# THE INVESTIGATION OF THE INTERRELATIONSHIP BETWEEN HEALTH-AWARENESS AND HEALTH DETERMINERS

Ph.D Thesis

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**Introduction**

Health is the highest value in human life, however, its role is really appreciated only when it is damaged. Based on literature and our empiric experiences it can be stated that health-awareness and health determinants are interrelated with each other. The strength and the ratio of these interrelationships are explored in this thesis which also studies the practical results coming from these interrelationships and their role in influencing human health-awareness.

This issue is topical due to the fact that the state of health of the Hungarian population has been constantly deteriorating from the end of the 1960s. This led to a severe demographic and epidemiological crisis, so by the turn of century – within nearly 50 years – we suffered a decrease of half a million, which is considered to be a significant drop. According to data collected by the Hungarian Central Statistical Office (HCSO) in 2009 the average life expectancy was 70,1 for men and 77,89 for women in Hungary, lagging far behind from the leading member states of the European Union. Hungarian men live 80%, while women only 75% of their lives healthily. A Hungarian boy born in 2008 can expect a 7,4 years shorter life, while a girl a 5,1 years shorter life than the European average. They are not expected to live 21 and 25 per cent of their lives healthily, respectively, unless the public health care does not change (HCSO, 2009).

With the help of the knowledge acquired, however, people are able to do a lot in order to preserve their health. The 2002 report by the World Health Organisation warns that relatively few, preventable risk factors can be put down as responsible factors for the increase in burden of disease and for the high number of early mortality to an over proportionally great extent. According to assumptions, in the developed industrial countries more than 30 percent of all burden of diseases can be triggered by alcohol consumption, high blood pressure, high level of cholesterol and obesity. The WHO report made in 2004 also attaches significant importance to the factors of health-behaviour as a significant proportion of mortality due to the leading  fatal reasons are caused by individual behavior, and these behavioral factors can be changed (WHO, 2004; Conner and Norman, 1996).

**Aim**

The aim of the study were to demonstrate the interrelationship/connections between health-awareness and health determiners. Our aim is, on the one hand, to determine the way in which and the extent to which health-awareness influences the effects of health determiners. On the other hand, we aim to prove how health-awareness influences human health attitude. Another aim of the thesis were to highlight lifestyle factors out of the health attitude factors, which are

physical activity, smoking, alcohol consumption and other influencing factors such as mental health which is determined by depression, anxiety, hopelessness and self-assessment.

The anthropometrical, physiological and physical performance indicators of the sample are dealt with in the thesis, and the groups – formed by different aspects in the sample - are compared based on aspects studied.

The thesis demonstrates the differences between the groups formed by different aspects in the following dimensios studied:

- attitudes connected to health behaviour,

- mental health,

- attitudes connected to appearance,

- attitudes connected to weight,

- self-assessment.

- knowledge about their body dimensions,

- health-awareness

Another aim of the findings were to study and describe what effect the tertiary educational training (formal) exerts on health awareness.

Within the wide range covered by our aim we wanted to find the answers to the following questions:

1. Are there any differences between the anthropometrical, physiological and physical performance indicators of students with different attitudes towards physical activity?

2. In which direction are the anthropometrical, physiological and physical performance indicators of the students, who are considered to be hypoactive based on their activity, changing as time goes by?

3. Does a higher level of physical activity influence the mental state of health or the health behaviour of students?

4. Which changes are to be spotted due to the effect of formal university training in students' health-awareness?

**Hypotheses**

1. Students with a more positive attitude towards physical activity dispose of better anthropometrical, physiological and physical performance indicators than those with a smaller level of motivation.

2. The anthropometrical, physiological and physical performance indicators of the students considered to be hypoactive are decreasing as time goes by.

3. Physical activity has a positive influence on students:

    3.1. mental health, regarding their life expectations and self-confidence,

    3.2. smoking habits, alcohol- and drug consumption concerning their health-behaviour.

4. The training process has a positive influence on students' health awareness:

    4.1. in judging the connection between their mental alertness and physical activity,

    4.2. concerning the comparison between the physiological and performance indicators predicted by them and the real (measured) values,

    4.3. concerning the comparison between the anthropometrical characteristics predicted by them and the real (measured) values.

**The sample**

The sample consisted of 181 full-time students entered state university or college education for the 2006/2007 term, with women (n=130) (19,26 +- 0,99) and men (n=51) (19,52 +- 1,35). We have applied a stratified sampling for choosing the year and for determining the year of registration. The sample included the students we could keep regular work contact with. Distribution within the sample has been determined by the number of students entered certain faculties.

When forming the groups within the sample the main aspect was the level of physical activity, therefore we have formed two groups: active (n=131) and hypoactive (n=50) groups. Students were considered as active if they do physical exercises at least twice a week, which takes at least 20 minutes and they sweat while doing so – sweating is the outer appearance of fatigue. Students were considered as hypoactive if they do less exercises then the above mentioned. We have also formed groups based on the distribution of students among faculties and got the following groups: students of recreation organization and health improvement (n=56) (group 1), and students participating in a training with a different profile, according to another curriculum in the field of health-and body-culture (group 2). This category contains students of the faculties of teacher, social pedagogues, tourism and catering (n=125).

**Methods**

Two types of data collection were used during the study. In the beginning we applied a lifestyle questionnaire to get a cross-sectional picture on the starting status. Longitudinal studies were carried out with the help of an physical ability test and anthropometric assessment; it was a panel sampling, repeated every half year, four times. In the end of the study we applied the lifestyle questionnaire again.

While testing the hypotheses we were striving for synthetising the results from two different kinds of data collection methods and also for finding causality among them.

Exploring methods

The questionnaire has been elaborated by the Brigham Young University (USA) in the state of Utah in cooperation with the Institute of Sport Studies, Apáczai Csere János Faculty of the University of West Hungary (Győr, Hungary) and also adapted to the Hungarian environment (Page and colleagues, 2001, 2003, 2004).

During the research we applied other tools as well, including one-factor self-assessment state of health (SRH-self-reported health), five-factor scaling regarding the psychological aspects (loneliness, hopelessness, shyness, perception of social status, happiness). Hopelessness has been surveyed with the Beck Hopelessness Scale (Beck and colleagues, 1974). After looking at the 20 factors from a true or false aspect we can get a picture on the hopelessness level of the survey participants regarding their future, and also on their pessimistic expectations towards their own lives and the future in general (Langhinrichsen- Rohling and colleagues, 1998). We also studied other factors of the state of health of the young adults (height/body weight, physical activity, alcohol consumption, smoking).

We have characterized the endurance and the cardio-respiratory performance – in the moderated and submaximum zones- by the Rockport Fitness Walking Test, during which we have also estimated the relative oxygen consumption (relative $VO_{2max.}$). The performance of the circulatory system has been measured by the time necessary for doing the test and by the relative maximum pulse during the endurance test. An endurance test has been carried out at the suggestion of the Brigham Young University in Utah, USA. (http://www.brianmac.dempn.co.uk/rockport-htm).

Antropomethric assessment were measured in the health laboratory of Apáczai Csere János Faculty of the University of West Hungary with standardized medical equipment – by the Inbody 720 body composition assessment equipment, height meter. During the examination we

attached great importance to muscle and fat analysis, and to assessing obesity diagnosis and visceral fat area (VFA). Muscle fat diagnosis is important as skeletal muscles and body fat are essential components of weight control. With help of the obesity diagnosis, based on the relative fat mass and the waist-hip ratio we can clearly determine obesity and Body Mass Index. By adding the relative fat mass at the same time we can also recognize latent obesity. The VFA value shows how much visceral fat has gathered in the visceral parts (Weiner and Lourie, 1969, www.e-inbody.com/Tech/paper.html).

While processing the data measured and calculated statistically we used the Statistic for Windows programme pack (version 7.1 StatSoft Inc., Tusla, OK 74104, USA, 2006). When interpreting statistics, we maximized the number of random errors consistently at 5%.

**Our conclusions:**

1. In the university education the groups distinguished based on the students' choices differ significantly in all the three dimensions studied. The differences can also be traced regarding the attitude towards physical activity. The anthropometric, physiological and performance indicators of the students with a more positive attitude towards physical activity show a significant difference from the indicators of less-motivated students. Our hypothesis has been considered as proven.

2. During the study the results of the hypoactive group has shown significantly lower values in all the three dimensions studied. The anthropometric, physiological and performance indicators of the students considered to be hypoactive have decreased as time goes by. Our hypothesis has been considered as proven. In addition, when looking at the whole sample, it can be seen that in most of the cases we do not experience significant increase in the differences from the starting point between the groups separated according to physical activity.

3.

3.1. Among the women participating in the study we can state that a more favourable body composition is accompanied by positive visions for the future. In case of the women not studying at a recreation faculty the women with better physical indicators show a significantly higher level of self-confidence. Among the men physical indicators do not show statistical differences either with a positive future expectations (vision) or with self-confidence. Our hypothesis has been only partly considered as proven.

3.2. The extent of physical activity (a higher level) has no influence on the other health behaviours studied. Our hypothesis has not been proven. In addition, we can state that the negative physical performance is accompanied by a permanent presence of addictions.

4.

4.1. Taking the comparative and also the time tendencies as a basis – when judging the connection between students' mental alertness and physical activity – the formal training has no influence on students' health- awareness. In addition, during the survey the number of positive judgments has constantly declined regarding the two factors above, which refers to the whole sample. The students' health-awareness regarding these factors is not influenced by the training process. Our hypothesis has not been proven.

4.2-3. Taking the comparative and also the time tendencies as a basis – regarding the comparison of the predicted (by the students themselves) and real (assessed) values of the students' physiological and performance indicators and anthropometrical characteristics – the formal training has brought a change into students' health-awareness. In addition, the pedagogical interference applied in the study (formal training) has brought a change in students' health-awareness.

All in all, we can conclude that the students' health-awareness – as formulated in the hypothesis – has been positively influenced by the training process. Our hypothesis is considered to be proven.

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