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Overview of the efficiency of peer counselling in the reproductive health promotion work and results-based exposition of the Ariadné Multi-Generation Health Promotion Program

Theses of PhD dissertation

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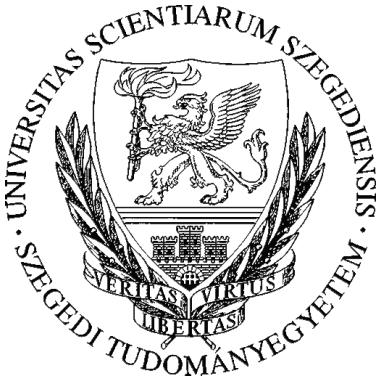

Health Education Doctoral Program

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Healthy youth is the pillar of the future of Hungarian society. The preservation and development of the health of the new young generation is a shared role and responsibility for all of us. School health education enables students to acquire knowledge and skills, including the issues of balanced nutrition (*Szabó, Pikó*, 2017), joyful motion, safe human sexuality, harmonious family life and a healthy environment. As the ages of children rise, the role of the peer community is becoming more and more appreciated so that peer trainers can effectively take part in the delivery of information and in the development of health behaviour. The results of effective education determine the health behaviour, lifestyle and ultimately the health of students and their environment in the long term.

Under the leadership of the Department of Behavioural Sciences of the Medical Faculty of the University of Szeged, since the mid 90s, the education of peer counselling health promoters is organized. Qualified peer trainers provide assistance to primary and secondary schools in Szeged. The work of health promoters carried out by peer trainers, typically by medical students, is well-known and acknowledged to this day. The question according to which how effective is the work of peer trainers already arose at the beginning. How successful is the transfer of knowledge? To what extent do the attitudes of students change due to health promotion activities? Do the key competences of students, including science, communication and social competence, develop? (*European Council*, 2006) If they do so, how lasting is the change? Is it long-lasting enough to influence later on their sexual behaviour, their choice of partner or their decision of having a child? The previous issues have already been studied in a number of research series, however, we were – and we are – curious about the local results, since health promotion can only be effective when it comes to addressing community members, if local customs and values are taken into account. Our research is also important because in the field of the examination of sexual attitudes, Hungary is lagging behind the Western countries (*Szilágyi*, 2004).

Theoretical background of the research

Health, Health Literacy, Health Behaviour

The health index of the adult population continued to deteriorate from the late 1960s until the end of 1993. From 1996, the life expectancy at birth is somewhat better, but still very poor compared to many other countries. Primarily environmental and lifestyle damaging factors can be attributed to the evolvement of illnesses (*Hamy, Pucsok,* 2008). The concept of health always reflects the current concept of health education and also combines the cultural and social perception with professional wording. Understanding the concept of health is important for understanding health-preserving activities and exploring their dynamics. Based on the negative definition of health, it means the absence of disease or abnormal condition. However, the positive definition of health places the emphasis on well-being. The definition of health is often distorted by beliefs and dogmas (*Pikó*, 2005; *Kósa,* 2006), whose existence cannot be disregarded during a health promotion activity. The World Health Organization (WHO) defined health in 1946 as "a state of physical, mental, and social well-being and not merely the absence of disease or infirmity."· This definition highlights the holistic dimension of health (*Quesnel-Vallée*, 2007). The Ottawa Charter of Health promotion states that „Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities. Therefore,

health promotion is not just the responsibility of the health sector, but goes beyond healthy life-styles to well-being." (*Ottawa Charter of Health Promotion,* International Conference on Health Promotion, Ottawa, 17-21. November, 1986) According to *Seedhouse* „The optimal state of health equals all the conditions in which the individual can develop all the possibilities he has. This definition gives you the opportunity to keep things different and different from one another, but it is necessary to take into account the conditions: the conditions are to get the right food, to be protected from weather conditions to get all the information that has an impact on life, in order to understand that as a community being, it may only be possible to evolve until it is blocked by others". (*Seedhouse*, 1995) The purpose of future health behaviour research is to reveal lay definitions and to find out whether they are similar or different from expert forms (*Nagy, Barabás*, 2011). The most comprehensive information about the established picture of an individual's health, which basically defines the opinion of the importance and value of his/her own health as well, can be obtained through the help of "12 points of Healthy Lifestyle" (*Simon et al.,* 2007) developed by *Prof. Dr. Tamás Simon* (*Simon,* 2006).

Health Education, Health Promotion, Health Maintenance

The term health promotion was first mentioned in the presence of the Canadian Health Minister in 1975, in the so-called Lalonde report. This has drawn attention to the fact that the causes of illnesses and deaths are found in the so-called health fields defined by physical and social environment and lifestyle, but money related to improve health conditions is only limited to healthcare (*Lalonde*, 1975).

Health education is based on two main elements: (1) purposefulness (2) voluntary commitment to change (*Csonka, Vértes*, 1998). Health behaviour is "personal attributions such as convictions, expectations, motives, values, perceptions, and other cognitive elements; personality traits, including emotional states and individual characteristics; and certain patterns of behaviour, activities and customs that relate to the maintenance, restoration and development of health". (*Gochman*, 1988)

Theoretical background of peer counselling

Theories arise from very different philosophical sources, especially some sociological and psychological theories (*Wilton et al.*, 1995), the situation in Hungary is very similar until today(!), so it is especially important to process the early experiences of Western Europe and the United States (*Molnár*, 2015). The benefits of having peer trainers in the education of young people are not always clear, however, there are 10 commonly used reasons for that in the literature of peer counselling:

- Education based on peer counselling is more cost-effective than other methods. (*Jones*, 1992 quoted by *Turner, Shepherd*, 1999; *HEA*, 1993; *Peers et al.*, 1993).
- Peer trainers are authentic sources of information. (*Perry*, 1989; *Woodcock et al.*, 1992 quoted by *Turner, Shepherd*, 1999; *Clements, Buczkiewicz*, 1993 quoted by *Turner, Shepherd*, 1999; *Jarvis*, 1993; *Feith, Melicher, and Falus*, 2015; *Molnár*, 2015).
- Peer counseling education empower the participants to impart their knowledge. (*HEA*, 1993; *Feith, Melicher, and Falus*, 2015; *Molnár*, 2015).

- A mature tool for sharing and consulting information. (*Finn*, 1991 quoted by *Turner, Shepherd*, 1999; *Clements, Buczkiewicz*, 1993 quoted by *Turner, Shepherd*, 1999; *Jarvis*, 1993; *Feith, Melicher, and Falus*, 2015).
- Peer trainers are more successful in delivering certain information than professionals, because the students involved in education identify with their peers. (*Clements, Buczkiewicz*, 1993 quoted by *Turner, Shepherd*, 1999; *Peers et al.*, 1993 quoted by *Turner, Shepherd*, 1999; *Feith, Melicher, and Falus*, 2015; *Molnár*, 2015).
- Peer counseling instructors provide a positive role model. (*Perry, Sieving*, 1993 quoted by *Turner, Shepherd*, 1999; *Clements, Buczkiewicz*, 1993 quoted by *Turner, Shepherd*, 1999; *Feith, Melicher, and Falus*, 2015; *Molnár*, 2015).
- Peer counselling education is also useful for those who participate in the work as an instructor. (*Klepp et al.*, 1986 quoted by *Turner, Shepherd*, 1999; *Ford, Inman*, 1992 quoted by *Turner, Shepherd*, 1999; *Hamilton*, 1992 quoted by *Turner, Shepherd*, 1999; *HEA*, 1993; *Phelps et al.*,1994; *Feith, Melicher, and Falus*, 2015).
- Education by peer trainers is also accepted by those who are not open to other forms of education. (*HEA*,1993; *Feith, Melicher, and Falus*, 2015; *Molnár*, 2015)
- By involving peer trainers, those, who are difficult to be addressed by traditional methodological tools, can also be educated. (*King*, 1993 quoted by *Turner, Shepherd*, 1999; *Rhodes*, 1994 quoted by *Turner, Shepherd*, 1999; *Feith, Melicher, and Falus*, 2015; *Molnár*, 2015).
- The peer trainer supports the learning through continuous contact. (*Jay et al.*, 1984 quoted by *Turner, Shepherd*, 1999; *Kelly et al.*, 1991 quoted by *Turner, Shepherd*, 1999; *Feith, Melicher, and Falus*, 2015).

It can be seen from the theories that the approach to the issue of peer counselling is not unitary, and oftentimes the rather empirical answers are impossible to be explained with a single theory (*Devosa, Kozinszki, and Barabás*, 2012). Efficiency itself is treated as a fact by all theories, and this is the area that has been examined closely in our research presented later on. During the prevention work of HIV/AIDS in Hungary, researchers also faced with the fact that the means of communication (*Molnár*, 2015, *Devosa, Kozinski, and Barabás*, 2013) and the frontal educational system used in the prevention work was inadequate (*Feith, Melicher, and Falus*, 2015). The following summary list combines the requirements of peer trainers with the presented theories (*Turner, Sheperd*, 1999):

- Cost-Effectiveness: Diffusion of Innovation Theory.
- Credibility: Social Learning Theory, Social Inoculation Theory, Role Theory, Differential Association Theory, Subcultural Theory, Diffusion of Innovation Theory.
- Efficiency: Role Theory, Subcultural Theory, Diffusion of Innovation Theory.
- Role Modelling: Social Learning Theory, Social Inoculation Theory, Diffusion of Innovation Theory.
- Admissibility: Social Inoculation Theory, Role Theory, Subcultural Theory, Differential Association Theory, Diffusion of Innovation Theory.
- Confirmation: Social Learning Theory, Diffusion of Innovation Theory.

Analysis of „REPROSTAT 3" data

"REPROSTAT 3" is a global, Europe-wide survey with outstanding public health significance (*Glisser et al.,* 2012). This was the first project to gather information on sexual and reproductive health in all EU Member States. This survey was preceded by two others so that a positive trend can be established within the EU: the number of teenage pregnancies and sexually transmitted diseases (STDs) have decreased (*Imamura et al.,* 2006). The measuring device of "REPROSTAT 3", making use of the experiences of the previous projects, was developed specifically for the Member States, so it could be used more efficiently (*Fronteira et al.,* 2009) because the reproductive health indicators were already developed in the previous "REPROSTAT 2" (*Temmerman et al.,* 2006). Based on the observations, there is an upward trend that young people are getting sexually active earlier (*Imamura et al.,* 2007). The Hungarian results of *Judit Forrai* (2015) also echo with the results of "REPROSTAT 3", according to which, regular and continuous information given from the right age is efficient in helping the effective use of contraceptives and disease prevention. According to the results of "REPROSTAT 3", a considerable part of 15-year-old girls already have sexual experience and that there is a significant difference between young people in EU countries regarding the frequency of using contraceptives during the first sexual act (*Jahn et al.,* 2006). Based on "REPROSTAT 3", 4% of Spanish young people use contraceptives in Spanish, while 52% of Dutch young people protect themselves in this way. The use of condoms is very popular in Spain (89%) and the least popular in Sweden (65%). During the first time of being together, girls use this method with their male partner in 95% of cases in Spain. Pregnancy indicators of teenagers vary considerably across the European Union (*Part et al.,* 2013). While statistical data show low abortion frequency among the 15-19 years old age group (10 abortions / 1000 people) in Greece, Lithuania, Germany, Italy, the Czech Republic, Belgium, Slovenia, Slovakia, the Netherlands and Portugal, in three countries – Sweden, Great Britain and Estonia – 20 abortions / 1000 people. The general tendency is that in Southern European countries this ratio is lower (9.5 abortions / 1000 people) than in Central Europe (12.6 abortion / 1000 people) or in Eastern European countries (13.8 abortion / 1000 people). The number of abortions carried out over 20 years is extremely high in Britain (21.4%) and in Finland (20.1%) but low in Greece (4.9%). In Hungary, only the number of teenage pregnancies is known, but their underlying reason is not, and we have no nationally representative information about how many of them use contraceptives and of what type. It was therefore justified to assess the willingness of contraceptive usage in the South Hungarian population and to prevent the increase in the number of teenage abortions and to develop a more responsible attitude by effective sexual education.

Two-phase empirical study on sexual risk taking among the students of Szeged.

Objective

The question arises that the pattern of sexual behaviour is whether due to lack of knowledge or the behaviour of young people does not reflect their knowledge. This can be illustrated by the epidemiological data series, which display the paradoxical outcome of the relationship between abortions and sexually transmitted infections (STIs).

Our primary objective was to find out what kind of behavioural factors lie in the background of epidemiological data. The decline in the number of abortions can be explained by the spread of contraceptives, but the feeling of falsehood may lead to irresponsible promiscuous behaviour and to the effacement of other protection options. The further question is that how does the flow of young people into the city affect the sexually risky behaviour: whether the attitude of the urban life – "no one knows me anyway" – changes the behaviour of young people.

In order to investigate this issue, an anonymous questionnaire survey was carried out in the first phase of the research to identify factors affecting "high risk" sexual behaviour among the students of the University of Szeged.

The results of the cross-sectional questionnaire survey carried out in 2009-2010, focusing on student behaviour and attitudes, raised the question also within the domestic frameworks that how the sexual behaviour of pupils has been influenced by their knowledge of reproductive health gained in school (*Devosa, Kozinszki, and Barabás*, 2011a).

As a second objective, we conducted the second phase of the research in 2010-2011 with the emphasis on this issue, where the subjects taking part in the research indirectly assessed their formerly education of reproductive health education in school context. We wondered what factors dominate the development of their sexual behaviour. In what ways did the different forms of education, the influence of the media, and the social relationships influence the sexual culture of the examined population (*Devosa, Kozinszki, and Barabás*, 2011b).

Our ultimate objective is to have the results of our study used to develop the curriculum of sexual culture and family life.

Hypotheses

(1) The date of the first sexual intercourse is postponed in the cases of those who received sexual information.
(2) The most popular method of contraception among young people is condoms.
(3) About the most serious STI of our time, which is the HIV infection, young people get rich information which is reflected in their knowledge.
(4) Peer trainers are considered to be the most reliable source of information.
(5) The spread of reliable contraceptives has increased among young people.
(6) The monogamous relationship is also the most desirable form for young people, and any other form of contrary behaviour is rejected.
(7) The effectiveness of reproductive health education in schools is low.
(8) Those, who have considered peer counselling reproductive education to be reliable, start having sex later.
(9) Free sex life is more prevalent among young people who consider the activities of peer counselling reproductive health promotion to be less reliable.
(10) Urban lifestyle increases the chance of taking risky sexual behaviour.

(11) Religiousness also has a dissuasive effect on sexual risk-taking behaviour.
(12) It is assumed that young people, who consider peer trainers as a reliable source of information, are more likely to reject artificial abortion as a family planning tool.

Sample, Method, Measurements

The participants of the questionnaire survey on the characteristics of sex life were randomly selected from students of the University of Szeged by their age and place of residence from the registration system of the university students with the help of the self-developed Random Generation Software. In the first phase, N=434 participants were examined, so 234 women and 200 men were included in the sample. In the second phase, N=716 were examined, so 396 women and 320 men were included in the sample. Regarding the age group, the sample seems to be relatively homogeneous: typically, 19-23 years of age. The electronic questionnaires were continuously filled out in the first semester of the 2009-2010 and 2010-2011 academic year, in the computer classrooms of SZTE JGYPK where I was present at all times during the survey so the participants could get adequate answers to the questions raised. Based on the methodology used, our sample became extended to the nationwide population. The questionnaire used in the first phase was adapted from the questionnaire developed by the Pro Familia Hungarian Scientific Society. We have added additional items according to our requirements, but we have not taken out original items to maintain comparability. The questionnaire was written in PHP programming language so the filling did not cause technical difficulties for students during using a browser application.

The reliability of the questionnaire regarding Cronbach-α, showing internal consistency, was 0.892 for the full measurement device, which is considerably good.
The questionnaire is divided into the following blocks:

1. "Personal data" (6 items)
2. "Knowledge about Sexuality" (9 items)
3. "Personal experience of sexuality" (12 items)
4. "Attitude issues" (4 items)
5. "Further questions about your family and your living conditions" (10 items).

The questionnaire contains single and multiple choices.

In the second phase we conducted a self-developed anonymous questionnaire survey among the students of the University of Szeged. The reliability of the questionnaire regarding Cronbach-α, showing internal consistency, was 0.778 for the full measurement device, which is appropriate.

The questionnaire is divided into the following blocks (the socio-demographic situation survey based on the new psychological theories is situated at the end of the questionnaire and partly scattered in the questionnaire):

1. Block related to dependency:
    a) "Drinking habits" (3 items)
    b) "Smoking habits" (1 item)
    c) "Drug Consumption Habits" (4 items)
2. "Knowledge related to reproductive health" (14 items)
3. "Contraception" (24 items)
4. "Sexually Transmitted Diseases" (9 items)
5. "Questions related to childbirth / child raising" (7 items)
6. Socio-demographic "Background questionnaire" (17 items)
7. "Questions related to information in school" (15 items).

The questionnaire contains single and multiple choices and open questions can also be found. The questionnaire was technically powered by Google Drive, using the Google Forms cloud application that was still running on trial. As a result of the technical results, we used the cloud-based system for our future research as well because of its low cost and high reliability and availability time. As a statistical method, the evaluation of comparisons in the case of continuous variables happened with the Mann-Whitney U test, while for categorical variables, the $\chi 2$ test was performed. Logistic regression was used for the multivariate analysis of sexual risk-taking behavior with stepwise methodology, during which each risk factor was examined individually, gradually modeling the model. Finally, we presented the most robust, that is, the model that best suits reality, in which we investigated each potential disturbance factor, but we did not find disturbing factor in the final model. In the calculations section, the 95% confidence interval and the odds ratio are also shown. In the cases of tests, $p=0.05$ was considered as a significant difference.

Test results

In the case of the first stage, 474 students out of the 783 participants were sexually active, so we included them in our study, from which 40 people (N=434) rejected participation or their data line was not usable. We consider those, who had multiple sex partners at one time or had occasional sexual partner, to be risk-taking. The group of sexual risk-takers N=231 (gender distribution was N=129 female, N=102 male) while the group of those with permanent partner N=203 (gender distribution N=132 female, N=71 male). Sexual risk-takers had an average age of 20.5±0.78 years, those with permanent partner had an average age of 21.2±0.99 years. The vast majority of the responding students of the two test groups (97% and 97.5%) was single, the proportion of women among the respondents was significantly greater. There was no significant difference in the mean age of the two groups. Less than half of the group of those with a permanent partner (N=203) belonged to the group who had a permanent partner and used contraceptives continuously (N=135) or did not have a permanent partner, but they used a condom every time with an occasional partner (N=68). Sexual risk-takers had significantly more ($p<0.001$) sex partners throughout their lives, but this is valid for the last year or the last 3 months as well. Although sexual risk-takers have established sexual relationship with more partners, they have shown less sexual activity than their counterparts with permanent partners, meaning that they had significantly less ($p<0.001$) sex life. In addition to the frequency of sexual contact, it is necessary to examine which methods are used and considered to be safe by the participants in the study. The interrupted intercourse method (23.8% and 31.0%) and the condom (23.4% and 16.7%) are considered to be safe contraceptive devices. However, the use of emergency tablets (21.6% and 34.0%) has also raised, so many may have needed to use it. For the question according to which why they use condoms rarely, only the members of the risk-taking group responded to a valued number. Risk-taking behavior was associated with the price of condoms: 85.8% of sexual risk-takers used condoms less often because they thought it was expensive. The result was interesting that in the cases of contraception methods, interrupted intercourse was reported to be the most reliable defense method in both groups (23.8% and 31%). In the case of pessaries, the opinions of the two groups differ significantly ($p=0.02$). Both groups typically believe that family is the pillar regarding information on gender and contraception. Health educators were named 10.3% and 13.0% as important health education forum. That is why it is important to have such health educator professionals for the students who are well-prepared for the questions and whom they can trust. Effective health education work can help to delay the date of the first sexual experience and to let the students know that they can get infected at the first intercourse as well if they do not properly protect themselves. The overwhelming majority of respondents considered the transferability of

sexually transmitted diseases in a single sex act as low. The first sexual intercourse occurred significantly (p = 0.03) later in the cases of those who considered school sexual education to be reliable but the number of sex partners was slightly higher in the other group without significant difference. We wondered if the participants were aware of the way of HIV spreads. The communicability of HIV through any form of intercourse, intravenous drug use with common syringe or through blood transfusions, was well known in both of the groups, but much less people knew that HIV can spread in many other ways too. Those who consider health promotion to be less reliable are significantly more likely (p=0.02) to think that HIV can spread in swimming pools. Members of both of the groups know relatively well the sexually transmitted diseases which are of great interest in the media (HIV, gonorrhea, syphilis) and those which are widespread (Chlamydia Albicans, thrush, genital herpes, Human Papilloma Virus). Syphilis is the most common well-known disease in both of the groups (97.6% and 96.6%). Only the Candida infection is known by significantly (79.5% and 63.9%) more participants, who consider school information to be important (p=0.02).

In the case of more widespread and more known illnesses, it was more commonly known among the members of the group trusting in school health promotion that they can be transmitted by vaginal intercourse. Almost everyone knew (96.6% and 98.3%) – thanks to the media – that HIV also spreads through sexual contact. We wondered what was the name of the infection in the cases of those who have ever had a sexually transmitted disease (2.7% and 1.7%). Fortunately, the majority (96.9%) have not had any sexually transmitted diseases – or did not admit it. 2.3% of those trusting in peer health promotion said that they had sexually transmitted disease, out of which 0.6% was Candida infection. Only one person was unable to tell exactly what fungal infection he/she had. It is unknown that those who did not answer to this question (0.9%), have already had a sexual transmitted disease just did not want to answer or did, but could not tell the name, or they were not sure that the symptoms were in relation with sexual transmitted diseases. The question arises whether students are familiar with the symptoms of the infections. Apart from the spread of sexually transmitted diseases, it is also an important question whether the students know how to protect themselves. Regarding the prevention of sexually transmitted diseases, most of them (79.3% and 87.0%) answered condoms in the study groups.

Use and knowledge of contraceptives

Among the contraceptives, the literature considers artificial infertility (cutting, burning, binding of the salpinx or vas deferens), hormone-containing methods, and hormone-free methods of intrauterine contraceptives, to be reliable. However, most of the respondents (88.1% and 93.1%) considered only the contraceptive pill as reliable and surprisingly few knew that contraceptive injection, patch, implant and vaginal ring were also highly reliable so as surgical methods and intrauterine system or device. It is surprising that condoms are considered by many as a reliable method, but it often breaks or slips and its use often leads to unwanted pregnancy (*Kozinszky et al.,* 2001). According to the examinations of *Mansour et al*., condom is a contraceptive with intermediate reliability (*Mansour et al.,* 2010). During the study, we asked which contraception methods were considered reliable. Only a small number of respondents considered the less reliable methods to be reliable. There was no significant difference found in the proportion of the reliability of contraceptives in the two examined groups. Both of the groups said that the most reliable method is contraceptive pills (88.1% and 93.1%), followed by condom (81.9% and 81.0%), then IUS (47.1% and 48.3%), which is a hormone-free spiral and then Tuba ligation (46.4% and 50.0%), which blocks the pathway from the ovary to the uterus for the ovum. Contraceptive pills are considered by students as a more reliable contraceptive device than condoms. However, condom should be used in conjunction

with the contraceptive pill, since it is necessary to think of sexual disorders as well. There was only one statistically significant difference regarding the questions about condoms (p=0.03), many people among those who do not trust in the school information, said that they do not use condom because it is not “sexy”. Most people did not use condoms because they were protecting themselves with other contraceptive devices and according to other subjective opinions, condom reduces sensuality, so in a relationship whether the boy does not want to use it or the partners trust each other. It was against the use of condoms that it was uncomfortable for members of both groups. In our country, pessary, which is a small cap made of rubber that can be attached to the cervix of uterus, is less common and similarly to a condom, mechanically prevents sperm from entering to the uterus. We wondered whether this contraception method was used in our sample. The answers revealed that 94.6% of the respondents have not used pessaries yet. Those who have tried it mostly reported (73.7%) that neither good nor bad feeling was triggered by its use. The use of EC, which is emergency contraception, occurs in the case of inadequate or completely absent defense. The high-hormone tablets obtained from a physician should be taken within 48-72 hours. However, this method does not replace appropriate protection. In the second phase, among those, who took part in school reproductive health promotion, were slightly more number of people (63.5% and 53.4%) who had sexual intercourse without using any kind of contraception method (not even post-event tablets). About one-fifth of the respondents have resorted to emergency tablets after unprotected sexual activity (21.2% and 17.2%). Comparing the two risky gender behaviors, paradoxically, there were significantly (p=0.015) more people from the group considering school-based education as reliable, who did not or did not adequately protected themselves. The use of emergency tablets is not evident to everyone or is not certain to be accessed in time. This is the time when the possibility of abortion arises, which can be influenced by many factors (eg. family, religion, partner). It is apparent from the responses that abortion is considered by a small number of people as acceptable (22.9% and 17.5%), and a negligible number of students have already had abortion (1.7% and 3.4%). Free sex life was also more common among those who did not consider school reproductive education to be important, group sex trying was significant (p=0.04) among the two groups (frequency percentage: 3.1% and 9.8%). In both of the groups, the most frequent was the sexual intercourse occurring several times a week (54.6% vs. 55.2%), while a few occasions monthly, was much less frequent. Regarding protection, it is a pleasure that both sides protect themselves: this method is very high in the two groups: 24.9% and 32.8%, so both sides are trying to protect themselves during a sexual intercourse with both contraceptives and condoms. Considering the current contraception methods, there were no differences between the two groups: most of them used condoms (71.3% and 66.7%) and contraceptives pills (57.9% and 58.8%). The rate of using interrupted intercourse is also significant (18.5% and 29.4%). It can be stated that almost everybody used some kind of contraception method. It is a basic preventive health issue that how often the participants in the study attending a gynecologist or urologist specialist. The attendance of doctors had the same frequency in the two groups, the difference is not significant (p = 0.48). There is a high proportion of those who have not been tested at all (42.1% and 33.4%) and few attend a doctor regularly (3.5% and 8%), the majority only go because of the necessary screening tests or if they have a disease.

Answering the hypotheses

We have received the following answers to our hypotheses:

(Hypothesis 1) Those, who considered information received in the classes of peer trainers as reliable, were supposed to be more conscious about protection and that they postponed the date of their first intercourse as well. We did not find a significant difference between the two groups regarding the time of the first sexual intercourse, for both of the groups this age is at about 15 years of age. It happened in both groups that they did not use protection during sexual intercourse and there was no significant difference between the groups. Based on the results, our hypothesis has not been verified.

(Hypothesis 2) Since the spread of HIV infection, condoms have been used as a reliable method for the prevention of sexually transmitted diseases and as a contraception method throughout the world. In our hypothesis, we also assumed that the condom is the most preferred and most reliable contraception method among the examined population in Szeged. Our assumption was not verified, on the contrary, the participants in the first phase of the study considered an outdated, rather inadequate protection method to be the safest: interrupted intercourse. In the second phase of the research, in which we formed groups according to opinions about health education, our beliefs regarding the use of contraception methods were affirmed, since young people, regardless of how they evaluated health promotion work, consider condom (83.7% and 65.9%) to be a reliable method against sexually transmitted diseases. Significantly more people think ($p=0.000$), who trust in peer health promotion, that condoms are the safest method against sexually transmitted diseases. Based on the results, our hypothesis has not been verified.

(Hypothesis 3) At the beginning of our study it was assumed that the knowledge transmitted by health trainers about HIV infection was fully acquired by the students. In the creation of our hypothesis, the fact that HIV infection is at the center of the media has also played a role, and they could receive adequate information from more sources, and thus young people have relevant knowledge, have also played a role. Although the group members, who consider peer counseling health promotion as reliable, are more familiar with the way HIV spreads, but in contrast with our expectations, both groups had serious shortcomings in their responses, they possess such erroneous knowledge that could endanger their future health. Thus, for example, they were unaware of the ways in which HIV infection can spread, and they do not know about the importance of needle exchange for drug users. It is thoughtful that the students who emphasized the reliability of the information work also believed that swimming pool water could spread AIDS (8.9% and 16.0%). The problem arising from the lack of knowledge of the examined students is especially actual, since the number of HIV infected people has started to rise again. This may be due to the fact that young people have a false sense of safety that their knowledge of sexually transmitted diseases and conception is such that they do not have to fear them. In our country in the past two years, both among women and men, have raised the number of newly HIV-infected people to an extent which has never been experienced. The data and statement revealed in December 2015 by the National Epidemiological Center, drew attention to this undesirable tendency. Based on the results, our hypothesis has not been verified.

(Hypothesis 4) Our hypothesis - based on data of foreign results and on the Peer Counseling Workhouse Foundation (Kortárs Segítő Műhely) from 2011 – was that the most important source of information for young people, to whom they can turn for help and information, is the peer trainer. While in the case of the Contemporary Assistive Workshop Foundation, the population surveyed by them was close to 63 % (*Kortárs Segítő Alapítvány*, 2011), according to our results, family was considered to be the primary source of information on sexual life by both groups in the first phase. Peer counselling as relevant source of information was only the second. In the second phase, peer counselling health promoters were marked to be the first as primary source of information on sexual health (54.8%). Based on the results, our hypothesis has not been verified.

(Hypothesis 5) In accordance with our assumptions, young people are well aware of the reliable contraception methods. Being familiar with demographic data, according to which the biological maturity of the young population has shifted forward, while the time of marriage, compared to the previous years, has shifted backward, to the late twenties and early thirties. The period during which young people do not plan on having children has significantly prolonged: so, preventing unwanted pregnancy has become a significant factor in the sexual behavior of Hungarian youth. Among the guidelines of sexual health education, the spread of knowledge about unwanted pregnancies and infection control is a top priority. Our results: the spread of reliable contraceptives has increased among young people both for risk-takers and for those living in a monogamous relationship. Our results also confirm the findings of *Kozinszky et al.* (2001), according to which school health promotion and the sexual education provided by the media have provided more opportunities to extend the period of having a child. In the groups considering peer counseling health promotion reliable and less reliable, the contraceptive pill (85.8% and 91.6%) is ranked first as a reliable contraceptive device and it is followed by the condom. This hypothesis has been verified.

(Hypothesis 6) Our assumption that for young people monogamous relationships is also the most desirable form and that they reject any contrary behaviour, is justified, since among the rejected behaviours, cheating was at the second place, that is, the exit from the monogamous relationship. For the young, monogamous relationship is also the most desirable form (56.3% and 61.0%). Behaviour counteractive to monogamous behaviour (such as polygamy, cheating, etc.) is considered to be less acceptable and those, trusting in peer counselling health promotion, are more conservative. Our results are in line with the research results published by *Zsuzsa Györffy et al.* (2013), according to which the monogamous relationship is the most accepted and most desirable form of partnership for the majority of today's Hungarian youth. Although the authors report a marked gender difference, that is, women are more likely to feel that marriage means a deeper engagement. In our research, in contrast, we did not find differences in gender in any phase. Based on the results, our hypothesis has been verified.

(Hypothesis 7) In our hypothesis, being aware of the low nature of health culture in Hungary and the deficiencies in school reproductive health education, we assumed that the effectiveness of school health education is weak. This has also been verified, since the interviewed students, despite their sexual behavioural characteristics, showed serious deficiencies in HIV-related knowledge. Their knowledge about other STIs was moderate as well. Supporters of peer counselling health promotion – in the case of some sexually transmitted diseases are significantly – more familiar with sexually transmitted diseases. In both groups, the most commonly known is HIV infection (100.0% and 99.7%). Based on the results, our hypothesis has been verified.

(Hypothesis 8) Our hypotheses included that those considering reproductive health education to be reliable, started having sexual life later. Our assumption was based on the fact that it was proven in the first phase of the research: sexual risk-takers start their sexual life significantly (1 year) sooner. However, the date of the first sexual intercourse among young people, considering peer counselling reproductive health education to be reliable, was unchanged in contrary to our assumption, compared to those who believed that peer counselling reproductive health education was unreliable. Based on the results, our hypothesis has not been verified.

(Hypothesis 9) Our hypothesis was that young people, considering reproductive health education less trustworthy, lead a loose sex life, that is, they have more partners and are involved in group sex. Based on the results of the first phase of our research, sexual risk-takers had significantly ($p=0.000$) more sexual partners throughout their lives, and had sex significantly fewer ($p=0.000$) times. Based on the findings of the second phase, the proportion of those, considering reproductive health education less trustworthy, was higher participating in group sex ($p=0.04$) and had significantly more partners in their lives ($p=0.001$). Based on the results, our hypothesis has been verified.

(Hypothesis 10) We assumed that urban lifestyle increases the chance of risky behaviour. The members of our surveyed population came from different parts of the country to our university town. Based on the results of the first phase of the research, we can conclude that the urban lifestyle did not increase the chance of risky sexual behaviour, in contrast to our expectations. There is no difference on this issue between the groups considering reproductive health education reliable or less trustworthy. Based on the results, our hypothesis has not been verified.

(Hypothesis 11) Based on the results of several researches (*Zonda, Paksi*, 2006), it was assumed that religiousness significantly influences health behaviour and can play a protective role in the development of physical and mental health, and therefore we believed that it also had a deterrent effect on sexual risk-taking behaviour. Based on our results, religiousness does not affect sexual risk-taking behaviour ($p=0.051$). There are more among of those, who consider reproductive health education reliable, who are religious believers ($p=0.046$). The obtained results are in controversy with our assumption.

(Hypothesis 12) In our hypothesis we assumed that young people, who consider peer trainers a reliable source, are more likely to reject artificial abortion as a family planning tool. Artificial abortion is a crucial issue of reproductive health, its prevention is one of the main goals of any health promotion work. In the first phase of the research, there were significantly more abortion among sexual risk-takers (16.0%), then among those with permanent partners (6.9%). In the second phase of research, those considering reproductive health education reliable, had significantly ($p=0.007$) less artificial abortion (1.2%), compared to those considering it less trustworthy (4.9%). Based on a previous clinical study, it was expected, as it has been shown that the participation in the health promotion program and the level of education significantly reduce the number of abortions (*Kozinszky, Sikovanyecz, Devosa et al.*, 2012). However, based on the results, the two groups agree with the interruption of pregnancy on the same degree (23.3% and 23.7%). Based on the results, our hypothesis has not been verified.

Conclusion

Our present research has expanded the spectrum of research into sexual culture in Hungary. The uniqueness of our research may be that domestic data have not been reported so far on the impact of peer trainers influencing the sex culture of students within the framework of school health education. By studying the sexual culture of university students, we tried to draw indirect conclusions on the effectiveness of school reproductive health education carried out by previous peer trainers. By summarizing our results, we try to outline the answers to the questions examined, in line with the literature data. Peer counselling has a major tradition in both Western Europe and in the United States. Magda Ritók, Tamás Simon, and Virág Sárközy report on the role of different peer counselling groups in health promotion in Hungary.

Children usually get the earliest sexual knowledge at home intentionally or unintentionally from their parents, relatives or acquaintances. This role is later taken over by the school. This requires appropriate sex pedagogical experts, health educators and comprehensive sexual education (*Szilágyi,* 2011).

During sexual education we provide information for the students:

- on physical processes related to sexual life; positive effects;
- on individual psycho-sexual development;
- on pregnancy and foetal life, abortion;
- on different sexual lifestyles;
- on the professional use of contraceptives;
- on sexually transmitted diseases and their prevention. (*Szilágyi,* 2011).

Apart from some initiatives, school sex education is missing in Hungarian schools until today. Sometimes they invite a healthcare professional to give lectures on information to the students, but this is not enough because they cannot counteract the adverse effects that young people encounter on a daily basis, such as on television or on the Internet (*Szilágyi*, 2003), it is in line with the answer to our 8th hypothesis. The use of condom prevents unwanted pregnancy and greatly reduces the risk of sexually transmitted infections, such as HIV. (*Gyarmathy*, 2002) This is why we were also curious whether the participants in the study were aware of the way HIV spreads, but they did not have adequate information about it (Hypothesis 7), although they heard about HIV and AIDS (> 99%) (Hypothesis 8). According to *Simich and Fábián* (2010), sexuality is in the focus of teens' interest, and their incomplete and often misleading knowledge is considered sufficient, although they have little or no knowledge at all of the natural way of conception, contraception and sexually transmitted diseases. The result of our survey contradicts with this (Hypothesis 1). Condom is believed to be a reliable method (83.7% and 81.5%)(*Kozinszky és mtsai*, 2001), which is consistent with our research results, but it does not appear in use (Hypothesis 2). According to Mansour et al., the condom is a contraceptive with intermediate trustworthiness (*Mansour, Inki, Gemzell-Danielsson*, 2010), compared to the persons included in the study, it is a device with the highest safety (Hypothesis 2). The publication of *Zonda and Paksi* (2006) have shown that religiousness significantly influences health behaviour, as it reduces promiscuity. In this research, this has not been verified (Hypothesis 3) and the assumption that urban lifestyle increases the chance of risky sexual behaviour either (Hypothesis 4). *Győrffy Zsuszsa et al.* (2013) published that monogamous relationship is a desirable way of life for young people, this has been also verified by our research findings (Hypothesis 6).

Peer trainers, as paraprofessional sponsors, are involved in information and personal counselling, which are prepared with appropriate programs. A number of higher education institutions, namely the "Humánia" group at the Faculty of Humanities at Eötvös Loránd University (ELTE BTK), the Peer Counselling Foundation of Medical Students in Budapest

(BOKA), made up of the students of the Medical Faculty of Semmelweis University, and the health development and health education group operating in the SZTE for twenty years now, and also seek to enable students to acquire certain health-related skills.

The promotion of age-related activities in school health education justifies its cost-effectiveness, credibility and acceptance. Young people pleasantly take information from those who are close to their age, in a sense, their impact influencing attitude as a guide. In a number of Hungarian higher education institutions, age groups are functioning well, which form an effective link to the alive context with students, but our results contradict with the BOKA survey (*Kortárs Segítő Műhely*, 2011) (Hypothesis 9) that the date of the first intercourse is postponed among those who consider peer trainers to be a reliable source (Hypothesis 5). It has not been verified either that young people, considering peer trainers as reliable source, start having a sex life later (Hypothesis 11) or rather reject abortion (Hypothesis 12), which is also contradictory to BOKA's material.

There is a sharp contrast between the results of our survey and the results of the international literature. From this we can conclude that the training of peer trainers is not of the standard to prepare young people for the expected knowledge and credibility. As a possible answer to this problem we have developed the Ariadné Health Promotion Program (AEP), which we wish to implement at the Faculty of Teacher Education at John von Neumann University in Kecskemét (formerly Pallasz Athéné University).

Introducing the three-generation health promotion program "Ariadné" and the description of its mid-term fulfilment in 2017

Objective

The Ariadné health education program differs from the ones mentioned primarily in that it was developed for the students of the Faculty of Teacher Education at Pallasz Athéné University (formerly University of Kecskemét, Faculty of Primary Education, currently Faculty of Teacher Education of John von Neumann University) by the research group of the Faculty of Health Sciences and Health Promotion. This fact has determined the structure of the program in many ways, since we can build on the pedagogical professional knowledge of young people and the ability to teach and educate impulsive children for whom they can make profound changes in their lives, and who influence other members of their environment by their behaviour. However, the disadvantage is that their healthcare knowledge is significantly weaker than of a healthcare professional or student.

The three-generation health education program has a direct target group of two:

- students themselves as young adults who are opened to change;
- children taught by pre-school teachers and instructors;

and the target group reached indirectly:

- the family and environment of the children who have participated in health education and promotion. (*Devosa*, 2016)

This is how the defined knowledge, competence, and motivation set as a goal in the health culture integration model by *Sørensen* (2012), which defines the individual's behaviour throughout his/her entire life, come into effect. The structure of the curriculum, which extends from transferred knowledge to subjects to individual experience built in school subjects, builds the path of "opportunity, understanding, introspection, application, and health information". In addition to the above, the dynamic development of the already functioning peer counselling candidate training and the strengthening of the social pedagogical training of peer counselling candidates, is a further goal (*Devosa*, 2011, *Devosa*, 2013). Based on all of these, it is presumed that more and more university students join to peer trainers, so that the health of young people will improve on the level of the whole society at a later stage; as well as the team of young people with health knowledge that meets the needs of the XXI. century will be able to be formed, with the characteristics of modern healthcare professionals (*Simon, Székely*, 2006):

- philosophically committed expert,
- professionals specialized in healthcare,
- humane, helpful probationer,
- initiative organizer,
- is capable of paradigm shift in healthcare work,
- is able to fulfil the tasks of community health education.

The plan of the curriculum developed for reproductive health promotion program

The development of the student curriculum is implemented with a result-oriented approach designed to have young teachers, who have a self-confident knowledge and perspective on health promotion, including the most vulnerable sections of sexual health promotion. It is part of the expected output that young educators in our country are more eager to actualize the content of the National Core Curriculum (NAT), according to which children should be informed about the adequate sexual behaviour from a very early age. (*Magyar*

Közlöny, 2012) According to the edition of WHO in 2010 titled "The European Sexual Education Guidelines" (*WHO*, 2010), sexual education should be started under the age of 4, so the preparation of pre-school teachers for such issues is also of paramount importance. The performance was based on the steps of the "public health cycle" by *Róza Ádány* (2011), according to which the development of certain elements of the program, the transformation to current needs and to new public health situation can take place.

Courses to be actualized in the curriculum of sexual health promotion

As a result of the above, the following courses are planned to be implemented and integrated into the existing ones: pedagogy (already several existing courses in the faculty), psychology (existing course in the faculty), anthropology within the cultural knowledge course, informatics (existing course in the faculty) as a new course, health sciences will be included, which will be separated from the health course, an invited doctor and health promoter would discuss the topics.

The planned implementation of the program

NAT specifies that information on sex must be continuously received from the first grade, and this determines the topics discussed (*Magyar Közlöny*, 2012).

The sexual education matrix (core) of the WHO is our baseline, which was structured according to different age groups and contains eight main thematic categories (*WHO*, 2010). The correlation of age groups in public education shows what topics should be addressed by the teachers or by the kindergartens. The themes return several times in the matrix of *WHO* (2010): this is about the equality of the attitudes between boys and girls. The table of *WHO* outreaches (up to the age of 15) the students educated by the teachers in 1-6. grades, but in the case of discussing some questions, the lecture of the instructor raising the class can be very effective, and he/she can also visit his/her former students during a health day, either within the framework of another institution. Vilmos Szilágyi describes the contents of the "Guidelines for European sexual education" written by the WHO in his work titled "Outline for politicians, educational and healthcare institutions and professionals", in which the developers build development on the triumvirate of information transfer => developing skills => development of attitudes, which are processed in every age group, through the dismantlement of "the human body and development, fertility and reproduction, sexuality, emotional, relationships and lifestyle, sexuality: health and well-being, sexuality and rights, social and cultural determinants of sexuality (values, norms)". The curriculum of WHO is cyclically recurring, thus the subjects discussed in the younger age are brought up again according to the current needs of the maturity of the individual. The above methodology was implemented into our health promotion program (*Devosa,* 2016).

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