THESES OF DOCTORAL (PhD) DISSERTATION

SÁRA SZABÓ

Kaposvár University

Faculty of Economic Science

2016

Kaposvár University

Faculty of Economic Science

Department of Marketing and Trade

Head of Doctoral School:

PROF. DR. SÁNDOR KEREKES

MTA doctor

Supervisor:

PROF. DR. ZOLTÁN SZAKÁLY

University professor

Co-supervisor:

DR. VIKTÓRIA SZENTE

Associate professor

THE RELATIONSHIP OF HEALTH-ORIENTED NUTRITIONAL HABITS AND CONSUMER BEHAVIOR

Written by:

SÁRA SZABÓ

KAPOSVÁR

2016

TABLE OF CONTENTS

1. HISTORY AND OBJECTIVES OF THE RESEARCH

Examining the future directions of economic development the market analysis of ALLINAZ GLOBAL INVESTORS (2010) narrows the question to three megatrends: environmental technologies, nano / biotechnology and health care, which are expected to become engines of the next economic cycle. Due to globalization and population growth the center of economic development shifts toward Asia, but heading towards knowledge-based economy, the developed countries will continue to be regarded as leaders. Former cycles were aimed at productivity growth, however the assurance of further growth lies in energy and resource management. On environmental level it appears in eco-trends that are continuing to grow their market share, the development of nano- and biotechnology, that reduces the demand for raw materials by developing new materials and technologies, and the development of precision processes make the production more efficient. The third megatrend is health, which has become increasingly topical due to population growth and increased longevity in developed countries. Holistic interpretation of health and preventive health behavior belong to the health megatrend, which means that we have arrived to an age in which human resource is no longer the cost of economic development, but the main driving force, and maintaining it is personal, social and also an economic interests.

I began my researches in this frame of thought focusing on health out of the Health - Ecology - Technology trend triad hoping to become an observer of the implementation of global processes by examining the health behavior and nutritional habits of Hungarian consumers.

The **Objective** of the dissertation is to perform a segmentation based on health concept, health status and health behavior, and to develop proposals for the different segments regarding to the development of health behavior. Beyond the proposals our aim is to develop a specific program to support changing nutritional habits that fits into the corporate marketing strategy, which will improve the market position.

Tasks and corresponding hypotheses of the thesis are as follows:

T1: Assessing the consumers' subjective health status, health concept, concept and factors of health behavior, detecting the barrier factors of lifestyle modification.

   H1: Health of the physical body is the most important dimension of health according to the consumers.

   H2: The health status of the population would require a shift to health-conscious lifestyle.

   H3: Among the factors impeding the lifestyle change the lack of financial resources appears on first place.

T2: Examining the knowledge and application of the most common health-oriented nutrition habits, and exploring the impact of dietary change on health status. Examining the knowledge and application of ayurvedic nutrition among population, examining attitudes towards ayurvedic services, and defining target market.

   H4: There is a remarkable gap between the knowledge and application of the most common health-oriented nutritional trends.

   H5: There is a positive correlation between the shift to health-oriented nutritional habits and health status.

   H6: The knowledge and application of ayurvedic nutrition is low, despite positive consumer attitudes, and mainly concentrated in the capital city.

T3: Testing a suitable model for health behavior based consumer segmentation, defining and characterizing a health-oriented consumer segment on the basis of health status, nutritional habits and physical activity.

H7: Examining the Integrated Behavioral Model on health behavior, the original factor structure of variables is reproducible.

H8: Applying the Integrated Behavioral Model a health-oriented consumer group can be defined, that differs from other consumer groups on the basis of health behavior.

H9: The values of objective and subjective state of health are the best for the health-oriented consumer group among the examined consumer groups.

T4: Developing and testing a psychological and nutritional program that supports changing nutritional habits.

H10: The psychological and nutritional program worked out on the basis of the examinations carried out in O1 and O3 is efficiently applicable for supporting diet change and is well suited to the corporate marketing strategy.

2. MATERIALS AND METHODS

In the dissertation primary and secondary data and information collection were also executed among statistical databases we primary relied on EUROSTAT, but the database of KSH was also important information source for us. Due to the limited availability of GFK databases the presentations of the staff of GFK - TÁRKI proved to be very important sources. For finding relevant literature the online services of EBSCO, EISZ, MATARKA, SCIENCE DIRECT and GOOGLE SCHOLAR were very useful.

The processing of secondary data enabled the design of the primary research. During the primary data collection we carried out both qualitative and quantitative research. We started the primer phase with two exploratory focus group

interviews in 2012, during which the health concept and health behavior of health-conscious and ayurvedic oriented health conscious consumer groups were described, than we moved to the examination of the attitudes towards ayurveda. Our next research in 2013 focused on the hindering factors of health conscious lifestyle.

These two qualitative research phases provided enough data for developing a questionnaire. The data collection was carried out with the participation of 1000 people on a national representative (sex, age, settlement and region) sample.

As the results had been summarized a pilot program was worked out with the involvement of a nutrition professional based on both psychological and nutritional knowledge, this first pilot program was carried out in 2014 with eight participants. **Figure 1** shows the logical structure of the research.
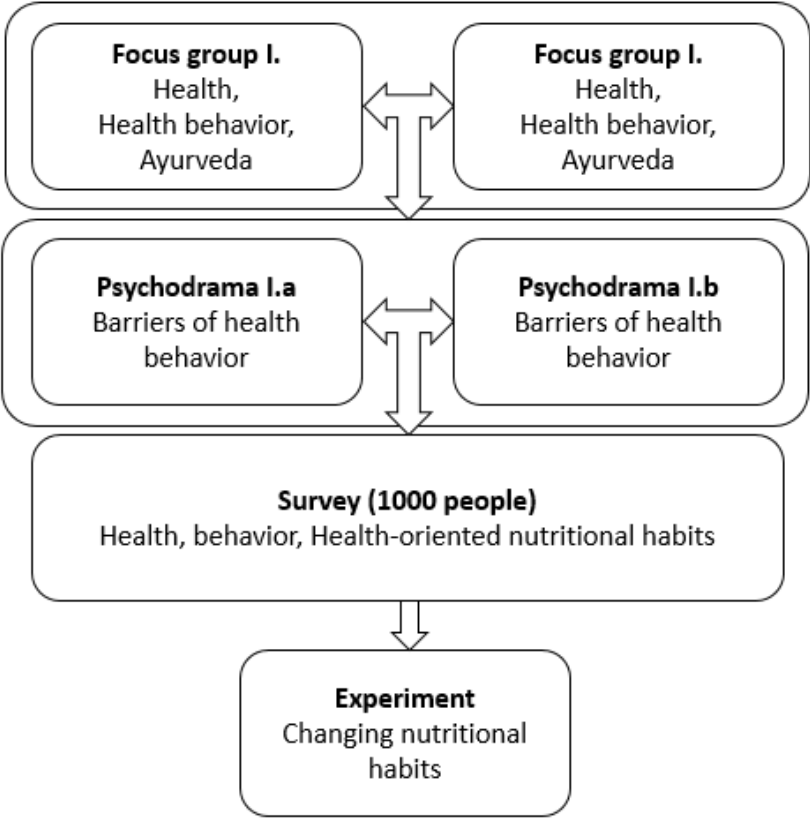
Figure 1: The logical structure of the research

Source: Own compilation, 2014

3. RESULTS

3.1. Factors of health and health behavior

In section 3.1. we introduce the tests belonging to the first task, namely the health status and health behavior of the consumers, their health interpretation and we analyzed the facilitating and hindering factors of the change of lifestyle in detail. By aggregating the results of qualitative research we have developed an eight-dimensional model of health, which was tested on a five-grade Likert scale in the quantitative phase of the research. Adjacent pairs of variables were compared on the basis of averages, to explore whether there is a significant difference between the mean values.

We found four significant differences among the eight dimensions, which divided the factors to five priority level. The key factor for the consumers are the health of body and mind, followed by the thinking and emotional life and beyond the personal dimensions natural and social environment and the built environment and finally the transcendent dimension (**Figure 2**). Based on the results presented we **partly accept** the hypothesis **H1**.
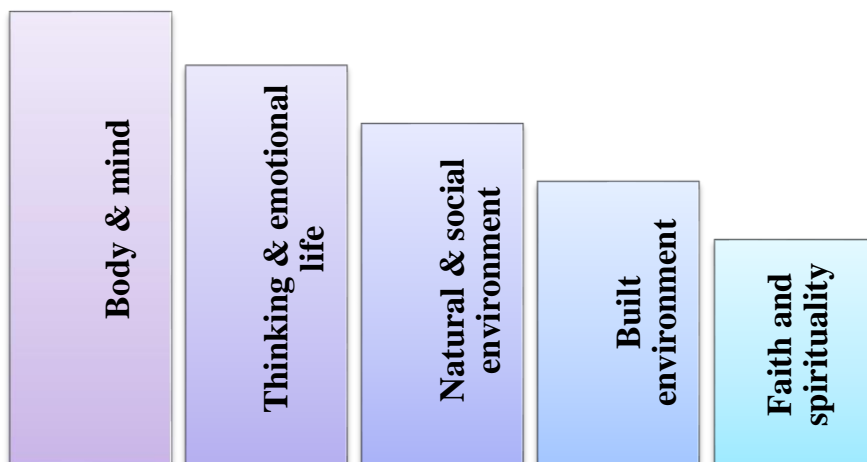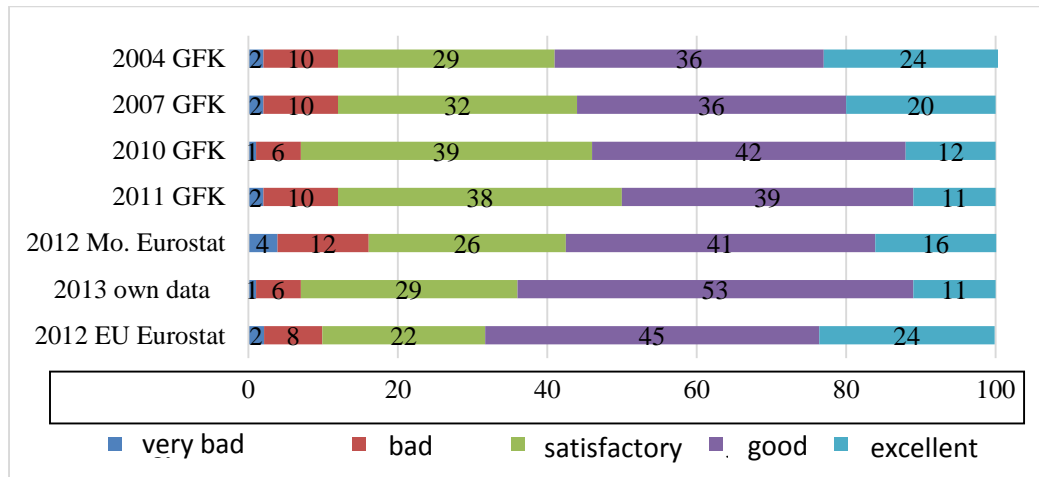
Figure 2: The model of health interpretation

Source: Own compilation, 2015

The subjective and objective factors of health, the physical activity of the population and the transition towards a health conscious diet were measured with survey method on a nationwide representative (age, sex, settlement, region) sample with the participation of 1000 people.

Figure 3: Evaluation of subjective health status
Source: Own compilation using Bernát, 2012 and Eurostat, 2014

According to the GFK Hungary surveys the subjective health status of the population showed a downward trend between 2004 and 2011 (**Figure 3**), our data in 2013 appears to confirm this trend. It can be concluded that the health status of 36% of the population is up to satisfactory based on self-reporting.

To the "Please tell mark if the listed health problems concern to you!" multiple choice questions, 18.8% of the respondents marked cardiovascular disease, 16% overweight and obesity, 10% stomach and intestinal complaints, 7% weakened immune system, 5.5% diabetes, 4.6% osteoporosis, and 1% neoplastic disease. Only 54.7% of the respondents claimed that they are not affected by any of the listed diseases.

Out of the factors of health behavior we examined nutritional habits and physical activity. Compared to the previous question block an interesting

coincidence is that 45.3% of respondents not intend to change their nutritional habits, and are completely passive in the Confinement phase.

Regarding physical activity we found some promising data. According to self-report 43.8% of the population perform active exercise at least three times a week, and further 33.1% does exercises at least on a weekly basis. Based on the results presented we **accept** the hypothesis **H2**.

The exploration and clarification of the influencing factors of lifestyle change was carried out within the framework of psychodrama groups, and the relative importance of each factor was measured by a survey study.
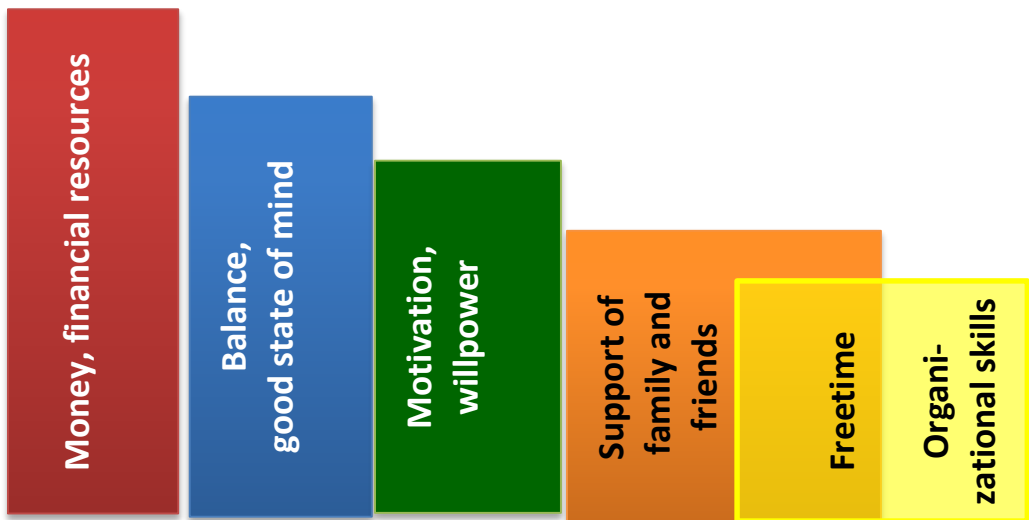
Figure 4: Hierarchy of necessities with regard to lifestyle changes

Source: Own compilation, 2016

The results of the Wilcoxon tests determined the hierarchy of necessities of Hungarian consumers (**Figure 4**) with regard to health behavior. On the top of the hierarchy are financial resources, followed with significant difference by good state of mind and its functions, motivation and willpower. . Based on the results presented we **accept** the hypothesis **H3**.

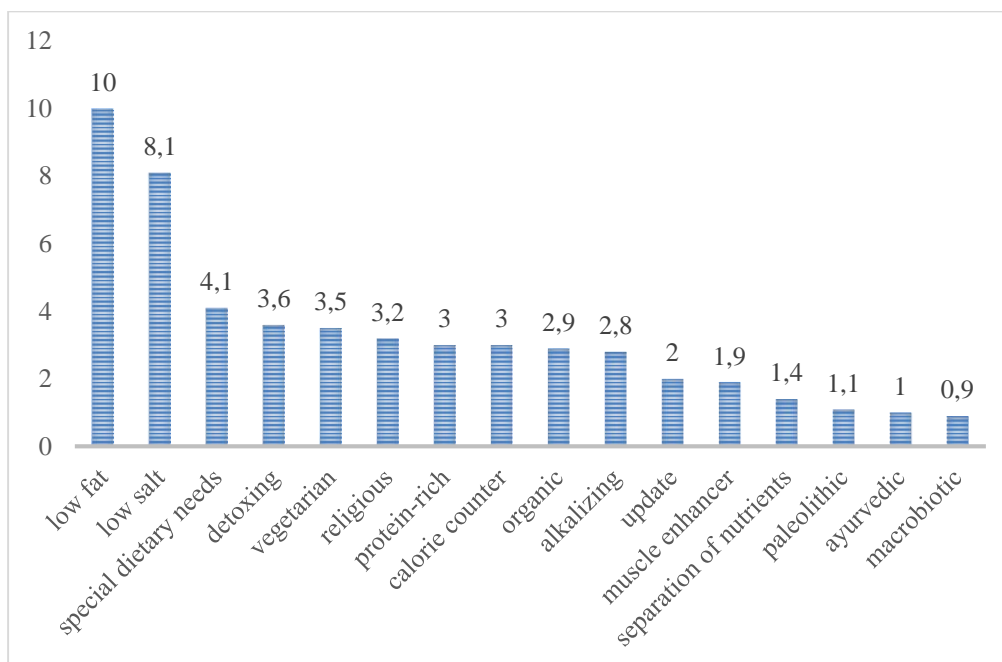### 3.2. Examination of health-oriented nutritional habits

In section 3.2. we present the results of Task 2, i.e. awareness and application of health-oriented nutritional habits, and the impact of application on health status. We give priority to the ayurvedic nutrition, examining it's awareness, we present consumer attitudes for ayurvedic products or services and define the potential target market of ayurveda.

We carried out the examination of health-oriented nutritional knowledge and habits with quantitative method. We asked the consumers regarding to the nutrition trends shown on **Figure 5 and 6,** whether they are aware of the listed items, and if yes, have they ever tried them, or is there any that they apply to their lifestyle on a regular basis. According to the results it can be stated, that the consumers are aware of the different nutritional habits on a large scale. However it can also be concluded, that the distribution of mentioning frequency of the variables is not consistent. Based on the results presented we **accept** the hypothesis **H4**.
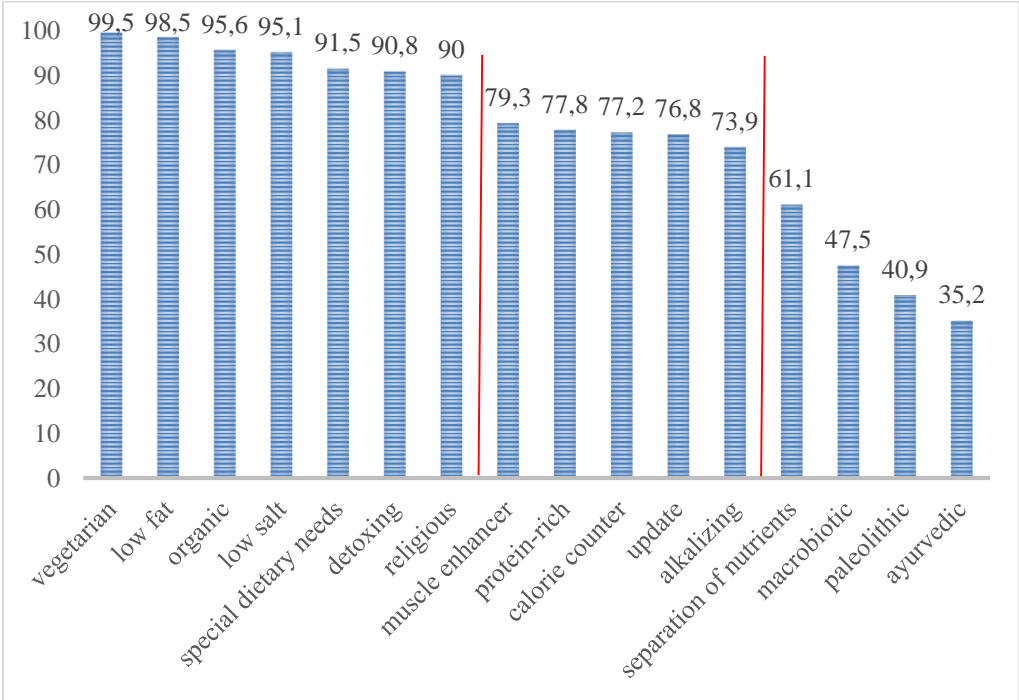
Figure 5: Awareness of health-oriented nutritional trends (%)

Figure 6: Regular application of health-oriented nutritional trends (%)

Source: Own compilation, 2015 (N=1000)

With regard to the nutritious habits the effects of health-oriented nutrition was examined on subjective and objective health status. Firstly we were looking for relationship between the results of the Transtheoretical model and the variables of subjective health state. The results show that the transition to a nutrition mode that is perceived to be healthier has a significantly positive impact on subjective health status. Very similar correlation was observed regarding to the objective health status.

On the categories formed on the base of the Transtheoretical model we analyzed the frequency of the given eight chronic diseases (Pearsons Chi-Square=20,153; p=0,000). We found that the two variables are related, so the frequency of chronic diseases show a lower rate in the groups of Action and Maintenance (37.9%), than in the group of Precontemplation (44.4%). However, the consumers most affected by common chronic diseases are in the stages of Contemplation and Preparation

(57.1%). They strive to make changes in order to address or prevent further deterioration of the already established disease. Based on the results presented we **partly accept** the hypothesis **H5**.

Hereinafter we determined that, based on supported mention 35.2% of the consumers have heard of ayurveda, of which 2.7% had tried some form of nutrition, and 1% had decided to use it on a regular basis. The participants of the focus group discussion considered about the application of ayuredic nutrition in a European environment "the basic principles and ingredients should definitely be kept unchanged; the specifications that could easily be considered mystic should not be emphasized; the identity of the mediator is very important, he/she should be familiar with western and eastern medicine alike; there is a need for scientific research of the ancient wisdom; it is well-suited as an alternative therapy". Advantageous characteristics of ayurveda that would help to introduce ayurvedic products and services in Hungary. Talking about the advantages of ayurveda they mentioned that "ayurveda helps to develop healthy lifestyle; it also helps to create inner harmony; ayurvedic diet is based on natural ingredients. It pursues physical and psychological balance; it accumulated a lot of experience during the millennia; the ayurvedic diet emphasizes the role of flavors". Those consumers who are familiar with ayurvedic diet live mainly in major cities of Hungary and in the capital. Based on the results presented we **partly accept** the hypothesis **H5**.

3.3. Modeling health behavior, market segmentation

In order to comply Task 3 firstly we perform the factor analysis of the Integrated Behavioral Model, than based on the results of the factor analysis we carry out the health behavior based segmentation of the Hungarian population on a nationwide representative sample. Subsequently the most health conscious segment will be subjected to a more detailed examination.

The three factors found during the factor analysis match the original factors of the model, but their facets show differences. To the factor with greatest explanatory power are concentrated the Attitude variables combined with the Behavioral intention and one item of the Injunctive norm. To the phenomenon why the whole factor of Behavioral intent moved to the Attitude factor, the Three-element model of attitude of ROSENBERG and HOVLAND (1960) gives an answer. The examined factors show many similarities to the original model, but the factors subscales are not independent. Based on the results presented we **reject** the hypothesis **H7.** We applied the Integrated Behavioral Model for the segmentation research in the following form (**Figure 7**).
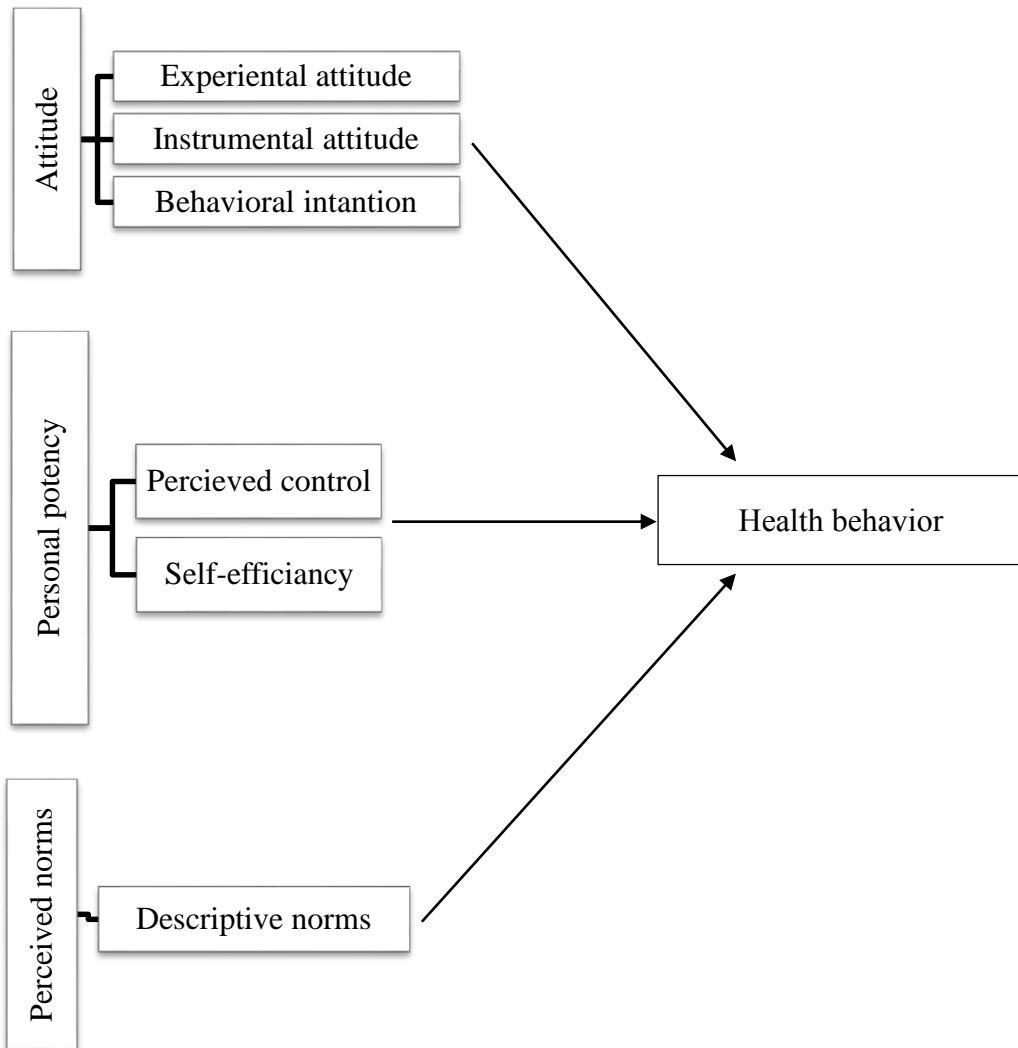
Figure 7: The validated factor structure of the Integrated Behavioral Model

Source: Own compilation, 2015

K-means clustering was performed in accordance with the size of the database in which the four have been segments separated. The exploration of the differences between the clusters based on health behavior confirm the validity of the modified factor structure of the Integrated Behavioral Model. To compare the health behavior of the different clusters measured on nominal and ordinal scales cross tabulation analysis and chi-square tests were performed. After analyzing the three categories of Transteorethical model (TTM3: Pearson Chi-Square=158,972; p=0,000) and analyzing the measure of physical activity (physical activity: Pearson Chi-Square=77,359; p=0,000) it can be stated, that the cluster membership specifies the health behavior (**Table 1**).

Table 1

Health behavior characteristic of the clusters

Health behavior		**Cluster code**				**Total**
		1	**2**	**3**	**4**	
TTM3	Precontemplation	29.6%	69.8%	68.1%	31.7%	45.3%
	Contemplation and Preparation	33.2%	15.7%	18.6%	21.9%	23.3%
	Action and Maintenance	37.1%	14.5%	13.3%	46.4%	31.4%
Physical activity	It does not perform physical activity	15.0%	32.6%	41.0%	13.9%	23.1%
	Less than three times a week	35.4%	29.7%	23.8%	38.8%	33.1%
	From three to five times a week	26.4%	16.9%	21.0%	27.2%	23.9%
	More than five times a week	23.2%	20.9%	14.3%	20.1%	19.9%

Source: Own compilation, 2015

Contemplating the categories of the Transtheoretical model it is apparent, that a members of the fourth cluster reached the highest proportion (46.4%) in the Action and Maintenance stages. The first cluster could be said to be active as well, but their presence is more prominent in the Contemplation and Preparation stage. The members of the cluster 2 and 3 clearly characterized by Precontemplation

(69.8% versus 68.1%), they are the ones who are uninterested in the health, and are not able to effectively achieve their goals. Based on the results presented we **accept** the hypothesis **H8,** cluster 4 is referred as Health-oriented from this point**.**

Finally we compared the subjective health status (Pearson Chi-Square=90,632; p=0,000), and the objective health status (Pearson Chi-Square=15,752; p=0,001) on the basis of cluster membership. The advantage of the Health-oriented cluster is the most visible with regard to the subjective health status, they typically do not describe their health status as bad or very bad, but 57.1% of them deemed it good and 17.5% excellent. This indicator reflects in the state of objective health, since above the sample mean 63% states that they are not affected by any of the given diseases. Based on the results presented we **accept** the hypothesis **H9.**

3.4. The results of the nutritional program

Out of eight members six completed the program, one stopped due to family reasons and one due to departure of foreign labor, another participant completed the program, but failed to send us back the closing assessment questionnaire, so comparable data can be reported in five cases. (**Table 2**) In order to ensure anonymity we marked the participants with letters of the ABC.

Table 2

Detailed results of participants

Variable	A person		B person		C person		D person		E person	
	Bef.	After	Bef.	After	Bef.	After	Bef.	After	Bef.	After
BMI	29.04	28.09	23.12	22.53	21.88	21.88	24.61	24.24	24.86	24.51
Kitchen	-45	-49	-35	-49	-35	-35	0	-8	-	-
Social support	16		24		16		16		-	
Satisfaction with body size	20	17	13	14	9	9	14	13	17	14
Impulse eating	6	6	5	7	6	10	10	9	8	8
Cognitive control	9	11	5	8	6	9	3	3	8	10
Emotional eating	13	14	6	7	7	6	14	13	13	12
Well-being	24	23	23	26	11	14	22	23	23	26

Source: Own compilation, 2014

After the efficiency we also examined the satisfaction with the program. On the basis of 12 criteria (five-grade Likert scale) examined in the questionnaire, the participants gave the following ratings: 5.00; 5.00; 4.67; 4.42; 4.92. Based on the evaluations it can be concluded that the overall satisfaction with the program is high. They unanimously considered that it would be more effective to increase the total length of the program from five weeks to eight weeks, but for the length of each session the time period of two hours is appropriate (one person wrote a different time: 1.5 hours). If the program would be available for a fee, the participants set the ideal price of five occasions in the amount between 15,000 Ft and 25,000 Ft. They would accept the support provided by producers of both organic and natural product, and of those that are made from domestic ingredients, or health protecting products, and they are eager to taste their products within the framework of the program. Based on the results presented we **accept** the hypothesis **H10.**

4. CONCLUSIONS AND SUGGESTIONS

Based on the results of the qualitative study it can be stated, that the health interpretation of Hungarian consumers' is clearly beyond the scope of bio-medical approaches. Although physical dimension is listed first on the priority scale, its' importance does not differ significantly from mental health. **(H1)**. The starting point of a five dimensional (WHO, 1948) model expanded to 8-dimensional on the basis of qualitative research, with natural and built environment, and spiritual dimensions.

Suggestion: As the dimensions of the health are widely known among the consumers, in the communication the transfer of the basic theoretical knowledge is not as important as raising the awareness of existing knowledge, and turning it into practice.

Regarding to the knowledge and interpretations it seems that the Hungarian population is well on the way, but this multi-faceted awareness is not yet displayed in consumer habits and health status improvement. (**H2**). The maximum health condition of 36% of the population is satisfactory, 54.3% of the respondents are affected by the most common chronic diseases, while 45.3% of the population does not plan to change the current eating habits, and 56.2% are not engaged in regular physical activity. When the respondents were asked, what they would need most to engage in a healthier lifestyle, they mentioned financial sources in first place, and in second place the good state of mind, while motivation was the third on the priority list. (**H3**).

Suggestion: It is essential to support the shift to health-conscious lifestyles in Hungary. The effects of objective hindering factors could be reduced by reframing technic applied in qualitative research. In the case of subjective factors programs should be developed to improve the state of mind and to improve the skills of coping with stress.

In the case of health-oriented eating habits the same pattern can be seen as the general aspects of health behavior. The awareness of different nutritional trends is high in the population, but only a small part of it is characterized by regular application (**H4**), while change of nutritional habits has a beneficial effect on subjective state of health (**H5**). With regard to the objective health status it can be observed, that the state of health is significantly worse of those who plan to change their nutritional habits, this meant that the main motivation of lifestyle change is not to prevent diseases (primary prevention), but health care under disease (secondary prevention).

Suggestion: In any case, there is a need to develop programs that support lifestyle change mainly among those who are at least in the Preparation stage. Among motivational factors priority may be given to body weight management, as the consumers expect manly results that are tangible and can be seen in the short term.

The general awareness of ayurveda among the Hungarian population is low, but from those who have experiences of the Ayurvedic diet, a high proportion consider themselves regular adopter. Overall, the current market size of ayurvedic nutrition is estimated around 1%. Based on qualitative research it can be stated, that the attitude towards ayurvedic products and services is positive among health-conscious segment (**H6**).

Suggestion: To support the growing scientific and economic interest there is a need for further investigations on the consumer perception of ayurveda in the implementation phase.

For modelling health behavior at first we examined the validity of the factor structure of the Integrated Behavioral Model on a national representative sample. The original factor structure of the model was managed to prove only partially, as the three main factors matched the original model, but the facets evolved differently however, the segmentation was accomplishable on the so formed factor structure (**H7**).

On the basis of health behavior the general population was divided to four segments: the Wishful, Determined opponents, Drifting and the Health-oriented consumer groups. In order to check the validity of the model and the segmentation we also examined the consumers' habits on physical activity and transition towards health-oriented nutritional habits of the members of each cluster. The results confirmed our assumption that the Health-oriented cluster is leader in both acts on the basis of criteria (**H8**).

With regard to both the objective and the subjective health status members of the Health-oriented segment are in the best position (H9), however, further segmentation was considered to be necessary due to the 33.8% segment size. The subsegments were examined with the same method according to objective and subjective health status, physical activity and transition towards health-oriented nutritional habits.

Suggestion: The easiest to motivate are the members of the Health-oriented cluster (33.8%), and among 7.2% of the Hungarian consumers in the narrow sense. For these consumers with high health-consciousness, positive attitudes, high personal effectiveness and high social support, the slightest impulse is sufficient. The remaining 26.6% of consumers' makes an interesting challenge for professionals.

To ensure the support we developed a program for changing nutritional habits in cooperation with Beáta Borsos nutrition expert, and run a pilot version of it with eight participants successfully. During the five-week program, participants' psychological well-being and eating habits have changed in a favorable direction (**H10**). Although maintaining the scientific background of the methods was absolute priority, corporate sponsorship was also considered to be acceptable.

Suggestion: In our opinion, the inclusion of a nutrition change supporting program to the corporate marketing strategy itself would have a promotional impact on consumers. The program also inserts the product in the consumer's diet immediately, and during the eight-week interval new consumption habits could

be developed and hardened. If the company provides full financial assistance and makes the program available for free of charge, it can be integrated into the corporate social responsibility program, as it contributes to the social welfare. (ALFORD and NAUGHTON, 2002; MELÉ, 2002; KAKU, 1997).

5. NEW SCIENTIFIC RESULTS

R1: The health interpretation model of the Hungarian population has been determined, between the eight factors of qualitative study, five priority levels have been distinguished during the quantitative tests.

R2: The combination of psychodrama and neuro-linguistic programming can be successfully applied for the examination consumer motivation and argumentation.

R3: We adapted the Integrated Behavioral Model to domestic sample, and by determining its' valid factor structure we carried out a health-behavior based segmentation of the Hungarian population characterized by socio-demographic variables, objective and subjective health status.

R4: A program has been worked out that supports changing nutritional habits, which can be well integrated into the corporate marketing strategy.

6. PUBLICATIONS IN THE TOPICS OF DISSERTATION

I. Scientific publications in foreign languages

1. Szabó, S., Szente, V., Szakály, Z. (2011): Ayurveda: The Science of Life. Regional Business Studies, 3(1) (Suppl. 1) pp. 617-631. 3rd International Conference of Economic Sciences: Sustainable economics – community strategies. Kaposvár, Magyarország: 2011.05.19 -2011.05.20. (Kaposvári Egyetem)

2. Szabó, S., Szakály, Z. (2013): Application of an NLP based psychodrama method in marketing research: 4rd International Conference of Economic Sciences In: Szendrő K, Soós M (szerk.) Proceedings of the 4th International Conference of Economic Sciences. 602 p. Konferencia helye, ideje: Kaposvár, Magyarország, 2013.05.09-2013.05.10. Kaposvár: Kaposvár University, 2013. pp. 45-52. (ISBN:978-963-9821-62-0)

3. Szabó, S. Szente, V., Nábrádi, A., Szakály, Z. (2014): Consumer approach of health and ayurveda. Applied Studies in Agribusiness and Commerce, 8:(2) (2014)

4. Soós M., Szabó S., Szakály Z. (2014): The characteristics of consumer attitudes in the food market in Hungary. Applied Studies in Agribusiness and Commerce, 8:(2-3) (2014) 43-49.

II. Scientific publications in Hungarian language

1. Szabó S., Szakály, Z. (2013): Reframing technika alkalmazása a kvalitatív marketingkutatásban. Konferenciakötet: Marketing Oktatók Klubja 19. Konferenciája, Budapest, Budapesti Gazdasági Főiskola, 2013-08-28. pp. 245-257.

2. Szente, V., Szabó, S., Varga, Á., Szakály, Z. (2013): Az egészségre vonatkozó jelölések fogyasztói megítélése. Élelmiszer Táplálkozás és Marketing, 9:(1) pp. 85-90. (2013)

3. Szabó, S., Szigeti, O., Soós, M., Szakály, Z. (2014): Az élelmiszerfogyasztás mögöttes dimenziói: étkezési és testi attitűdök kapcsolata. Marketing Oktatók Klubja 20. Konferenciája, Szegedi Tudományegyetem 2014-08-27.-2014-08-29. ISBN 978-963-306-312-5

III. Abstracts in Hungarian language

1. Szabó, S., Szente, V., Szakály, Z. (2012): Ayurveda táplálkozás és egészségre vonatkozó jelölések: Táplálkozástudományi Kutatások II. PhD workshop In: Soós Mihály, Szakály Zoltán, Szigeti Orsolya, Szente Viktória, Polereczki Zsolt, Huszka Péter, Olsovszkyné Némedi Andrea, Fehér András (szerk.) Táplálkozástudományi Kutatások II.: Innováció - Táplálkozás - Egészség - Marketing : Összefoglalók . pp. 11-11. (ISBN:978-963-9821-55-2) Konferencia helye, ideje: Kaposvár, Magyarország, 2012-12-10.-2012-12-11.

2. Szabó, S. (2012): Információk és attitűdök az ayurvedáról. VIII. Nemzetközi Táplálkozásmarketing Konferencia, Zamárdi, 2012-05-24. In: VIII. Nemzetközi Táplálkozásmarketing Konferencia Összefoglalók pp. 13.

3. Szabó, S.: Egészségorientáció a sikeres vállalati marketingstratégiában: . [IX. Nemzetközi Táplálkozásmarketing Konferencia. Debrecen, 2013. november 21.] IX. Nemzetközi Táplálkozásmarketing Konferencia Összefoglalók 25. o. (ISBN 978-963-596-856-5)