consumers of this group have low income usually. The members of the group consume food supplements for the reason of vitamin intake mainly.

Cluster 4 – *Conscious Health Protectors* attach high importance to health protection: among all groups, they are most willing to act for the favour of their health: they do sports regularly; they pay attention to their own and their family members' health, and they tend to use alternative health products more than the consumers of the other groups. These are the customers who are less afraid of the risks associated with the usage of food supplements, than the members of other segments and also, they are most willing to spend money in order to protect their health. The main motivation for them is protection of their health. Gender ratio is well-balanced in this groups as well; members are usually middle-aged (30–50). In this cluster, consumers have usually high income and high qualification.

#### 4. DISCUSSION

Based on the characteristics of the clusters and taking the elements of marketing-mix into account, I recommend the following marketing strategy considering each group:

Comfortable customers: at this segment it is advisable to draw customers' attention how important it is to actively take part in the protection of their health.

Skeptics: marketing strategy should convince customers - even with the help of a health care professional, such as doctors and pharmacists - about how food supplements can contribute to their health and the prevention of diseases.

Careful users: companies must win the trust of these customers and have to give more detailed information on the products: either by developing proper instructions, either by the training of health care professionals. Regarding to the fact that members of this group can be influenced by advertisements and customers often obtain information from magazine articles and TV programmes connected to the topic, companies should use these tools to send their messages to the customers. In marketing communication messages should emphasize safety. On the other hand, members of this group are price-sensitive and this means that discounts also could draw customers' attention to the products.

Conscious health protectors: have a wide range of knowledge on health care topics and they believe it is important to be active in order to protect their health. For these customers, quality is extremely important, thus the main aim in defining the right marketing strategy could be developing products with high quality. High quality should be emphasize in communication. Since, members obtain high educational level and income, their expectation toward food supplements may be high as well. Therefore, it is advisable to pay attention to other characteristics of the products: such as packing. With the extension of selection (producing different tastes) companies could increase their turnover in this segment.

Although the present study has some limitations. The sample is not representative and it is not randomly drawn. However, the research can still help companies to understand consumers habits and attitudes toward food supplements. Findings can also improve the innovation of new products that suit better to costumers' unique needs The results can also give a good base for the conduction of a further, advanced level of research.

As for further research, I recommend to conduct the research again on a much bigger sample size, in order to notice any relations with other demographic variables as well. In the meantime, it can be observed how consumers attitude have changed over time.

#### 5. CONCLUSIONS

I conclude that in the healthcare market (and, in the food supplement market as well) it can be observed that customers are becoming more health-conscious and they choose carefully the food that they eat. This observation is supported by the results of the literature and my primary research as well. Consumers of food supplements are motivated by different reasons and they attach different degrees of importance to the roles of these products. In summary, segmentation is the technique that can help businesses to define the





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right marketing strategy in order to succeed among the strong competition relations of food supplement market.

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