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**Influencing factors and access channels for the health-preserving behavior of
16-17 year olds
in the area of physical training, subjective well-being and abortion prevention**

Doctoral (Ph.D.) Thesis

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INTRODUCTION

A human being is an individual and also a member of the society. It follows that another human being can be either the greatest blessing, or the worst curse for us. In the development of a child, an adolescent and later an adult, individualization and socialization go hand in hand. In this process the immediate environment plays a dominant role, but indirect factors also influence our behavior and decisions. We find ourselves valuable or less valuable based on the feed-back coming from our fellow creatures.

The quality of the human relations is a determining factor from the point of view of our mental and even our somatic health. Unsettled human relationships, conflicts can be pathogen factors in our lives and cause a lot of so called psychosomatic illnesses (like peptic ulcer, cardiovascular diseases, neurosis, etc.) Today's adolescents are one of the future generations, thus this is the age group in which with early prevention we can achieve the longest-term success. Because of the changed rhythm of life, the new social challenges, the development of technology, etc. numeral traditional protection factors have taken a back-seat, thus individual protection factors have become even more significant. Members of the next generations will be capable of leading a successful life only if we help them develop adequate competencies.

Adolescence is also called the phase when individuality is formed. It comes with increased sensitivity and instability. It is a difficult period for parents, children and for the immediate environment as well.

This age group is not spared from frustration either; struggle against time, responsibilities, and the corresponding compulsion to conform. Stress – positive and negative tension, as our body's non-specific reaction to any impulse – as János Selye put it – is essential part of life. There is no stress- free life, it is impossible to avoid stress. But it is possible to learn how to cope with it. In order to be able to cope with stress, deal with conflicts, solve problems and preserve our mental health, we have to develop conflict management competencies.

According to Aaron Antonovsky (1987) the source of mental health is the sense of coherence (SOC). He thinks that the sense of coherence as an attitude (or rather a habit) is a resource that -if it is high- helps us cope with stressors successfully. It helps us use our own resources, enable us recognize internal and external stressors, enable us cope with pressure.

The main factor leading to a loss of balance is the exhaustion of power sources, which also depends on our general physical condition. Sport is not only the means of preserving our physical health but it is also a protective factor that fundamentally improves the quality of life in every age of our lives and influences almost all areas of our lives.

In our modern society there are more emergency situations, while the protective family net is disappearing. There are more and more one-parent families and restructured families in which one of the parents is joined by a new spouse as a step-parent. These are the so called patchwork families. These new phenomenons make the life of adolescence youth even more difficult. In the 2002 HBSC study,

carried out by Németh and co-workers, already 24% of the young people reported that they live in a "non-traditional" family, that is not in a two-parent family with the two biological parents.

Several studies have pointed out that the family structure is in direct correlation with the prevalence of risk behaviors: in intact families (both biological parents are present) it is the least prevalent, and it is more common in any other family type (Nicholson and co-workers, 1999; Elekes, 2007).

The family structure is in direct correlation not only with risk behavior, but also with the subjective well-being indicators and aggression (Szabó and co-workers, 2002).

There are more and more direct factors influencing our youth and their effect is increasingly important. First of all, I would like to call attention on the effect of the media, within that the television and the Internet. The means of mass communication exert strong socialization effect on the children who are receptive to these messages, especially in adolescence. These messages form their attitudes that influence their behavioral decisions concerning their health as well. According to some assumptions the media acts as a „super peer”, thus forming the attitudes and behavior of the adolescents. This suggests that the media can become a particularly important source of information concerning sexual behavior as well.

According to the latest data provided by the KSH (Central Statistical Office) in Hungary in 2011 there were 170 abortions among children under 14, and 4539 abortions among 15-19 year-olds.

According to the Hungarian Scientific Society of Family and Women Protection one of the main problems is that young people are still underinformed, they are not familiar with the basic birth control methods.

By conducting a questionnaire survey among 16-17 year-olds we can learn more about their way of thinking and their value concepts. What is the driving force of their actions, what are the main factors of our society that influence them dominantly?

By learning about their value concepts and the protective factors we can gain awareness of the power resources, so that we can help them apply those more efficiently.

AIMS OF THE STUDY

When deciding on the topic and aims of the given dissertation we were driven by the desire to gain knowledge that can be applied directly in the communication practice seminars. We were looking for an answer for the following questions: What is the best way to reach out to adolescents and address them? What are the most important values that we should convey to them?

These aims could be reached only by the means of interdisciplinary research. To define the values we needed health sociological and health psychological knowledge, and to find the best methods we needed communication, pedagogic and media studies knowledge.

When defining the immediate aims of the given dissertation we had to keep an eye on the very complex nature of the topic, but also on feasibility, so the topic had to be narrowed down. We decided to focus our attention on the areas that are typical for the interests and attitudes of 16-17 year-olds, so we mainly concentrated on the role of sports, sexuality and media.

Our aim was study in the given age group:

- the quantitative and qualitative features of the "consumption" of sports and media; what factors (motivation, role models) influence their "consumption";
- the level of their self-esteem and sense of coherence as dependent variables (as national data is not available in this age group we found it important to compare our findings with the results of the international literature);
- their opinion concerning sex education methods; what methods, what settings, what implementation methods would they find effective?;
- besides electronic media, is there a need for personal communication among 16-17 year-olds concerning abortion prevention?

Our presupposition was:

- there is dependent and interdependent correlation between physical activity, sport, self-esteem and sense of coherence.

We wanted to compare:

- the view points of 16-17 year-olds and specialist doctors on the knowledge 16-17 year-olds have about abortion;
- what abortion prevention methods do 16-17 year-olds and specialist doctors find effective in the area of abortion prevention.

DATA AND METHODS

DATA

Two studies were carried out in parallel between January and June 2012. One of the studies aimed at the target population (16-17 years old Hungarian youth).

As it did not seem to be feasible to collect and analyze data that would be representative for all respects on a national level (using only our own resources), the target population was narrowed down geographically to the South-Transdanubian region of Hungary. Based on the 2011 statistical data of the Central Statistical Office and statistical data of the public education system a stratified random sample selection was carried out for settlement types (inhabitants >100,000, 30-100,000, < 30,000) and for school types (secondary vocational school, secondary technical school, secondary grammar school). Nearly 1200 young people were selected in the region for data collection based on the above criteria.

Data collection was carried out in secondary schools, in the frame of class training, with the permission of the headmasters and the parents. The filling of the questionnaires was voluntary and anonymous. Every student of the respective classes was included into the sample, which means 1200 persons altogether. 1127 questionnaires were collected all together, there were 1091 complete questionnaires (587 boys and 504 girls). 54.3 % of the students were 16 years old, the rest of them were 17.

A parallel study was conducted among gynecologist specialist doctors.

According to the records of the Hungarian Office of Health and Administrative Procedures in the time of our research, in 2012, there were 1336 certified gynecologist specialists in Hungary. Our aim was to reach 5% of them and get measurable data from them, so we mailed 106 questionnaires to them. We received 102 questionnaires all of which were complete. 90% of the doctors were male doctors, and they had been working in their profession for 26±11 years on average. During their career they met teenagers with abortion questions almost on a weekly basis.

Research methods

Questionnaires for 16-17-year olds

Our partially self-developed questionnaires contained the following topics:

Sociodemographic variables, such as sex, age, residence location; family (parents' education, occupation, employment); school type.

In the field of health preservation we dealt with physical activities and abortion, investigated the questions of subjective well-being and media use.

For measuring the students' sense of coherence we included in the questionnaire the 13-item version of the Sense of Coherence Scale (SOC) based on Aaron Antonovsky's concept (Antonovszky, 1987). It is a

validated measuring instrument for both adults and adolescents (Eriksson & Lindström, 2005). The possible answers on the 7-point scale were coded according to the instructions of Antonovszky (1987) and Eriksson & Lindström (2006) in a way that the higher score would mean higher sense of coherence. We defined the total points of the questions along the three dimensions ("comprehensibility", "manageability" and "meaningfulness") and also the total score. For this latter scale the Cronbach' alfa score was 0.71. The Cronbach' alfa values for each dimension also succeeded 0.60.

For measuring **self-esteem** we chose the most widely used Rosenberg Self-Esteem Scale (RSE). It is compiled of 10 items that consist of a Lickert-type (four-grade) response option. The two end-poles of these response options are: full agreement and complete lack of agreement.

For investigating the abortion prevention topic we developed questionnaires for the students and for the gynecologists that partly overlap. When it was possible we used exactly the same questions. We investigated the access channels with the help of a 1-5 grade scale, where 1 means inefficient and 5 means very efficient.

Questionnaire for gynecologists

In our self-developed questionnaire we investigated abortion prevention, mainly the following two issues:

1. According to the gynecologists how familiar are the 16-17 year-olds with birth control methods, how aware are they of the consequences of abortion?
2. What educational methods, what settings and methods would they find effective in preventing abortions?

Statistical analysis

Collected data were recorded in EXCEL spreadsheet program, for data processing and statistical analysis we applied the software SPSS 20.

To characterize the inner consistency of the applied scales we used Cronbach alfa.

We prepared detailed descriptive statistics (relative frequency, average, deviation), and then we applied a Mann Whitney test and a t-test to check the statistical significance of the deviations. For examining the coherence in qualitative data, we calculated a chi-square probe, for the rank numbers we used Spearman's rank correlation. In the case of every test we considered the result to be statistically significant if the level of significance did not exceed 5%.

RESULTS

Quantitative and qualitative attributes of sport "consumption"

Besides their compulsory PE lessons 29% of the young people surveyed pursue sports less often than weekly, or never. Boys pursue sports significantly more often than girls.

39.6 % of the boys do sports almost on a daily basis; this is only 20.8% among the girls.

Among the boys who do physical training (or pursue sports) on a regular basis, the following activities were mentioned as the most common: cycling, football, hiking, jogging/running, body building. During term-time football is the most common sport, followed by cycling, body building and jogging/running.

During the school holidays there are changes in the ranking. Although a lot of students play football, but cycling is also catching up.

During holiday similar to boys girls are more willing to do leisure time physical activities. The most common activity is cycling, followed by hiking. A relatively large number of girls jog, run, or perform gymnastics at home. The fifth most common activity according to the questionnaires is dancing, as opposed to body building among boys.

During term-time significantly fewer girls pursue sports. Those who do are most likely to choose jogging, running or cycling.

Motivation for sporting, role models

When investigating the students' motivations for pursuing sports, recreation and relaxation got the highest scores in both sexes. The biggest difference in boys' and girls' motivational choices was in the answer "to achieve good sport results". 29% of the boys voted for this option, while only 11.1% of the girls found it important.

Doing physical activity for the sake of achieving healthy lifestyle got high scores from both sexes, but it reached 12% higher value among the girls.

A particularly compelling low percentage marked that they do sports only for the sake of company, 8.5% of the boys and 6.3% of the girls.

We also examined the extent to which young people choose role models. They could choose only from role models recognized on the basis of their performance (actors, athletes), celebrities were not mentioned. Only 30% of the respondents stated that they had no role models.

Quantitative and qualitative attributes of media "consumption"

With respect to media "consumption" (how often do they read newspapers, watch TV or use the Internet) there were not significant differences between boys and girls. Among media (press products, TV, the Internet, radio) the Internet is "consumed" in the highest degree, as it was expected. Most young people use the social networking sites.

Our research showed that while 49.7% percent of the 16-17 year-olds spends 3-4 hours in front of the Internet daily, they spend no more than an hour by doing some kind of a physical activity.

Sense of coherence and self-esteem

The higher the value the respondents reached on the SOC scale, the higher their scores turned out to be, measured on the self-esteem scale. With the boys, Pearson' $r= 0.357$, $p<0.001$, with the girls 0.426 , and $p< 0.001$; that is, the connection can be pointed out in the case of both sexes.

We checked the correlation between the respective components of SOC, such as

- comprehensibility;
- manageability, manifested on behavioral level;
- meaningfulness, and
- separately between the *self-esteem* measured with RSE_positive and RSE _negative scales.

Also when broken down by sexes, according to the results, a very strong correlation can be pointed out between the sense of coherence and self-esteem in both sexes when applying the complex means of measurement, just like when researching the components.

The effect of the parents' education

The parents' education influences the type of the school children choose.

If we study the effects of the parents' education on the children's media consumption within a particular school type, it is only TV watching habits where there are significant differences. Children whose parents have lower education watch TV more often and it is true for all the school types, both for boys and girls.

When we study the parents' level of education and their children's sense of coherence the results show that the children of parents with higher education have generally stronger sense of coherence than the children of parents with lower level of education, in both sexes. Among the respondents the mother's education proved to be a strongly influencing factor. The father's education was significantly influencing on the children's SOC only in the case of secondary grammar school students, while the mother's education showed significant influence on both the SOC and self-esteem in all school types.

Connection between sport, sense of coherence and self-esteem

Considering the big difference that can be experienced between the two sexes in pursuing sports as well as the level of physical training, we continued to research the connections within the sexes.

Competitive sports have a very strong influence on self-esteem, and this was proved to be true for boys and girls as well.

As an average, those who pursue sports competitively possess a stronger SOC than those who do not, and this statement is valid for both the boys and the girls. According to the t-test, with boys: $p=0.021$, with girls: $p= 0.024$.

When investigating the relationship between the frequency of pursuing sports and SOC we found that the average SOC score was the highest among those who do physical training almost on a daily basis and it is decreasing with less frequency. This is true for boys and girls as well.

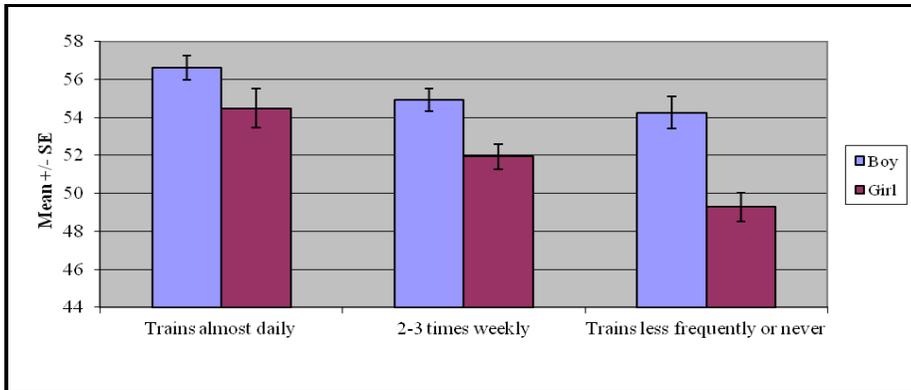


Figure 1
Average values of SOC according to the frequency of physical training within the sexes

We got similar results when investigating the relationship between sports and self-esteem. Between the frequency of physical training and self-esteem, Spearman's correlation coefficient is strongly significant ($p<0.001$).

When illustrating the relationship between the frequency of physical activity and self-esteem we can observe a similar diagram, though less steep.

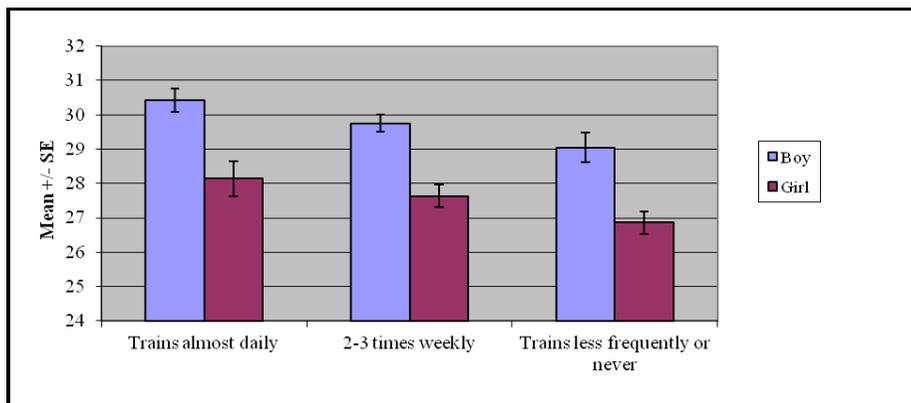


Figure 2
Average values of self-esteem according to the frequency of physical training within the sexes

Gynecologists' opinion concerning contraception and abortion awareness, and the importance of the immediate environment as an influencing factor

According to the gynecologist specialists 17% of the 16-17 year-olds is not aware of the consequences of abortion, and only 3% of them are informed adequately.

Specialists take a view that only 11% of the examined age group is familiar with contraceptive methods to an appropriate level and 4% of them are not familiar with birth control methods at all.

Specialists assume that parents play a moderate role in their children's sex education. Only 1% of the parents take significant role and 2% does not play almost any role at all.

Nearly 71% of the surveyed doctors consider it necessary for the parents to support, assist in their children's sex education.

When asked about the familiarity with pediatric gynecology consultation possibilities 10% percent of the specialist doctors replied with "not familiar" and nobody said that young people would be well informed about this possibility.

The specialists' experience shows that 22% of the girls do not seek specialist advice by visiting a gynecologist before starting sexual activity, so according to the specialists' opinion young girls do not typically visit a gynecologist before starting sexual activity.

When trying to find an answer for the question why the abortion rate among 16-17 year-olds was so high the doctors mostly agreed (71%) with the answer that adolescents show irresponsible behavior. Fewer specialists, only about 40%, found that the reason behind the high number of abortions is due to the lack of information concerning the biological background of the sexual activity and contraception options.

We also investigated if there was need for school leaders to show a more open attitude towards sexual culture and behavior, family life education. 84% of the gynecologists gave yes as an answer.

The opinion of the 16-17 year-olds concerning access channels and methods

The respondents from the listed possible access channels chose personal conversation and advice session methods in the first place with 3.9 point on average, the more intensive role of public health nurses got 3.7 points.

They listed access to the method of emergency contraception without prescription and a health day event with a specialist as the third best method.

These were followed by more intensive role of educators and opportunities for being able to purchase contraceptive pills without prescription.

The score of peer educators is also high: 3.3 on average.

However, the Internet as an access method weighed less: 3.1 on average.

The score of short publications, booklets, and brochures was under 3.

Periodic awareness campaigns, interactive health education events, books, TV, radio, and the printed press also scored under 3.

When comparing the specialist doctors' and 16-17 year-olds opinions we found two areas where young people marked a particular method more important. Young people find that access to emergency

contraceptive pills from chemists' without prescription and being able to purchase birth control pills without prescription are important birth control methods, while the doctors' opinion of these is the least favorable. In addition young people find the more intensive role of public health nurses more effective, as opposed to the doctors' opinion.

FINDINGS

We carried out our research in the South-Transdanubian Region, investigating the risk factors and the preventive elements of the health preserving behavior of 16-17 year-olds, namely physical training, subjective well-being and abortion prevention. The data we collected were representative to settlement type, gender and school type. We have gained relatively exact, up-to-date current data concerning the opinion of 16-17 year-olds on sporting habits, media consumption and abortion prevention.

The generation survey "Stress in America", carried out by the APA in 2012, calls attention to the fact that stress dominates peoples' lives to an ever greater extent.

We considered the investigation of SOC necessary because according to the professional literature, SOC is an important power source with a personal character that helps to cope with the stressful events of everyday life (Moksnes, Espnes, & Lillefjell, 2011, Lindström & Eriksson, 2005, Eriksson & Lindström, 2006). Handling stress is also significant because its long-term effect has been proved to contribute to developing national diseases such as high blood pressure as well as psychosomatic illnesses.

Adolescence is characterized by uncertainty, dominance of external social influences. In this phase of life the individual has to be able to develop a relatively stable, healthy self-esteem, for achieving which several coping techniques are necessary. It has been proved that there is a strong positive relationship between self-esteem and the sense of coherence. Those who have stronger sense of coherence have higher self esteem as well.

Those who possess a higher self-esteem are capable of coping with challenges and negative experience more easily, and in their social relationships feel that they are valued and respected. Such people handle conflicts well. For most people high self-esteem leads to happy and productive life.

A higher SOC as a power source that ensures more efficient adaptation should be achieved already in adolescence. This is dominantly necessary in the case of girls. One of the means of this can be pursuing sports.

Based on our research we have come to a conclusion that sport indirectly improves self-esteem and stress management.

Our research has proved that a very large proportion of the respondents (about 70%) have a role model. Based on the results we recommend that health promotion programs should not be developed on purely rational principles as emotional elements strongly affect young people. One of the means of this can be setting role models to follow. By seeing them, young people may have a desire for their positive behavior,

such as doing sports. When designing health promotion programs, especially in the case of media assisted programs it is worth taking this into consideration.

There are a lot of excellent health promotion programs implemented that help health education in the short run but their impact is not sustainable in the long run. We recommend that motivation should also be considered and role models brought into the foreground, as motivation, emotional linking can promote sustainability. The goals should be stated and restated over and over again. We find it necessary to come up with reminder programs, such as newsletters, available experts, virtual communities and face to face meetings.

Our survey results show that in the circle of the 16-17 year olds inner motivations are dominant, which is significant from the aspect of a long-term positive attitude towards sport. Motivation is an urge that influences behavior. The effect of outer motivations can be strong, but these are rather situation-dependent. Permanent urges, perspective effects can be mostly achieved with inner motivations.

As we experienced, the main motivating force is not to achieve sport results, but recreation and healthy lifestyle.

If we want to urge young people to be more physically active, we also have to create an environment which ensures the opportunity for training. Even more bicycle roads, sports grounds, parks, traffic-free zones are to be developed; more sport equipment is to be made available.

In the field of abortion prevention we compared the opinions of gynecologists and 16-17 year-olds concerning access methods. The outcomes of this novel approach may contain valuable information for public health nurses, doctors, educators and parents as well.

Our research has shown that despite the rapid development of information technology 16-17 year-olds still want to have the opportunity to request personal advice concerning abortion prevention and they especially count on public health nurses. The results of our survey show that it is recommended to maintain the existing public health nurse network further.

In the future computer/mobile applications can serve as means of informing young people, but our experience shows that they are the most effective when used for arousing interest, transmitting short pieces of information, short messages. Health educators have to be able to design the use of new infocommunication devices and co-operate with mass media specialists in order to be able to utilize and influence this field.

As a consequence of the changing lifestyle and the rapid information environment, public health situation is changing rapidly too. We have to be able to keep up with it. Public health practice has to conform to the 21st century.

We consider it important to spread the results of our research studies in professional as well as non-professional circles – also reaching the target group. They are all responsible for the decisions that they make for the sake of their health. We can only help them make the best decisions. Taking responsibility

for our actions is an individual task, but introducing the means, unfolding cause-effect connections, promoting understanding and recognition is already a social task.

When trying to establish well-founded, up-to-date prevention, health and education programs, research studies that provide us with guidance and clues, give us a picture of the attitudes by getting the target group involved play a key role. It is necessary to study the students' knowledge, attitude, to discover deficiencies, false ways of thinking. With this knowledge their prevention needs and wants can be identified. By studying and analyzing access channels to young people our aim was to offer valuable data to health policy makers, educators and the medical profession. The outcomes can be used in several areas. They can be useful in secondary schools, for experts dealing with youth, but they can also help policy makers and facilitate targeted, more conscious communication.

Success is not certain even if we choose your target group well. Even the most meticulously designed program can be unsuccessful if it does not take into consideration the local cultural patterns, customs and the attitude of the particular group to health.

This is why we believe that surveys that aim at a precisely defined target group, map the socio-cultural conditions, customs and choices are significant. We hope and believe that our research belongs to this group of studies.

NOVEL FINDINGS

- Using a novel approach we studied the interrelations between SOC, self-esteem and sport/physical training on a Hungarian population. We have come to a conclusion that sports increase the self-esteem of adolescents, directly and also by increasing their SOC. We got this result when the questions were worded either in a positive direction, or in a negative direction.
- It has been verified that there is strong positive connection between self-esteem and sense of coherence; those with higher level of sense of coherence have higher self-esteem as well.
- By comparing the outcomes of our study with the results of a Norwegian study (Moknes and co-workers) it has been found that young people in Norway have higher sense of coherence than their Hungarian counterparts. On the standard SOC-13 scales the values in the Norwegian sample were nearly 10 points higher on average ($p=0.028$) than in the Hungarian sample, while in other respects (ex. differences between sexes) they showed totally similar values.
- We have gained relatively exact, up-to-date data concerning the sporting habits, media consumption and abortion prevention related opinion of 16-17 year-olds.
- It is important even from a theoretical point of view that we have discovered that as regards to the sporting motivation characteristics peer group effect is less dominant. Relatively few young people (<10%) pursue sports for the sake of peer company.

- It has been proved that the self-esteem and sense of coherence of those who pursue competitive sports are higher than that of those who do not do any sports. Even in the case of those students who do physical training as a recreational activity, sense of coherence and self-esteem is rising with the regularity and frequency of training. This is a strong trend among boys and girls equally.
- It can be considered as a novel result what we discovered when investigating the connections between the parents' education, the children's' school types, sporting habits and media consumption. For example, when looking at the parents' education we have found that from among the media there is significant difference only in the case of watching TV; the children of parents with lower education watch TV more often and it is true in all school types and for both sexes.
- Concerning media consumption it is only girls who believe that the media influence them (the only exception is the radio). There is no significant difference between the sexes concerning radio; radio influences them less than the other media.
- In spite of the expansion of electronic devices in the area of abortion prevention among 16-17 year-olds there is still demand for personal communication and the work of public health nurses.
- A textbook made for school education refers to the results of our study investigating sexual issues.(Dr. Tóth Ákos (2014). Egészségtan, iskolai egészségtan 3.1. Túl korán kezdett, felelőtlen szexuális magatartás – Health education for schools, Chapter 3.1 Too early, irresponsible sexual behavior)

We would like to wrap up with Varga's (2003) thought: by investigating values we gain extra information as well. We learn something about the human being, about our society, about the motives of our current world. The researcher who is investigating values can promote scientific and public orientation, attitude of mind and future orientation by making research evidence available for debate.

This is what we are doing now.

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