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**FACTORS AFFECTING CONSUMERS DIETARY SUPPLEMENT  
BUYING PROCESS AMONG TALTECH STUDENTS**

Bachelor's thesis

Programme International business administration, specialisation Marketing

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Tallinn 2019

I hereby declare that I have compiled the paper independently and all works, important standpoints and data by other authors has been properly referenced and the same paper has not been previously presented for grading. The document length is 75670 words from the introduction to the end of conclusion.

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## **ABSTRACT**

This study aims to bring out the most dominant factors that affect the buyer to help marketers predict and shape the consumer's buying decision when it comes to consuming dietary supplements. The author also wants to break down the influential elements of deciding between dietary supplements to form a more precise understanding. This thesis is carried out with the help of quantitative research. An online survey was created to distribute it more efficiently and reach more people. The sample consisted of 106 randomly chosen TalTech students.

The problem of the study is that there is not enough research on the influential factors and the level of their affection when it comes to purchasing and consuming dietary supplements. The study discovered that people with higher nutritional or medical education are the ones that consumers trust. The people who believed that doctors are a trustable source of information also trusted the knowledge gotten from nutritionists. Doctors came out to be the most trustworthy for consumers. The author also reveals a nuance which is usual to this particular sample is that because of mostly a low salary there is a big correlation between discounts and the product price when it comes to picking a dietary supplement.

Keywords: dietary supplements, influential factors, decision-making process.

## **INTRODUCTION**

People consume dietary supplements for various reasons. Some of them would like to better their health by eliminating vitamin or mineral deficits; others want to prevent possible illnesses or dodge possible side effects that pharmaceuticals might bring. The consumption of dietary supplements increases every day as the supplements themselves get more trustworthy and competent. The food supplement market is enormous and very crowded, meaning that it is hard for marketers and businesses to be ahead of their competition if they do not know all of the nuances (Heinsalu 2017).

The problem of the study is that there is not enough research on the influential factors and the level of their affection when it comes to purchasing and consuming dietary supplements. This information is crucial when it comes to choosing a marketing strategy for nutritional supplements and understanding the targeted consumer; marketers must know the factors that influence their target audience the most.

This study aims to bring out the most dominant factors that affect the buyer to help marketers predict and shape the consumer's buying decision. The author also wants to break the elements down to form a more precise understanding. Knowing the factors gives more insight for brands and marketers from the consumer's viewpoint. This thesis was carried out with the help of quantitative research. An online survey was created to distribute it more efficiently and reach more people. The questionnaire started with determining whether the respondent had ever consumed dietary supplements or not. Then it continued with finding out the motives for such act and finding the level of affection in different influential factors. The sample consisted of 106 students from TalTech chosen randomly.

The author has divided this research into two parts. The first chapter is divided into three subchapters and explains the background and theory of consumer behaviour, the factors that affect it. It also talks about what dietary supplements are, its statistics and motives for consumption. The second part continues by explaining the research method and unfolding the results received from the questionnaire. In the end, the author discusses the results and gives suggestions for further studies to explore this field even more deeply.

# **1. THEORETICAL REVIEW OF CONSUMER BEHAVIOR AND THE FACTORS AFFECTING IT**

Consumers make lots of purchasing decisions every day. The marketer's efforts focal point is the consumers buying decision. Studying consumer buying decisions thoroughly is vital for many substantial companies to understand what, where, how and how much the consumers buy when they buy, and why they buy. Marketers examine consumer acquires to determine their preferences. However, framing the whys of consumer buying behaviour is not so simple as the answers are frequently hiding deep within the consumer (Kotler & Armstrong 2011, 134). The next chapter will bring out the theory of consumer behaviour, the factors that affect and shape it and some motives why consumers usually take dietary supplements.

## **1.1. Basis of consumer behavior**

Before the consumers make an actual purchase, they go through a five-stage decision-making process. Throughout these steps, the consumer finds the need, collects needed information, assesses options and then makes the settlement. Post-purchase behaviour shows the consumer's evaluation after the product or service has been used before that is the actual purchase itself (Colman 1989).

Kotler and Armstrong's research proposes that a routine purchase can be made so that few stages are left out. This is different from a new product or service purchase decision, every stage shown in Figure 1 is triggered, and none are skipped in order to finish the acquiring process. Before the consumer starts making any decisions, they have to recognise the need for something. There are some need recognition classification types (Kotler & Armstrong 2010, 177).

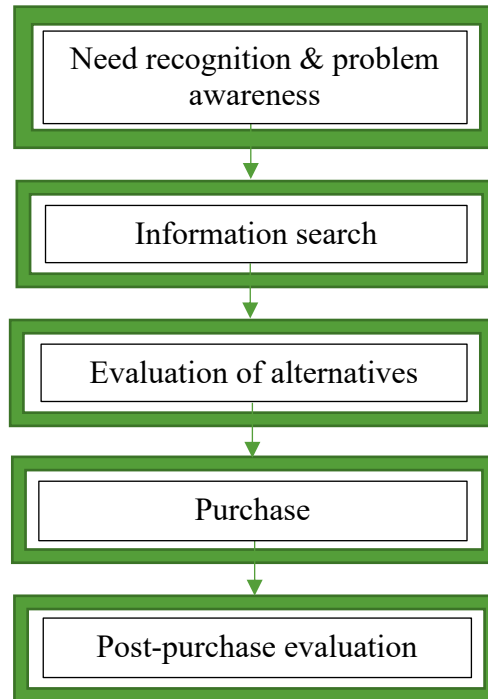


Figure 1. Buyer's decision making model  
Source: (Riley 2012)

On the first stage, internal or external stimuli trigger the consumer's recognition of needs or problems. Thirst and dry mouth make consumers buy water, which is an emotional stimulus and everyone's primary need. An advertisement that makes the customer interested in something triggers the external stimuli (Kotler & Armstrong 2010, 178). This stage usually brings out the most significant difference between the present and desired stage. Marketers have the power to spark the recognition process even though it should happen by itself. Agents try to expose and recommend their product to the consumer instead of the one they would have picked. This way they steer and create the demand in their favour (Solomon 2004, 297).

The consumer starts digging for information about the product or service on the second stage. The amount of information needed about a product is very volatile, some products demand lots of knowledge and background search to evaluate the options, but others are bought right away (Solomon 2004, 299). There are various ways to obtain information, for example, searching on the internet, reading magazines, watching tv, talking to friends. Consumer's motivation determines the amount of searching done and satisfaction gotten. In today's world marketers provide potential consumers with a vast amount of information through advertisements. Nevertheless, family and friends are considered one of the essential sources out there. By receiving new information about

a brand, consumer's raise their awareness along the way. This acts as a natural selection which eliminates some brands during the process (Donovan 2010).

Possible alternatives are ranked after collecting an adequate amount of information. This process varies due to different consumer personalities and products. In some cases, an impulse purchase is made that is based just on intuition. This kind of purchases may be explained by a usual decision-making process, where very little information is collected. Diversely, some consumer may be conscientious during the information collection and decision making the stage as they are concentrated on their goal to solve a problem for them. Every consumer has a so-called evoked set during each different case, which are the choices that are evaluated during the picking stage. The set is formed by the brands that have made its way to the consumer's memory. Consumers always lean towards the evoked set, even if there are many alternatives to choose from (Solomon 2004, 305).

The purchase is made on the fourth stage of the process. This means that the consumer has already evaluated all available choices. Usually, the most likeable brand is chosen and acquired. Marketers and others around the consumer in some cases have enough power to change one's mind with their attitudes and beliefs about a specific brand (Kotler & Armstrong 2010, 179). In some cases, consumers make rash decisions in order to make the decision more comfortable and faster. This means leaving some stages behind. Usually, this happens when a small amount of problem-solving takes place. The shortcuts that may occur vary a lot. From believing that higher price tag means higher quality to imitating family habits and being loyal to the same brand. These rash decisions usually are not the best for the consumer as too little evaluation is done (Solomon 2004, 312).

The process does not stop with the purchase. Post-purchase behaviour is the last step of the whole decision-making process. In this stage, consumer's evaluate their satisfaction level which can be satisfaction or disappointment. Satisfaction occurs if all of the expectations match (Khan 2006, 168). This is the point where brands have a chance of winning loyal customers, as if the consumer is satisfied enough, they will repurchase the same brand in the future. An even better case is when the consumer's expectations are overreached (Kardes *et al.* 2011, 91).



## 1.2. Factors affecting consumer purchasing decision making

Consumer enquiries are affected strongly by cultural, social, personal, and psychological characteristics. Most marketers cannot control these factors, but they have to reckon them. A consumer has lots of differences, ranging from a small child pleading with her mother for candy to a Businessman in a vast company deciding on a costly computer system (Solomon *et al.* 2006, 33). Social, personal, cultural and psychological factors influence most of the consumer's purchasing decisions concerning goods or services as shown in Figure 2. As it is impossible to keep control of these factors, a marketer must keep them in mind (Kotler & Armstrong 2011, 135).

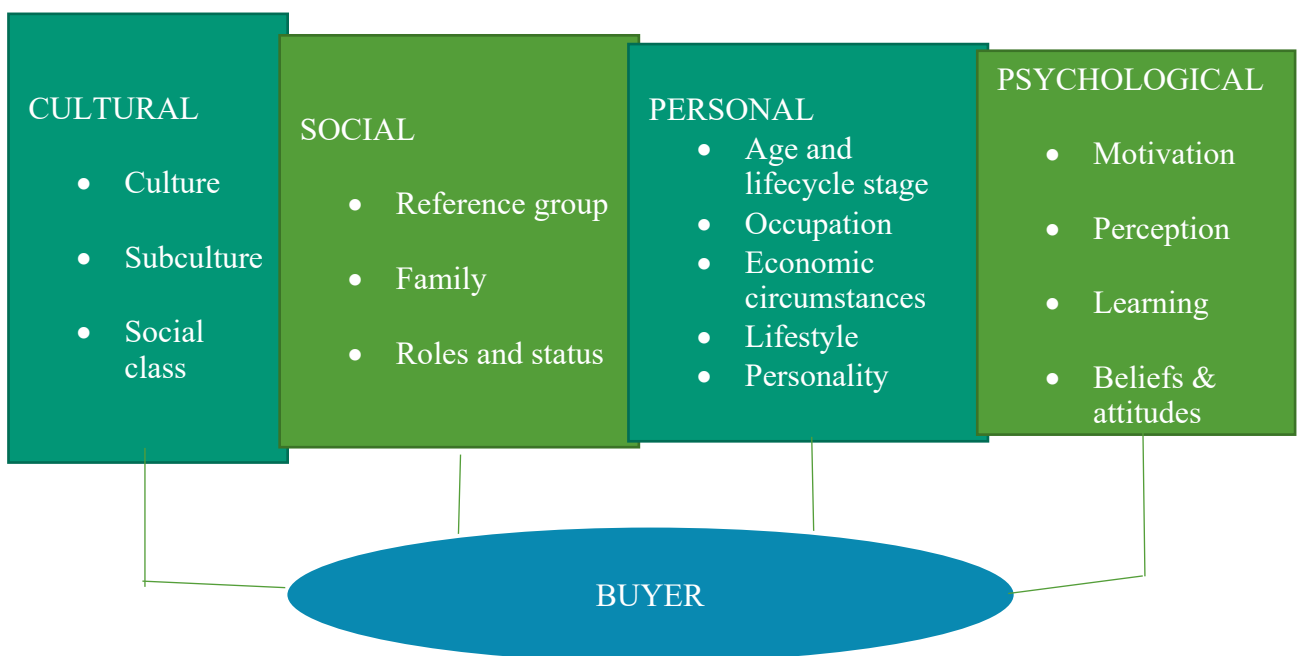


Figure 2. Factors Affecting Consumer Behaviour  
Source: (Kotler & Armstrong 2011, 135)

As mentioned before, it is not possible to always control all of the factors. Marketers have to find a way to use as many of them as possible.

### 1.2.1. Cultural factors

**Cultural factors** have a broad and profound impact on consumer behaviour. Marketers must understand the importance of the influential factors in the buyer's culture, subculture, and social class (Kotler & Armstrong 2011, 135). It also has an impact on the decision-making power within a family, and the decision-making leaders change in different parts of the world. For example, male dominance is more outdrawn in African cultures who might exercise their power in decision-making process more whereas in the western cultures men and woman are a lot more equal, and a

decision is made impartially, the probable reason being that both work and earn money to live together (Blyth 2005, 58).

It is also a must to spot the cultural shifts which can make room for marketers to launch new products that might be needed or trendy. In Muslim cultures, during the time of Ramadan, which is considered the Holy month, different companies release new products across the countries to add to their product line. The cultural shifts towards taking care of health and exercising more have created a trend in the exercise industry and healthier food suppliers (Kotler *et al.* 2005, 257).

**Culture** is the most fundamental reason for a person's wants and behaviour. Human behaviour is widely learned. Being brought up in a society, a child learns initial values, perceptions, wishes, and behaviours from his or her family and other essential foundations. Every country in the world has a different culture, and its impact on the consumer's buying behaviour may differ from each other. Marketers have to be extremely cautious in adapting the marketing campaigns according to the cultural differences in a specific part of the world to avoid misapplications (Donovan 2010).

**Sub-cultures** are inside every culture, or type of people with similar ethic systems based on shared life experiences and knowledge. Subcultures have nationalities, religions, races, traditions, and geographic regions. Many sub-cultures create significant market segments, and marketers mostly have to adapt product looks and marketing techniques specific to their needs. Asian American consumers as a group make purchases all the time and are one of the most brand-conscious people of all the racial groups (Kotler & Armstrong 2011, 137). In India where there are loads of sub-cultures, the cultural differences of people from south portray different ethics from people on the northern side of the country, and west differs from the east. Comparably, the Muslim of one part of the country shows a different level of interest from Hindu culture, all of it happening inside a country for a product or service. Marketers are creating or re-designing products according to the similar interest and framework of the people to get the needed results (Khan 2006, 29).

**Social class**, a set of people is sharing the similarities in wealth, occupation, income, education, and prestige, form an individual buying behaviour. In a group, the members have almost precisely the same ethics and purchasing habits for products and services (Khan 2006, 29). The people representing this class like to purchase similar brands and products such as technology, leisure, cars, clothing. Social classes are not classifying by a single factor, such as earnings, but is determined as a combination of a profession, income, education, affluence, and other variables. In some social environments, groups of different classes are locked in certain stereotypes and cannot

change their social position. This is different in the United States. The levels separating social classes are not overcome and rigid; people can climb to a higher social class or fall into a lower one. Marketers keep an eye on social classes as it makes targeting people with a similar marketing strategy easier based on their standard behaviour (Kotler & Armstrong 2011, 139).

### **1.2.2. Social factors**

**Reference groups**, as we see educational institutions, churches, clubs, cinemas, friends in our surroundings they all act as a reference group. The surroundings create the consumer's mind by shaping the perception or behaviour of the consumer (Burnett 2008, 86). Consumers can frequently be influenced by reference groups they have nothing in common. For example, a young basketball player is aspiring to play in the American National Basketball Association in the future. This is the reference group where the individual wishes to but do not belong. Marketing people work hard on determining the reference groups they have to target in order to penetrate the market. Belonging to a reference group reveals consumers to a new lifestyle. It also influences their self-concept and attitudes which creates pressure to match something that influences the person's brand and product choice. As products and brands have a big range of differences, so does the group influence in them. If the product is visible to people the consumer respects, the group influence tends to be a lot stronger (Donovan 2010).

**Family members** are the most effective social group in influencing consumer behaviour and perception. In a family, all the traditions, perceptions and attitudes are learnt as a child and later adapted to the right part of life and set off various kind of behaviour and perception patterns in different situations (Khan 2006, 30). It has been researched deeply that family is the most influential organisation in society. Marketing people are incredibly interested in the level of influence of different roles in the family, as husband, wife and children when it comes to buying various services and products (Kotler & Armstrong 2011, 141).

**Role and status**, meaning that people can fit many social groups like family, religion, organisation, political preference, social media communities, each of these groups shows a little about the individual in terms of their status and role in the society. The role gives a person a particular way they are expected to perform in their surroundings (Kotler *et al.* 2005, 297). A role can be explained as the expected behaviour of an individual in a specific environment. Society gives each role a status which shows the given overall esteem. Services and products are mainly chosen by taking their role and status into consideration. For example, a working mother plays many different roles. At work he plays the role of a company leader; at home, he plays the role of a husband and father;

at his favourite artist's concert, he plays the role of a fan. As a company leader, he purchases the kind of clothes that show his status and role in the company and society (Rani 2014).

### 1.2.3. Personal factors

**Personal factors** are unique to every individual, as they are the ones that strongly influence consumers buying behaviour through personal characteristics. These factors change between people and are seldom the same. This means that everyone has perceptions, attitudes, and behaviour towards products and services that vary (Business Jargons, 2018).

**Age and lifecycle stage**, meaning that time and environmental conditions re-form consumers buying preferences. Changes are made because of the life-cycle. Differences in clothing, furniture, recreation, and taste in food occur (Kotler *et al.* 2005, 263). Many of these changes are often age-related. They also depend on the stage in one's life-cycle. These changes usually happen due to life-changing events or demographics – marriage, expansion of the family, moving, getting divorced, changes in income and occupation. Marketers develop a different strategy and product for each life-cycle as the buying behaviour changes (Kotler & Armstrong 2011,145).

**Occupation** shows the purchasing power of the consumer and forms a purchasing pattern for services and products. In some cases, the estimation of the purchasing power of individual consumers is determined by one's occupation and its prestige to know the individuals worth (Solomon *et al.* 2006, 438). Occupation plays a huge role and has a significant influence on the services and goods purchased. For example, white collar executives purchase a lot more suits than the people that have a real job. Marketers need to find out the occupational groups that might have the most significant interest and need in their products or services. The products can even be specially made for that group. For example rugged clothes for mechanics which has the needed pockets and durability to complete all the jobs (Rani 2014).

**Economic circumstances**, meaning that the wealth distribution in societies is essential for marketers and social scientists. This helps them in determining the best social class for a particular product as the market potential and purchasing power play a significant role there (Solomon *et al.* 2006, 438). Economic circumstances also affect the consumer's product or brand choice. Many companies have started redesigning, repositioning and repricing their products due to recessions. Bringing an example from the target, affordable has taken over chic. Meaning that people are more price oriented (Kotler & Armstrong 2011, 146).

**Lifestyle** is the way of living for an individual which can be evaluated by interests, activities, and perceptions. It consists of more than just the social class and personality; it gives a real picture of a person's role in society (Kotler *et al.* 2005, 265). Entirely different lifestyles can occur even when consumers come from similar or same subcultures, social class or job. Every person has their pattern which comes out of their psychographics. AIO dimensions are measured for that – perceptions (products, about politics, conflicts), attentivenesses (trends, foods, art, music) and activity (occupation, hobby, events, sports). Lifestyle holds a lot more than just the consumer's personality and social class. It shows a line of the consumer's behaviour and actions. A lifestyle concept is a valuable tool for marketers for seeing trends and changes in consumer values and the effect on purchasing behaviour (Asp 1999, 190).

**Personality** is unique to every person. There are many differences in persons traits and behaviour. They cannot be the same even between two people, even though many studies have been done in that field (Burnett 2008, 89). Consumers often find similarities between there and the brand's personalities and choose based on that. The brand's personality has traits of the targeted consumer to capture their interest. A researcher found out five personality traits of a brand: sincerity, excitement, competence, sophistication, and durability. It is usual for the brands to have one main trait associated with them (Kotler & Armstrong 2011, 146-147).

#### 1.2.4. Psychological factors

**Psychological**, meaning that factors like perception, motivation, beliefs, learning, and attitudes have a powerful impact on consumer's psychology and behaviour (Business Jargons, 2018).

**Motivation**, meaning that different needs and necessities may arise in life, which may appear with a specific state like discomfort, hunger or exhaustion. There are also a few psychological needs like belonging, self-esteem and recognition which can come out. When the intensity of desire to get something rise to a sufficient level, it originates the motive, which needs pressing a person mentally to quench the satisfaction. Depending on the level of one's desire, motives will arise which force the person towards acting in such a way that fulfils their satisfaction metrics. Extensive motivation researches are carried out by scientists. Abraham Maslow pursued to find out the reason why people have a particular need for things at certain times. Figure 3. Shows Maslow's theory that human needs can be ordered in a hierarchy, from the most needed in the lower part and least needed in the top part. It holds esteem needs, self-actualisation needs, safety needs, physiological needs, social needs and esteem needs. People strive to satisfy the lower part needs first. After the need gets satisfied, it is eliminated in motivation (Kotler & Armstrong 2011, 147-148).

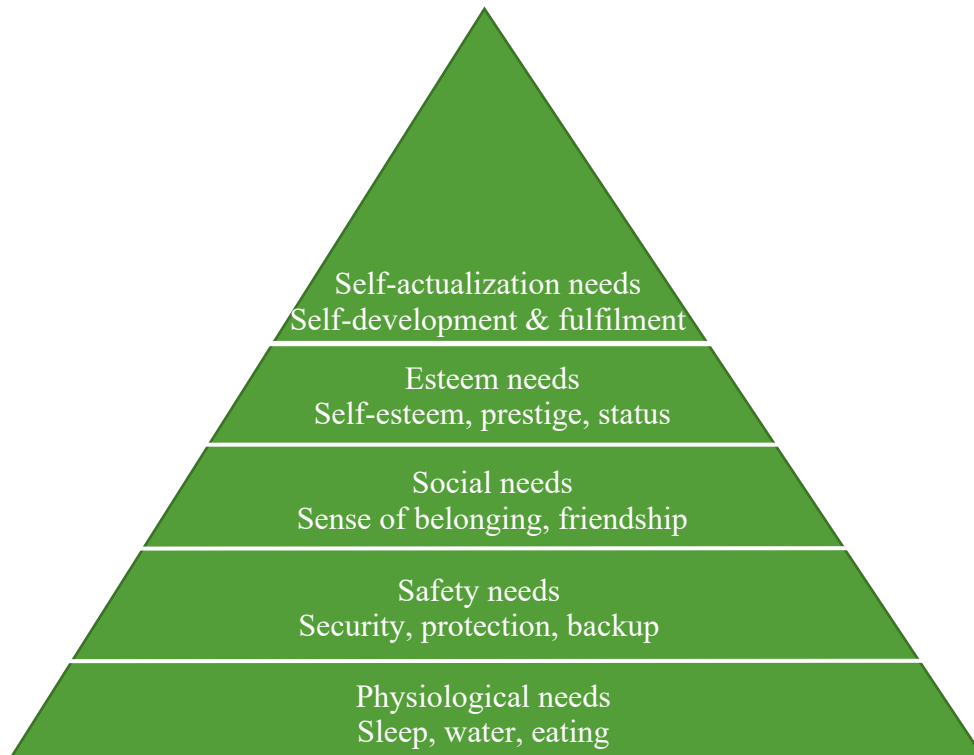


Figure 3. Maslow's Hierarchy of Needs  
Source: (Maslow 1954, 78)

**Perceptions**, meaning that everyone's view and actions towards a situation differently and are affected, even though their motivation could be very similar. With unidentical perceptions, the answers will most probably differ too (Kotler *et al.* 2005, 273). Their perception of a situation influences the action of the person. Everything is learnt via five human senses: hearing, sight, touch, smell, taste and hearing. Even though these senses are familiar to everyone, people receive, organise and interpret this kind of sensory information in their way. This creates a meaningful picture of the world for everyone. One stimulus may form various perceptions due to the three perceptual processes: selective attention, selective distortion, and selective retention. Each day lots of stimuli affect people, and it is impossible to pay attention to all of them. Marketers are mostly worried about whether their offer speaks in the right way to the consumer, but on the other hand, the consumer fears that he or she could be affected by the marketing campaign un-self-consciously (Donovan 2010).

**Learning** changes consumer's behaviour as significant changes are made through previous experience. Learning is triggered by the inner motivation of response, reinforcement, stimuli, drives and cues (Kotler & Armstrong 2011, 149).

**Beliefs and attitudes** are active influencers on consumer's buying behaviour. This is done through learning, experiencing and thinking, which shapes their attitudes and beliefs. Image of a brand or a product in the consumer's mind can arise from opinions, real experience, which could also hold some emotions in it. Marketers look for beliefs that consumers formulate by themselves about specific services or products. These perceptions are important because they formulate the brand image that affects consumers buying behaviour. If it comes out that some of the beliefs are not correct, the marketers will try to launch a new campaign in order to correct this misperception (Kotler & Armstrong 2005, 274).

### **1.3. Dietary supplements and previous researches about its consumption motives**

**Dietary supplements** are the distilled sources of vitamins, extracts, minerals or other substances that result in a physiological or nutritional impact. They are distributed in suggested amount or dose forms for example in capsules, soft gels, tablets or liquids. A wide spectre of ingredients and nutrients can be present in dietary supplements, like minerals, vitamins, fatty acids, amino acids, all kinds of concentrates. Dietary supplements are meant to improve nutritional shortfalls, support an adequate intake of declarable nutrients, or to favour specific physiological functions. They do not act as medicinal goods, and this way cannot exert a pharmacological, immunological or metabolic action. Therefore they are not meant to be used to prevent or treat any disease in humans or to change physiological functions (Efsa 2018).

European Union controls, foods the same way as dietary supplements. The coordinated law manages the source substances which are used during manufacturing the vitamins and minerals. There might be some health risks and unfavourable effects on the consumer's health from some ingredients. The European Commission tries to protect people from possible health risks and has created a list of harmful substances. (Efsa 2018).

**The motive** to take dietary supplements is widely spread in the general population. Year by year there are more food supplements brought to the market or manufactured in Estonia. In the year of 2016 solely a 1000 products were brought to the market. Research with a sample of 3747 Estonians was made, which showed that about 30% of the respondents were active dietary supplement users. (Heinsalu 2017). The causes of using supplements are mostly quite complex. Scientists have found that it combines social, economic, knowledge and psychological factors (de Jong *et al.* 2003, 278). In today's world, alternative medicine in the health and lifestyle field is getting researched more

thoroughly. This also increases the usage of dietary supplements. Each consumer has its supplement preferences: some foods and nutritional trends (Ritchie 2007, 479-480), a product or substance (de Jong *et al.* 2003, 278), perceptions and interests for naturally grown ingredients (Rozin *et al.* 2004, 149), the belief in the effectiveness of the product or substance (de Jong *et al.* 2003, 278) and health outcome that the consumer believes in achieving after consumption (Conner *et al.* 2001).

In various countries in the European Union, the general use of dietary supplements volatates near 15-20% (de Jong *et al.* 2003, 275). Nutritional supplements may add to a healthy diet and act as a needed source of nutrition to stay in full health. A part of the population which is at risk of minor deficit in nutrients can find dietary supplements as a critical origin of their nutrients (Schwarzpaul *et al.* 2006,). A few studies have shown that taking multivitamins has been connected with a smaller chance of chronic diseases (Holmquist *et al.* 2003). For example for folic acid's, the advantage is preventing neural-tube faults that may occur (Pitkin 2007). There is also a shadier side to taking vitamin and mineral supplements. Some adverse effects might occur due to overdosed intake (Coppens *et al.* 2006). It has been found that dietary supplement users can usually be the ones who least need to consume them. As dietary supplement consumers monitor their health and diet enough, they eat more fruits and vegetables than a non-supplement consumer who already sets them off at a better point (Murphy *et al.* 2007). Dietary supplement consumers also tend to have healthier lifestyles which mean that they are more physically active and probably do not smoke (Kim *et al.* 2010). A popular opinion among adult dietary supplement consumers is that taking them contributes to overall wellbeing, improves health, raises energy levels and prevents illnesses (NIH State-of-the-Science Panel 2006). Some earlier studies show that supplements are often taken to compensate for the intake deficit of vitamins and improve an unhealthy or unbalanced lifestyle (Touvier *et al.* 2005). 48% of dietary supplement users believe that this is a more natural way to improve one's health (de Jong *et al.* 2003).

A socio-demographic outline of dietary supplement users was brought out in some late researches: Woman, mature and knowledgeable and ready to take action to better her health (Beitz *et al.* 2004). The economic and marketing literature has very little evidence about dietary supplement consumers outlines and intentions for use, even though the Italian consumption of food supplements shows some essential figures (Giammarioli *et al.* 2013).



## **2. A QUANTITATIVE RESEARCH ABOUT THE FACTORS AFFECTING CONSUMERS DIETARY SUPPLEMENT BUYING PROCESS**

This chapter will explain the research method used for creating this study and other details about it. Here the author will also bring out the results of the research, discuss them and give some suggestions for further studies.

### **2.1. Research method**

The study employed a quantitative research method. The questionnaire was created via Google forms and distributed through social media; the author chose this option because of its time and resource saving benefits. This form also enabled respondents to preserve total anonymity. The questionnaire was conducted and distributed in Estonian and English. The sampling technique targeted TalTech students, but as not every student had the chance to answer the author's questionnaire, this leads to the fact that the sample of this study is not representative. The author chose a convenience sampling method which means distributing the survey to the most accessible TalTech students for him. The author decides the freely available population during a convenience or random sampling. Readily available people were the sources of data collection. This sampling method and outcome can hardly be generalised, which is the shortcoming of it.

The questions in the form relied on the theory of consumer purchasing behaviour and the factors affecting it. The survey form held multiple choice questions, and in many cases, the respondent was able to choose between a range of numerical answers from totally agree to disagree which determined their mindset and opinion. These questions were made and analysed with the help of a Likert scale. The objective was to investigate the consumer's most influential factors that affect the decision-making process concerning buying dietary supplements. The respondents had to choose between given alternatives and indicate the variant which characterised their behaviour the most. The questions try to bring out the influential primary factors in the buying process and their triggers or sources. They were ranging from whether the respondent has ever consumed dietary

supplements to motivation source for taking nutritional supplements and their principal and most trusted information sources although these answers can be questioned as this is unclear if the respondent can evaluate themselves objectively enough to give a maximally truthful answer.

Question number one determined whether the respondent was consuming dietary supplements or not. From this, a separation was made. The respondents who answered negatively were directed to the second question which investigated the cause of such answer and behaviour. After which demographic data collection followed with issues from number 8 to 10 that concerned age, gender and income. The respondents who answered the first question positively were directed to the third question to determine the reason and cause of taking dietary supplements which is the exact opposite to the question asked from the negative respondents. Items from 4 to 7 were Likert scale and gave the respondent an option to express their attitude and show the importance of the factors that may influence their purchasing decisions and what is their impact on the respondent himself. After these questions, the demographic data collection proceeded.

A total sample of 106 responses was collected. From the respondents, 52% were women and 45% men. Meaning that women consume dietary supplements a little more, which confirms the research made before in Estonia. A tiny portion, 3% preferred not to reveal their gender. These results show that no gender was dominating. Next, the author is going to bring out of his study the age distribution between the respondents, also shown in Figure 4.

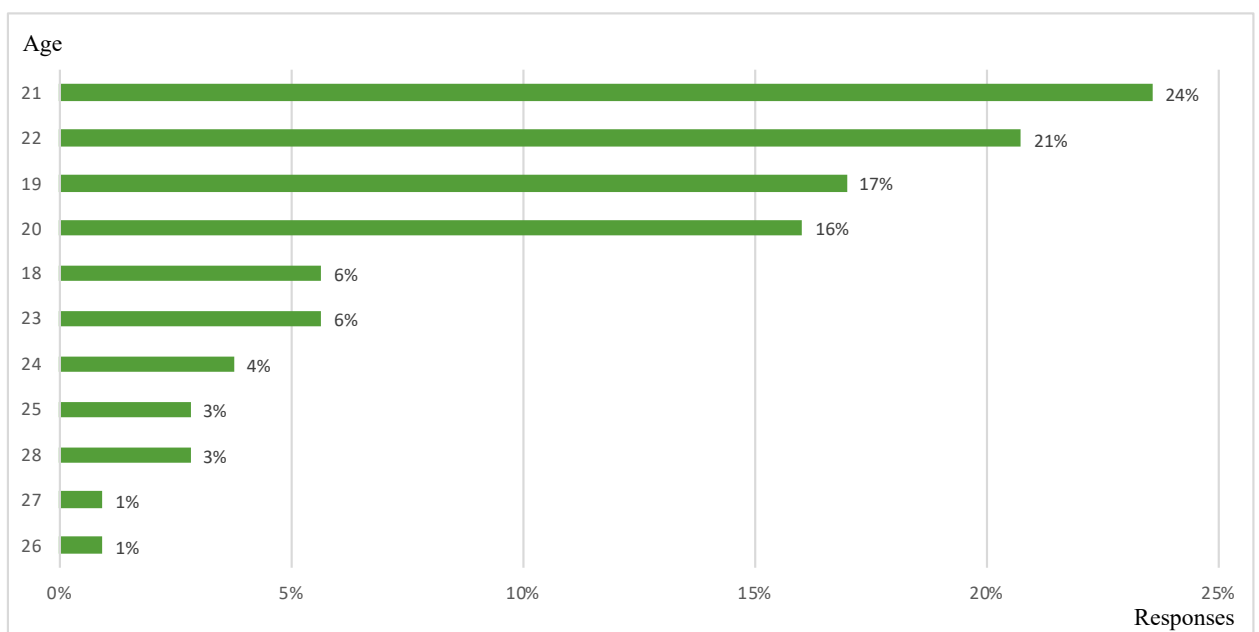


Figure 4. Summary of the respondents ages (n=106)

Source: Authors calculations, Appendix 1

The leading age group for the respondents was 19-22 (82 responses) as shown in Figure 4. The ages were distributed as follows: 21 year old's (25 answers), 22 year old's (22 replies), 19 year old's (18 responses), 20 year old's (17 responses), 18 year old's (6 responses), 23 year old's (6 answers), 24 year old's (4 replies), 25 year old's (3 responses), 28 year old's (3 responses), 27 year old (1 response) and 26 year old (1 reply). As the percentage of respondents' age ranges is quite different, the research results do not include results by age.

The most significant amount (36) of respondents had a monthly net salary under €500 which quite well explains the sample. As university students usually have part-time and rather low paying jobs to have time for their studies. The number continued declining as 24 people answered a 501-800 net salary, 801-1000 was responded by 21 people, 1001-1300 was acknowledged by 19, 1301-2000 by 5 and over 2000 net pay was picked only by one respondent. The author predicts that the salaries rise with the respondents year in school and degree, meaning that a third-year student most probably earns more than the first year student and the master's student receives more than the bachelor degree student.

The author also asked the respondents about their salary. The summary is shown in Figure 5.

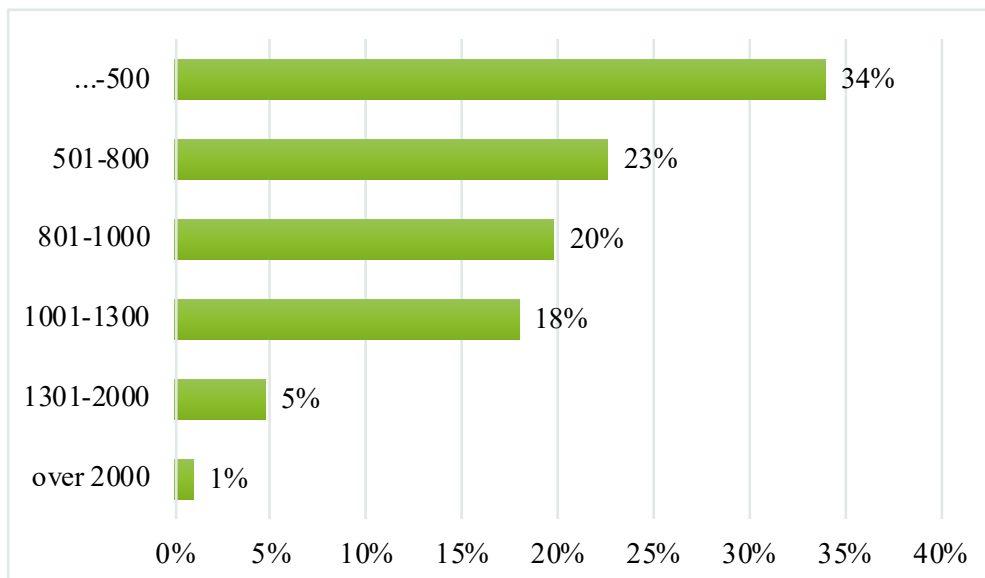


Figure 5. Summary of the respondents monthly net salary in euros (n=106)

Source: Authors calculations, Appendix 1

The monthly net salaries of the respondents are illustrated in Figure 4 to give a better understanding of the sample. Each line shows the number of respondents that earn the selected salary, as the average net salary in Estonia is roughly €950; most of the respondents earn less than that.

## 2.2. Results of the research

This chapter tries to analyse and explain the outcomes of the survey starting from the first question which determined whether the respondent had ever consumed/purchased dietary supplements. The results mirrored that most of the respondents from this sample group had consumed/purchased dietary supplement before, namely 72%. This result is strong compared to the opposite answer being the respondents who have never dealt with food supplements; 28% of the respondents picked this answer.

The respondents who gave a negative answer to the first question were directed to the second question to determine the cause of such behaviour. They were given a multiple choice question to express their attitude or purpose of such act which is also shown in Figure 6.

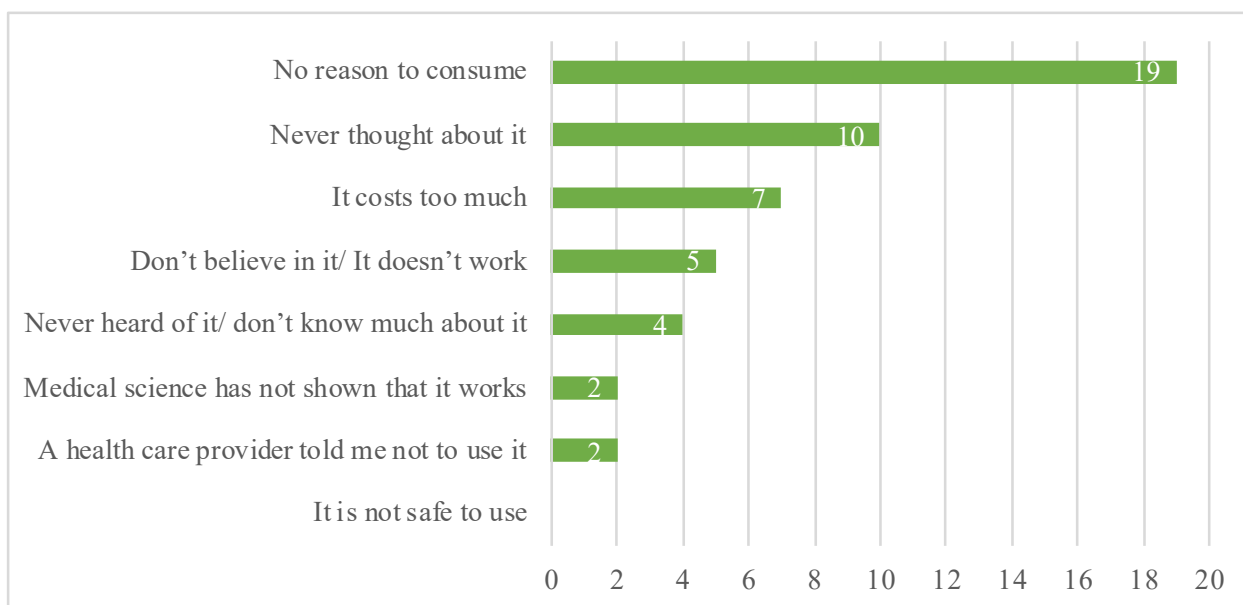


Figure 6. Summary of the reasons for not having consumed dietary supplements (n=30)  
Source: Authors calculations, Appendix 1

It came out that the main reason for not consuming dietary supplements is not feeling the need for them. 19 people out of 30 picked this answer. The reason might be that these people have a very balanced and healthy diet. These consumers get all of their needed vitamins and minerals from the

foods they eat. It turns out that 10 of the respondents have never even thought about consuming dietary supplements.

From this point, the author will continue analysing the data of the respondents who answered yes to the first question were directed to the third, multiple choice, matter. This question wanted to figure out the reasons and triggers to begin the consumption of dietary supplements. These results are shown in Figure 7.

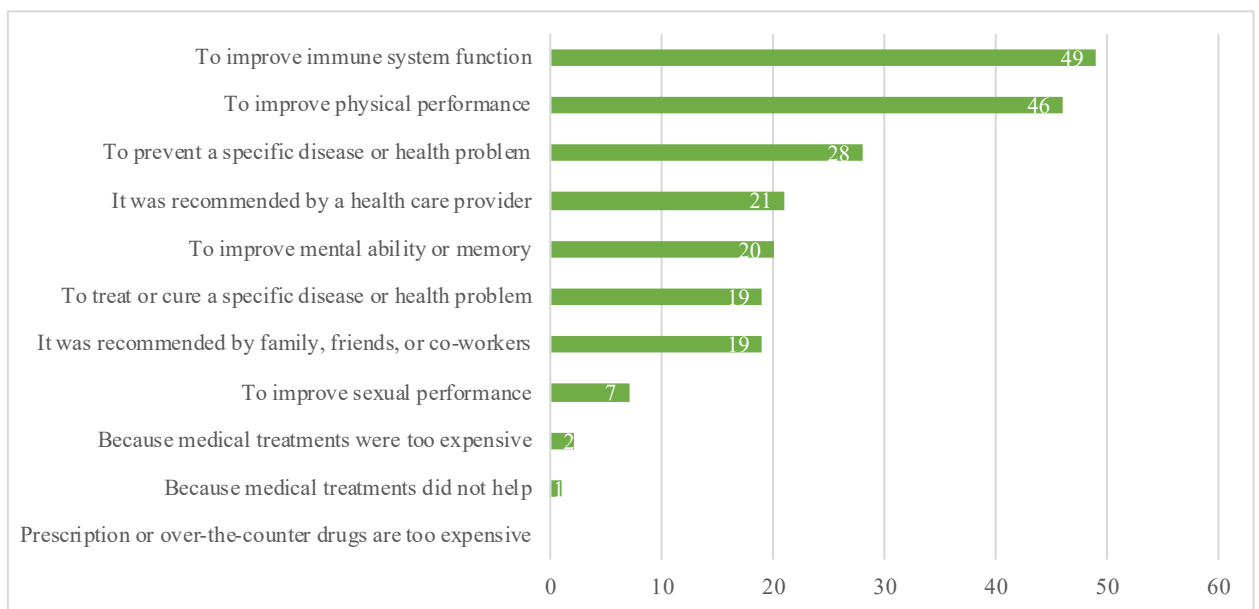


Figure 7. Summary of the reasons for consuming dietary supplements (n=76)

Source: Authors calculations, Appendix 1

According to the results, improving immune system function is the main reason for consuming dietary supplements as 49 respondents picked this answer. 46 people wanted to improve their physical performance. Preventing health problems or diseases was the reason for 28 respondents. 2 people took dietary supplements to replace expensive medical treatments and one because the treatments did not work. Prescription and over-the-counter drugs were not replaced by anyone.

Next, the author wanted to find out the channels or people that have the most significant impact on consumers buying decision. The question was based on a 5-point Likert scale (1 – strongly disagree to 5 – strongly agree), the average answer of each row is brought after the name of the row. The results of this question are in Figure 8.

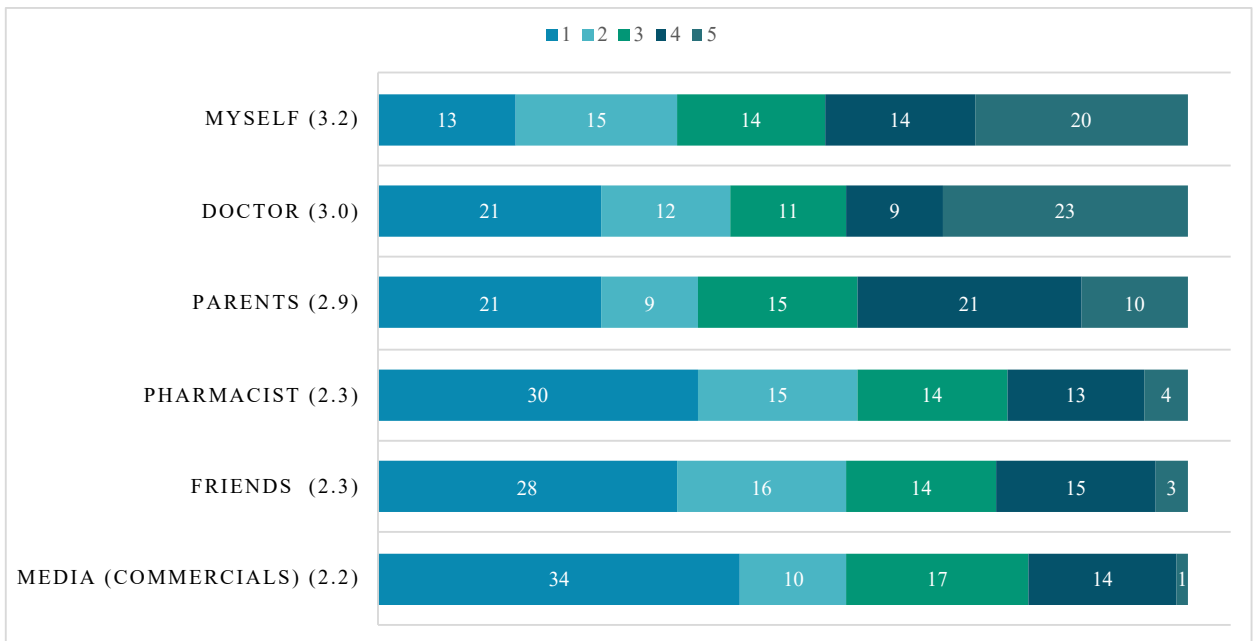


Figure 8. Summary of the biggest influencers to start taking dietary supplements with an average answer next to the row name (n=76), (1 – strongly disagree to 5 – strongly agree)  
 Source: Authors calculations, Appendix 1

It came out that the consumer himself is the most powerful influencer for themselves when it comes to deciding consuming dietary supplements. A total of 34 people answered strongly agree or agree with this option. This one also had the lowest amount of non-agreeing responses, meaning ones or twos. Doctors were the second most influential people with 23 people answering strongly agree and nine responding kind of agree. This option had 33 negative responses, meaning that the number of answers was almost equal on both sides. Eleven people stayed neutral in choice whether doctors influence them or no. The most uninfluential channels came out to be media with 34 people and pharmacists with 30 people answering strongly disagree.

The author wanted to find out the most or least reliable information sources for the consumer, which would then also be the most effective sources of marketing with the results shown in Figure 9. The question was based on a 5-point Likert scale (1 – not reliable at all to 5 – very reliable) and also the average answers are brought out next to the row name.

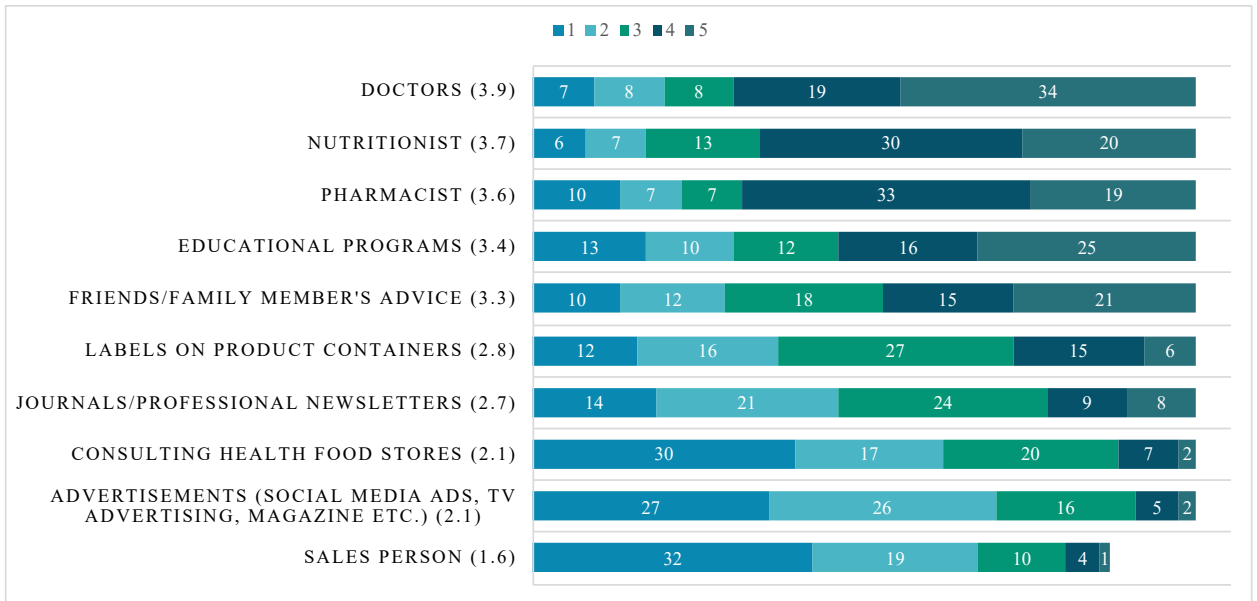


Figure 9. Summary of the most influential information sources for dietary supplements with an average answer next to the row name (n=76), (1 – not reliable at all to 5 – very reliable)  
 Source: Authors calculations, Appendix 1

Based on Figure 8 the most trustworthy source of information when it comes to buying dietary supplements were the doctors; 34 people considered this source very reliable, and 19 responded it to be rather reliable. What concerned pharmacists then 19 people answered them to be very reliable and 33 rather reliable which was the second on the list of reliability. The most unreliable source of information was considered to be the salespeople, with 32 answers of very unreliable, and health food stores with 30 responses of very unreliable.

Finally the author asked about the visible features that might influence the buyers decisions. The results are shown in Figure 10. The question was based on a 5-point Likert scale (5 – very influential to 1 – not influential at all), and also the average answers are brought out next to the row name.

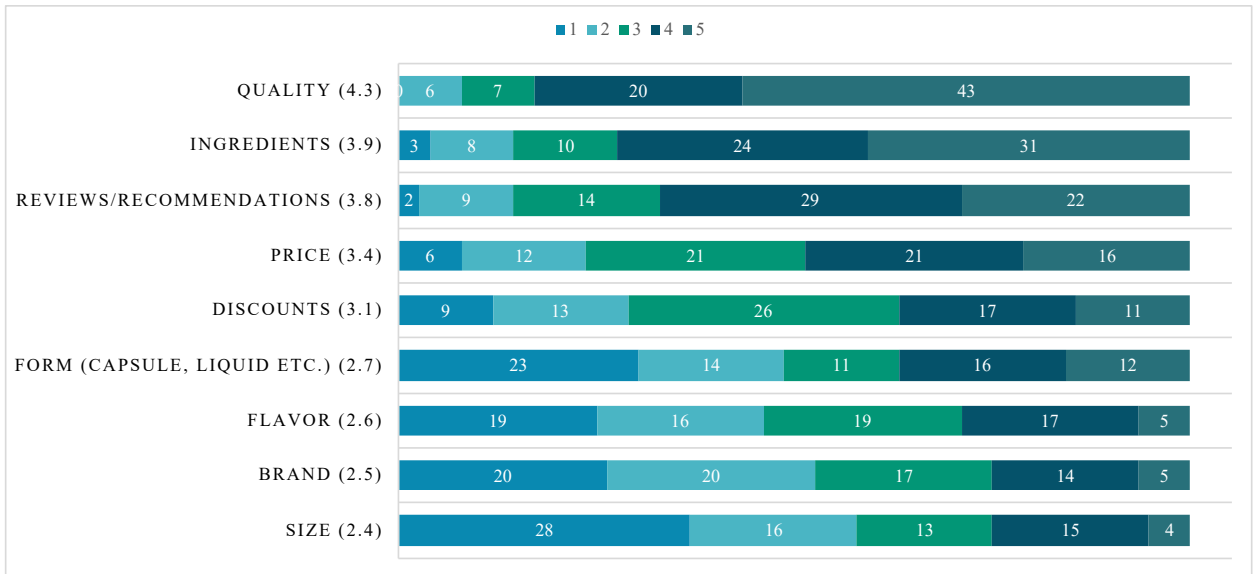


Figure 10. Summary of the most influential visible features before buying dietary supplements with an average answer next to the row name (n=76), (5 – very influential to 1 – not influential at all)

Source: Authors calculations, Appendix 1

The most influential factor came out to be the price of the product with 28 people answering it to be very prominent and 18 rather influential. The most uninfluential aspect was the country of origin as 18 respondents considered it not influential at all and 21 considered it rather not influential. The brand of the product left most people in the yellow neutral zone with 32 answers.

The author also performed a Spearman's correlation, to find correlations from the ranked data gathered from the Likert scale questions, which showed the strength of the relationship between two variables. The strongest correlation came out to be between the pharmacist and nutritionist (0.77) when it comes to getting the most reliable information about dietary supplements. This coefficient shows a stable positive relationship between them. Doctor and pharmacist showed a strong bond too with a 0.72 coefficient and the form of the supplement (capsule, powder, liquid) and its size or amount; the coefficient was 0.72. The third most correlated pair was the discount and the price of the product (0.7) being also the active influencers when it comes to picking a dietary supplement amongst other options.

There were also some negative correlations. The most significant negative correlation being between the doctor and the consumer (-0.35) him/herself when it comes to starting dietary supplement consumption. A similar correlation comes out between the consumer's parents recommending to start food supplement consumption and the consumer following this action (-



0.31). The third weakest coefficient came from the doctor influencing the consumer to start taking dietary supplements and getting trustworthy information from the newspapers (-0.27).

### **2.3. Discussion and recommendations**

This sub-chapter will discuss the results of this research in more detail. The author adds some explanations to the results collected from the survey.

The respondent's results of this study's questionnaire showed that a little more women consume dietary supplements than men do. This find also confirms the study conducted in Estonia which also brought out this statement. The biggest reason for giving a negative answer to consuming dietary supplements was that the consumers had not recognized the need. This is the first and foremost stage of the buying process where the consumer has to find out that they want the product or in this case consumes food supplements. Without it, the line of consumption is cut immediately. This means that they do not find their motivation to consume such foods. Although dietary supplements are just getting more and more research, people did not express any doubt into their safety and legitimacy. The graphs showed the consumers' perceptions, as they trust more the people with education towards nutrition and health rather than someone possibly not competent enough in the food supplement field, which again contributes to the science-based nutrition trend. Even though media sometimes speaks about food supplements in a negative tone; only two people responded that there is not enough evidence about the efficacy of supplements. This is great for dietary supplement manufacturers even though the competition in this field is getting more research-based. It comes out that dietary supplements belong instead into the safety needs section in Maslow's pyramid (Maslow 1954, 78), because respondents' most common reasons for taking food supplements were not to cure health issues but rather to feel safe and prevent possible future illnesses. This goes along with the beliefs and attitudes which formulate a healthy habit for not getting ill. The theory brought out in this study also backs this statement with the consumption motives.

The results of a question from this research showed that consumers think that they are the biggest influencers themselves when it comes to starting consuming dietary supplements. Shortly after that follows the doctor. This shows that the consumer's motivation is the most reliable driver when it comes to making a final consumption decision. Doctors are still considered to be the most trusted information sources out there. This is connected to the status of the occupation and beliefs and

attitudes. Consumers have answered to value the quality of the products the most, but the Spearman's correlation showed a very high positive correlation in this segment between discounts and great prices on a product. This also ties up with the lifestyle and economic circumstance factors, as the sample consisted of students and 34% of them earned less than 500 euros a month. This means that current occupation shifts the priorities a little. The most significant correlation came out to be between a pharmacist and nutritionist when it comes to getting the best information for consumption, peoples perception plays a massive role in it. With the help of these two variants, people can educate themselves enough to pick the most excellent food supplement for their needs. The most significant negative correlation was revealed from the most influential factor for starting consuming food supplements. Doctors and the consumers themselves got a coefficient of -0.35 which was the highest negative one of this study. Meaning that consumers learn and listen to doctors but they still make the final consumption decisions themselves. Quite the same situation was between the family and the consumer scoring a coefficient of -0.31.

## CONCLUSION

This study aimed to bring out the most dominant factors that affect the buyer to help marketers predict and shape the consumer's buying decision. The author also wants to break the elements down to form a more precise understanding. This paper examined the data collected by the author from a sample of 106 people chosen randomly from TalTech.

The research re-confirmed that a little more women consume dietary supplements than men. As the sample of this study consisted of university students who usually have a fairly low salary, are highly influenced by the price and discounts when it comes to purchasing and consuming dietary supplements, a correlation of 0.77 was found between these two variables. Most of the respondents (34%) had a lower salary than 500 euros per month. This customary event was also confirmed with the Spearman's correlation. When it came to the respondents who do not consume dietary supplements, the main reason turned out to be the lack of motivation towards consuming food supplements. The author discovered that the main reasons for consumers starting taking dietary supplements are to improve immune system functioning or to increase physical performance. It came out that consumers do not replace medication with food supplements, which means that there is a clear line between preventing diseases and curing them. The respondents find doctors and nutritionists the most trustworthy and influential people when it comes to gaining information about supplements, but the most influential factors, when it comes to starting food supplement consumption are the consumers themselves, doctors and family. The main points the respondents follow are quality, ingredients and reviews or recommendations. Brands do not have a strong influence on the buying-decision in this field. The respondents believed that the least trustworthy and influential information sources would be salespeople and advertisements. The Spearman's correlation showed that there is a negative -0.35 connection between the doctors and consumers themselves when it comes to influencing their dietary supplement consumption plans.

The author fulfilled his aim by getting ranked results about the influential factors of a consumers decision-making process and this way gaining more knowledge about them. The factors were broken down and a Spearman's correlation was performed in order to see the possible connections

between all the Likert scale variables. The gathered information can be used to develop a new product based on the potential consumer's beliefs and attitudes or can help understand the most influential factors among university students when it comes to consuming dietary supplements.

As this research shows that there are some interesting correlations and influential factors around buying and consuming food supplements, the author recommends researching this topic further by having a more significant sample with an older trial group. This way it would be possible to compare the age and lifecycle stage differences in action. This way the outcomes would be even more reliable and useable; the current research has a rather small sample group. The author would also suggest to bring out some product examples for the respondents to evaluate and letting them answer and pick based on the visuals. This would give marketers and product developers even more assurance and insight into the factors that the consumer notices and gives a response to. It would also be an exciting idea to conduct a qualitative study which differs from the current research gives people the freedom to answer with the first factors that come up on their mind.

## LIST OF REFERENCES

- Asp H. E., (1999). Factors affecting food decisions made by individual consumers, Department of Food Science and Nutrition, University of Minnesota. 287-294.
- Beitz R., Mensink G.B.M, Hintzpeter B., Fischer B., Erbersdobler H.F. (2004). Do users of dietary supplements differ from nonusers in their food consumption? *Nutritional Epidemiology*, 19, 335-341
- Blyth J. , 2005 , *Essential of Marketing 3rd Ed*, Prentice Hall Financial Times.
- Burnett J.,(2008). *Core concepts of Marketing* , Jacob foundation , Zurich , Switzerland.
- Business Jargons, Personal Factors Influencing Consumer Behavior, <https://businessjargons.com/personal-factors-influencing-consumer-behavior.html> (16.04.2019)
- Business Jargons, Psychological Factors Influencing Consumer Behavior, <https://businessjargons.com/psychological-factors-influencing-consumer-behavior.html> (16.04.2019)
- Conner M., Kirk S.F., Cade J.E., Barrett J.H. (2001). Why do women use dietary supplements?The use of the theory of planned behaviour to explore beliefs about their use. *Social science & medicine*, 52 (4), 621-633.
- Coppens, P., da Silva, M. F., & Pettman, S. (2006). European regulations on nutraceuticals, dietary supplements and functional foods. A framework based on safety. *Toxicology*, 221(1), 59–74.
- Colman, D., & Young, T. (1989). *Principles of Agricultural Economics: Markets and Prices in Less Developed Countries* (Wye Studies in Agricultural and Rural Development). Cambridge: Cambridge University Press. 72-90.
- Jong, N., Ocke, M. C., Branderhorst, H. A. C., & Friele, R. (2003). Demographic and lifestyle characteristics of functional food consumers and dietary supplement users. *British Journal of Nutrition*, 89, 273–281.
- Donovan, R., & Henley, N. (2010). *Principles and practice of social marketing : An international perspective*.
- Food Supplements, European Food Safety Authority, <https://www.efsa.europa.eu/en/topics/topic/food-supplements> (16.04.2019)
- Giammarioli S., Boniglia C., Carratu B., Ciarrocchi M., Chiarotti F., Mosca M., Sanzini E. (2013). Use of food supplements and determinants of usage in a sample Italian adult population. *Public health nutrition*, 16 (10), 1768-1781.

- Heinsalu, K. (2017). *D vitamiinide kontroll avastas eksimusi*.  
<https://www.virtuaalkliinik.ee/uudised/2017/10/18/d-vitamiinide-kontroll-avastas-eksimusi>. (04.05.2019)
- Holmquist, C., Larsson, S., Wolk, A., & de Faire, U. (2003). Multivitamin supplements are inversely associated with risk of myocardial infarction in men and women. Stockholm Heart Epidemiology Program (SHEEP). *Journal of Nutrition*, 133(8), 2650–2654.
- Kardes, F. Cline, T. Cronley, M. (2011). *Consumer behavior: Science and Practice*. South-Western Cengage Learning.
- Khan M., (2006). *Consumer behavior and advertising management*, new age international publishers.
- Kim, J., Lee, J. S., Shin, A., Kang, M. H., Shin, D. S., Chung, H. R., *et al.* (2010). Socio-demographic and lifestyle factors are associated with the use of dietary supplements in a Korean population. *Journal of Epidemiology*, 20(3), 197–203.
- Kotler P. & Armstrong G. ,(2011). *Principle of marketing 14th Ed.* , Pearson Education Inc. Prentice Hall
- Kotler P.,Wong V., Saunder J.,Armstrong G., (2005) , *Principle of Marketing* , 4th European Ed.
- Kotler, P. & Armstrong, G. (2010). *Principles of Marketing*. Pearson Education. Thirteenth Edition.
- Maslow, A. H. (1954). *Motivation and personality*. New York: Longman.
- Murphy, S. P., White, K. K., Park, S. Y., & Sharma, S. (2007). Multivitamin–multimineral supplements’ effect on total nutrient intake. *American Journal of Clinical Nutrition*, 85(1), 280–284.
- Panel, N.S.-O.-T.-S. (2006). National Institutes of Health State-of-the-science conference statement. Multivitamin/mineral supplements and chronic disease prevention. *Annals of Internal Medicine*, 145(5), 364–371
- Pitkin, R. M. (2007). Folate and neural tube defects. *American Journal of Clinical Nutrition*, 85(1), 285–288.
- Rani, P. (2014). Factors influencing consumer behaviour. *International journal of current research and academic review*, 2(9), 52-61.
- Riley, J. (2012). Buyer behavior - The decision-making process. [http://tutor2u.net/business/marketing/buying\\_decision\\_process.asp](http://tutor2u.net/business/marketing/buying_decision_process.asp) (20.04.2019)
- Ritchie MR. (2007). Use of herbal supplements and nutritional supplements in the UK: what do we know about their pattern of usage? *Proc Nutr Soc*, 66:479–482.
- Rozin P, Spranca M, Krieger Z, Neuhaus R, Surillo D, Swerdlin A, (2004). Preference for natural: instrumental and ideational/moral motivations, and the contrast between foods and medicines. *Appetite*, 43-48.

- Schwarzpaul, S., Strassburg, A., Luhrmann, P. M., & Neuhauser-Berthold, M. (2006). Intake of vitamin and mineral supplements in an elderly German population. *Annals of Nutrition and Metabolism*, 50(2), 155–162.
- Solomon M., Bamossy G., Askegaard S., Hogg M.K. (2006) *Consumer Behaviour. A European perspective*, 3rd ed. Prentice Hall Financial Times.
- Solomon, M. (2004.) *Consumer behavior*. Sixth edition. Prentice Hall.
- Touvier, M., Boutron-Ruault, M. C., Volatier, J. L., & Martin, A. (2005). Efficacy and safety of regular vitamin and mineral supplement use in France. Results from the ECCA study. *International Journal for Vitamin and Nutrition Research*, 75(3), 201–209.

## APPENDICES

### Appendix 1. Data collection results

1. Have you ever bought/consumed dietary supplements? \* (n=106)

Yes (72%) (76 people)

No (28%) (30 people)

2. If you answered NO, please specify why you have never consumed food supplements \*  
(n=30)

No reason to consume (19 people)

Never thought about it (10 people)

It costs too much (7 people)

Don't believe in it/ It doesn't work (5 people)

Never heard of it/ don't know much about it (4 people)

A health care provider told me not to use it (2 people)

Medical science has not shown that it works (2 people)

It is not safe to use (0 people)

3. Why did you start taking dietary supplements? \* (n=76)

Prescription or over-the-counter drugs are too expensive (0 people)

To treat or cure a specific disease or health problem (19 people)

To prevent a specific disease or health problem (28 people)

To improve physical performance (46 people)

To improve immune system function (49 people)

To improve sexual performance (7 people)

To improve mental ability or memory (20 people)

Because medical treatments did not help (1 person)



Because medical treatments were too expensive (2 people)

It was recommended by a health care provider (21 people)

It was recommended by family, friends, or co-workers (19 people)

4. What/who influenced you the most to start taking dietary supplements? Please rate these options on the scale below (1 – strongly disagree, 5 – strongly agree) \* (n=76)

	1	2	3	4	5
Myself	13	15	14	14	20
Pharmacist	30	15	14	13	4
Media (Commercials)	34	10	17	14	1
Friends	28	16	14	15	3
Parents	21	9	15	21	10
Doctor	21	12	11	9	23

5. Please indicate from which of the following sources you believe that you can get the most or least reliable information regarding dietary supplements. (1-not at all reliable, 5 – very reliable) \* (n=76)

	1	2	3	4	5
Consulting health food stores	30	17	20	7	2
Labels on product containers	12	16	27	15	6
Educational programs	13	10	12	16	25
Nutritionist	6	7	13	30	20
Pharmacist	10	7	7	33	19
Doctors	7	8	8	19	34
Journals/professional newsletters	14	21	24	9	8
Sales person	32	19	10	4	1
Friends/Family member's advice	10	12	18	15	21
Advertisements (Social media ads, TV advertising, Magazine etc.)	27	26	16	5	2

6. Choosing between dietary supplements, what are the main criteria you follow? (1 – strongly disagree, 5 – strongly agree) \* (n=76)

	1	2	3	4	5
Size	28	16	13	15	4
Flavor	19	16	19	17	5
Form (capsule, liquid etc.)	23	14	11	16	12
Quality	0	6	7	20	43
Discounts	9	13	26	17	11
Reviews/recommendation	2	9	14	29	22
Ingredients	3	8	10	24	31
Brand	20	20	17	14	5
Price	6	12	21	21	16

7. Before buying dietary supplements, there are visible features of the product that may influence your purchase decision (1 – strongly disagree, 5 – strongly agree) \* (n=76)

	1	2	3	4	5
Claims on packaging	8	23	21	17	7
Country of origin	18	21	22	11	4
Amount of awards	18	17	25	10	6
The function listed in the label of the product	5	9	27	23	12
The brand name of the product	10	17	32	14	3
The package of the product	13	22	28	11	2
The price of the product	5	8	17	18	28

## 8. Your age is: \* (n=106)

Age	Number of people
26	1
27	1
28	3
25	3
24	4
23	5
18	6
20	16
19	16
21	21
22	22

## 9. Please indicate your gender \* (n=106)

Male	48
Female	55
Prefer not to answer	3

## 10. Please indicate your monthly net salary (after deduction of taxes): \* (n=106)

over 2000	1
1301-2000	5
1001-1300	19
801-1000	21
501-800	24
...-500	36

Source: Author's data collection