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TRANSFORMATIONS OF HEALTH FACTORS IN STUDENTS AGED 18-24 ENGAGING IN UNPROTECTED SEXUAL ACTIVITY

Abstract

The aim of the research was to identify the determinants of students' engagement in risky sexual activity. The analyses took into account the health locus of control, health activities and attitude to God. The research allowed to select three types of approaches to sexual activity: people engaging in risky sexual activity, people engaging in safe sexual activity, and people not undertaking sexual activity. The article will present the results of analyses conducted among 32 respondents aged 18 to 23 undertaking risky sexual activity, who account for 11% of total research respondents. Young adults falling into this category are characterised by a tendency to over-idealise themselves and their actions. They tend to engage in risky activities and avoid health-promoting activities.

Keywords: sexual behaviour, sexual activity, health factors, health, students

TRANSFORMACJE CZYNNIKÓW ZDROWOTNYCH U STUDENTÓW W WIEKU
18-24 LAT PODEJMUJĄCYCH ZACHOWANIA SEKSUALNE BEZ ZABEZPIECZEŃ

Abstrakt

Celem badań jest identyfikacja uwarunkowań ryzykownych zachowań seksualnych u studentów. Uwzględniono umiejscowienie kontroli zdrowia, działania zdrowotne, stosunek do Boga. Wyodrębniono grupy osób o różnym podejściu do aktywności seksualnej: podejmujące bezpiecz-

ne zachowania seksualne, podejmujące zachowania seksualne bez zabezpieczeń, niepodejmujące aktywności seksualnej. W artykule zostaną pokazane wyniki 32 osób w wieku 18-23 lat, podejmujące aktywność seksualną bez zabezpieczenia. Osoby te stanowią 11% całej badanej grupy. Charakteryzują się tendencją do nadmiernego idealizowania siebie. Angażują się w ryzykowne działania, unikając zaangażowania w działania prozdrowotne.

Słowa kluczowe: zachowania seksualne, czynniki zdrowotne, zdrowie, studenci

INTRODUCTION

There are no strictly defined boundaries of the transition from adolescence to adulthood. In Polish literature, the period of late adolescence is defined as the ages between 17 and 20/23 (*Psychologia* 2011, 259), in foreign literature, between 17 and 24 (Tammilehto et al. 2020). This period of transition is sometimes described as a critical developmental stage in which adolescents face new challenges, including involvement in romantic and sexual relationships, exploration of identity and increased responsibilities. This stage is more and more often defined through reference to the specificity of fulfilled development tasks. During this period, young people concentrate on exploring their identity actively experimenting with new roles and activities. The feeling of “being in-between” adolescence and adulthood is conducive to self-focus, self-sufficiency and avoidance of obligations (Arnett 2000, 469). The need to discover one’s identity and experiment decreases with age (Crocetti et al. 2015, 233).

Izdebski and Wąż (2014, 48) list the most common risky sexual behaviours among 18-year-olds, such as early sexual initiation, frequent changes of partners, unprotected sex, contact with pornography. High-risk sexual behaviours are induced by such factors as a tendency to disregard risk, social modelling (Izdebski and Wąż 2014, 48), but also their functionality in resolving conflicts of dependence on the environment (Ostaszewski 2014, 34). Among 18-year-olds, 57.3% declare that they use protection during sexual intercourse; the remaining do not use any methods of protection (Izdebski and Wąż 2014, 50-51). Almost 39% of sexually active American students, most of them women, do not use protection during sexual intercourse (DiBello et al. 2018, 190). Similar results can be found in research reports from other countries in Europe, America, Asia, Africa and Australia, which shows that involvement of adolescents in unprotected sexual activity is a common problem (Chi et al. 2012, 5; Mehra et al. 2012, 1). Adolescents’ risky behaviors can have consequences for their health, safety, and personal development. They might inhibit their functioning in various social roles and their ability to gain skills required in adulthood (Lally et al. 2015, 135-136; Ostaszewski 2014, 30-32). They are also predictors of lower quality of life in adulthood (Prendergast et al. 2019, 516).

The research by Bailey et al. (2011, 951, 956-957) indicates the importance of the developmental context (commitment to a relationship, independent living,

studying, work) for engaging in risky sexual activity. During university studies, young people show a tendency to display risky behaviours (Yang et al. 2019, 2117), which is not found in peers who do not study (Burke, Gabhainn and Young 2015, 31; Carter, Obremski and Goldman 2010, 742). Students are identified as a group with a high probability of engaging in health risk activity, including casual sex (Grello, Welsh and Harper 2006, 255) due to the circumstances conducive to experimentation and exploration (Schwartz et al. 2010, 215). In their research on students Eisenberg, Lust and Garcia (2014, 128) and Yang et al. (2019, 2117) note that risky sexual behaviours are common in this group. They are more frequent in students living outside university campuses (DiBello et al. 2018, 187, 191).

Dimou et al. (2014, 1027-1029) noticed that stress associated with university studies had no impact on students' undertaking risky sexual activity. Aspden, Ingledew and Parkinson (2010, 61-63) observe that decisions to engage in risky sexual activity among young adults are driven by more than one motive and life purpose. They showed that riskier behaviours are associated with motives of power, pleasure-seeking and the need for change, as well as a hidden motive of exerting influence.

Most 17-18 year olds perceive their sexual behaviour as responsible due to pregnancy protection and disease prevention; only 4% consider themselves irresponsible (Rojewska 2019, 270-271). The above-mentioned results of research on young people, including university students, present an incoherent picture: on the one hand, there is greater knowledge about threats, higher autonomy, more advanced identity integration, internal control, etc., and, on the other, they show increased risk behaviours.

One indicator of undertaking and maintaining health-promoting activities is the health locus of control. The literature distinguishes three types of health locus of control: internal (health depends on one's own actions), external (health depends on the actions of others) and chance (health is the result of a coincidence). The internal locus of control is associated with assuming responsibility for one's health. The effectiveness of the type of health control location depends on the circumstances (Wagner et al. 2015, 280-281). Studies conducted on young people show that both the internal and external health locus is important for preventive behaviours, which, according to the researchers, suggests the variability of the locus depending on the strength of the influence of peer groups (Helmer, Krämer and Mikolajczyk 2012, 2). Strzelecki, Cybulski and Strzelecka (2009, 18) found strong relationships between the external health locus of control and risky behaviours. There is no strong evidence in research on students that the internal locus of control is conducive to undertaking protective behaviours (Burnett et al. 2014, 329).

Masters and Spielmans (2007, 334-335) in their study note that coping with stress by appealing to God plays a specific role in perception of health. Currently, attention is paid to experiencing God as a partner with whom one can cooperate in solving personal problems (Pascoe et al. 2016, 865). The relationship

between religiosity and beliefs about control may concern reference to a higher power, authoritarian nature of doctrine, identification with a specific group and people. Studies focusing on the relationship between religious commitment and a sense of control provide mixed results - some indicate a relationship (religious commitment is associated with higher external control and a lower sense of control) (Jung 2017, 67), others - that there is no such relationship (Ellison and Burdette 2012, 11-13). Pascoe et al. (2016, 864) also prove that 1) each of the three forms of health control may be associated with anti-health behaviours, 2) religious commitment strengthens the sense of control by developing a conviction about the existence of the world order and a sense of purpose and meaning in life, 3) since, for a religiously committed person, the body is the dwelling of the spirit, it is their duty to take care of the body and, generally, of health, 4) beliefs and religious practices counter destructive behaviour through modelling, 5) highly committed people have a higher sense of control, greater self-control and higher health control. Religious motives and prayer, but not faith in God, are related to stronger sense of control, but these relationships depend on the level of religiosity (Jung 2017, 67).

1. AIMS OF RESEARCH AND METHODOLOGY

Among the most important tasks for the upcoming decade WHO, UNESCO and the European Commission (EC) list sexual education of young people (European Commission 2020, 4), focused on preventing risky behaviours. The aim of the study is to characterize men and women undertaking unprotected sex in terms of the health locus of control, health behavior and religious motives.

The undertaken analysis sought an answer to the question concerning the specificity of the differentiation of factors determining risky sexual behaviour (health behaviours, health locus of control, religious motivation) in students. Risky sexual behaviour is understood as engagement in unprotected sexual activities. The research raised a question about the types of attitudes of women and men who undertake unprotected sex and the role of the health locus of control, health behaviours and reference to God in prayer.

1.1. PARTICIPANTS

In the study 288 students took part in their late adolescence. They were in the age 18-24 ($M = 19.74$; $SD: 0.81$). They studied first-year students of various fields of study (psychology, landscape architecture, biotechnology, dietetics, Roman philology, German philology, dental hygiene, cognitive science, educational sciences, nursing, and law).

At first students were asked a question concerning their sexual life. As regards the question of unprotected sexual activity, three groups were distinguished: 1) 129 people who do not engage in sexual activity (104 women and 25 men),

2) 127 people who engage in safe sexual activity (96 women and 31 men) and 3) 32 people who engage in unprotected sexual activity (23 women and 9 men). The answers of all respondents were used for further analysis, but the presented findings will only concern people from the third group. Prior to the study, subjects were assured of anonymity and voluntary participation in the study.

1.2. MEASURES

Three measures were employed in the study: (a) the Multidimensional Health Locus of Control scale (MHLC) by Wallston, Wallson, and DeVellis (1978, 60-70), adapted into Polish by Juczyński (2009, 81-88), (b) the Health Behavior Inventory (IHB) by Juczyński (2009, 110-121), and (c) the Content of Prayer Scale (CoP) by Bartczuk and Zarzycka (2020). Additionally, the participants completed a questionnaire about their health containing questions about the participants' basic demographic information and sexual behaviors.

Health Locus of Control. To measure the participants' health locus of control, the MHLC (Juczyński 2009, 81-88) was used. This scale allows for ascertaining the respondents' locus of control over their health. It distinguishes three dimensions of health control: (a) dependent on the respondent, (b) dependent on others, and (c) dependent on chance (Juczyński 2009, 81). The measure contains 18 items, answered on a six-point Likert-type scale, from 1 to 6 where 1 means *definitely do not agree* and 6 means *definitely agree*. The reliability and stability coefficients of the Polish version of this scale are satisfactory and they closely resemble those of the original tool. The LOT internal compliance determined on the basis of Cronbach's alpha for version A is 0.74 for internal control.

Health Behaviors. To determine the health behaviors undertaken by young people in their late adolescence, the IHB (Juczyński 2009, 110-121) was used. It allows for distinguishing four types of health behaviors: eating habits, preventive behaviors, positive mental attitude, and health practices (Juczyński 2009, 115). The inventory contains 24 statements describing behaviors that have been listed above. The respondents rate their frequency of displaying each behavior on a five-point Likert-type scale, from 1 to 5, where 1 means *almost never* and 5 means *almost always*. The psychometric properties of the entire measure are high. Internal compliance determined on the basis of Cronbach's alpha is 0.85 for the entire Inventory, and for its subscales it ranges from 0.60 to 0.65.

Prayer Types. To measure the participants' relationship with the Absolute, expressed in various types of prayer, the CoP scale (Bartczuk and Zarzycka 2020) was used. The measure is comprised of 20 items describing experiences related to the participants' attitude God. The respondents rate the frequency of experiencing the defined situations during prayer on a five-point Likert-type scale, from 1 to 5, where 1 means *never* and 5 means *very often*. The CoP has satisfactory psychometric properties, as reflected by the Cronbach's α coefficient, ranging from .72 to .90 (Bartczuk and Zarzycka 2020).

1.3. PROCEDURE

The “Students’ health behaviours” research project was carried out in universities in Eastern Poland by the authors of the current article. Participation in questionnaire surveys on the determinants of students’ health behaviours was voluntary. The respondents were asked to complete the questionnaires at the beginning of the class in the lecture room. One didactic hour was devoted to the survey.

The project was approved by the Ethics Committee of the Institute of Psychology of the [Name of University] (no. 4/08.02.2018 and 5/08.02.2018). The research was carried out during the summer semester of the academic year 2017/2018.

1.4. DATA ANALYSIS

The study used the strategy of process transformation reconstruction (PTR) developed by E. Rzechowska (*Dojrzały pracownik* 2010; Rzechowska 2014). In this approach, data analysis is conducted at two levels, namely, at the level of individual cases and at the level of a set of cases (*Dojrzały pracownik* 2010, 58). It involves a complex, qualitative analysis of empirical data, which allows for carrying out research when the knowledge of the phenomenon in question is incomplete and when there are difficulties with full conceptualisation of the research problem. The PTR strategy is aimed at reconstructing the process of the studied phenomenon in its variability and variety, while simultaneously maintaining the initial characteristics of the studied subjects at each step (Rzechowska 2014, 256-259). Working within this approach, we decided not to perform classical hypothesis testing, purposive sampling nor to define the variables. Instead, we chose a strategy of inductively building up an empirical model which would reflect the spectrum of the diverse, complex picture of the phenomenon (Rzechowska and Dacka 2016, 28-30).

The PTR strategy is run on two levels (Rzechowska 2014, 258-259; Rzechowska and Dacka 2016, 29-31): Level 1 – single case analysis (aim: identifying significant characteristics that reflect the participants’ individual life paths), and Level 2 – case set analysis (aim: distinguishing sets of cases with similar characteristics on the basis of a decision tree analysis, generated by Quinlan’s C4.5 algorithm, a data mining method of symbolic data classification, see Figure 1). Quinlan’s C4.5 algorithm is one of the methods of artificial intelligence, based on the mechanisms of generating decision trees. The above mentioned method is used in psychological research (Brandmaier et al. 2016, 567-568). 289 participants were analyzed and described using 118 attributes corresponding to personal characteristics, health behaviours, and attitudes towards God. As a result of the analyzes, three groups were selected: people who engage in risky sexual activity, people who engage in safe sexual activity, and people who do not engage in sexual activity. The presented analyzes comprise only people who engage in risky sexual activity.

The decision tree method is extremely useful especially in the study of issues that are characterised by a high degree of non-specificity (Hand, Mannila and Smyth 2001, 39-48). The model of the phenomenon is assessed on the basis of the accuracy of its predictions (Demski 2007, 61-73).

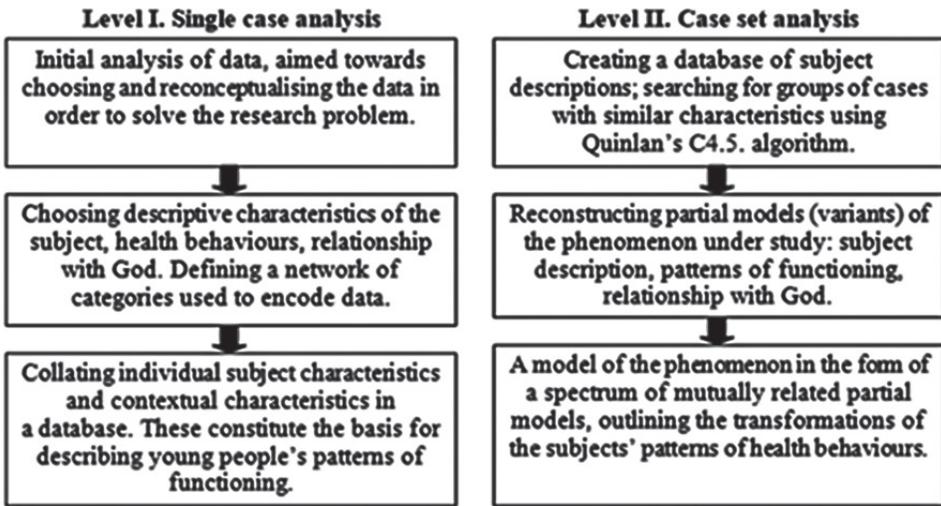


Figure 1. Data analysis scheme: The process transformation reconstruction (PTR) strategy (a modified version).

The stages of the two levels of analysis are presented in detail below. Level I: single case analysis. Selected measurement results served as a set of data allowing for the reconstruction of an individual portrait of each of the participants in terms of their health locus of control, health behaviours they display, and their relationship with God. Next, a preliminary analysis of each participant's results was carried out and characteristics describing their functioning in the areas of risky sexual behaviours (or its avoidance) were chosen using selected categories of analysis.

1. Preliminary analysis of initial data. The preliminary analysis of each participant's results aimed to identify descriptive categories on the basis of measure items; the categories included: personal characteristics, displayed behaviours, and attitudes towards one's health and God. These descriptive categories were measured with reference to the answers of three questionnaires: (a) the Multidimensional Health Locus of Control scale (MHLC) by Wallston, Wallston, and DeVellis (1978, 60-70), adapted into Polish by Juczyński (2009, 81-88), (b) the Inventory of Health Behaviour (IHB) by Juczyński (2009, 110-121), and (c) the Content of Prayer Scale (CoP) by Bartczuk and Zarzycka (2020)¹.

2. Selection of descriptive categories. On the basis of content analysis of measure items, descriptive characteristics for each of the participants were revealed (including traits, behaviours and exhibited attitudes). An example of an item indicative of health behaviour which allows maintaining optimal functioning of the organism: *I regularly go for medical check-ups* (IHB, item 14).

¹ In the original version of the strategy, the data came from an interview and a questionnaire.

3. Collating each individual's characteristics in an individual database. The database provided a basic report which contained: the psychological portrait of the participant (health locus of control), their pro-health behaviours (activities undertaken in order to maintain appropriate bodily performance in the areas of physical and psychological functioning), their attitude towards God (beliefs about God, directing prayers to God, exhibited forms of dissatisfaction, fears). Individual databases served as the basis for a common database.

Level II: case set analysis. The analysis was aimed at defining the participants' characteristics, as well as patterns of functioning and related religious attitudes. Additionally, on the basis of examining the internal structure of these patterns, a hypothetical model was built, reflecting the variability in the health functioning of university students. The subsequent stages are presented below. A detailed analysis of the internal structure of each of the variants and the connections between them was the basis for building more general structures called sub-models, which accurately reflected the transformations in the health functioning of the respondents. The analysis of relationships between sub-models was the basis for building a hypothetical model of changes in the respondents' health functioning.

The next steps involved selecting a set of cases with common features, reconstructing partial models of the phenomenon, and developing a hypothetical model of the transformation of the phenomenon.

1. The database and distinguishing case sets with shared characteristics

Case sets with shared characteristics were distinguished using Quinlan's C4.5 inductive algorithm (Quinlan 1993, 17-25). The task of the researcher is to prepare a database (here: 289 participants described using 118 attributes corresponding to personal characteristics, health behaviours and attitudes towards God). What is of importance here is the fact that the programme puts forward and verifies hypotheses based on the classification criteria chosen by the researcher, namely, *I try to abstain from sexual activity without protection x Gender* (Item 13 in the demographic questionnaire).

2. The decision tree and reconstruction of the partial models of the phenomenon

The set of qualitative characteristics, derived on the basis of the structure of the decision tree, was then supplemented with data from the databases. This served as the foundation for reconstructing the health behaviour patterns of university students.

3. Constructing the phenomenon's hypothetical model of transformation

In the PTR strategy, the phenomenon is defined as a process of transformation which reflects the partial models (variants). The detailed analysis of the internal structure of each of the variants and their genetic ties served as the starting point for building more general structures (sub-models), which reflected the nature of the analysed phenomenon more broadly². The analysis of relationships between

² Originally in the strategy the model of the phenomenon during the transformation was created on the basis of the analysis of connections between the variants.

sub-models was the basis for building a hypothetical model of changes in the respondents' health functioning (Kulik, Kajka and Dacka 2021, 7-13).

Preserving the value of the research. On the level of case analysis, preserving the value (trustworthiness) of the study involved processing the results (coding, structuring, decoding) by independent, competent parties. On the level of case set analysis, value was maintained by calculating the error rate of the decision tree (6.6%, with the permitted threshold of 25%) and the internal consistency of (a) each of the partial health behaviour patterns and (b) the model's organisation as a whole.

2. RESULTS

The analysis of the decision tree allowed for revealing certain characteristics in the functioning of men and women. Additionally, it distinguished three groups of participants' attitudes towards sexual activity. The first one involved people who engage in risky sexual activity, people who engage in safe sexual activity, and people who do not engage in sexual activity. The following text characterises the group of men and women who engage in risky sexual activity. Due to limited space in the article, the article presents only selected, general tendencies and transformations in the participants' self-perception, health behaviours and relationship with God.



Figure 2. The Sub-models men.

Sub-model M_1 : Men creating a positive image of themselves and their actions

The group included men who engage in risky sexual activity ($n = 9$). In this group, transformation could be observed, beginning with the men idealising their self-image (Sub-model M_1 , perception of self as responsible, engaged and assertive) and their activities (numerous sports activities – cycling, roller-skating, running). However, in reality, these were mere declarations. The men did not attend regular medical check-ups and they avoided dietary restrictions or strong emotions. In situations of illness, they declared they were responsible for their quick recovery, though these declarations were not followed by concrete action. They showed an ambivalent attitude towards God (sporadic adoration, complaints, lack of relationship).

Sub-model M_2 : Men idealising their responsibility, making attempts at action

The men declared active engagement in pro-health activities (numerous sports activities, e.g., cycling, skateboarding, roller-skating, swimming) and showed a tendency to idealise their responsibility for their own health (attending medical check-ups, following doctors' recommendations, scheduling regular medical tests, healthy eating). However, in situations of illness, they visited doctors or followed their recommendations only sporadically. They did not feel responsible for their own health and they ascribed recovery of good health to external circumstances (chance, luck). They made attempts to establish a positive relationship with God through sporadic adoration and making pleas. Their relationship with God was described as mutually cooperative (pleas in difficult situations were the most frequent).

The group comprised women who engaged in risky sexual activity ($n = 23$).



Figure 3. The Sub-models women.

Sub-model W_1 : Passive women, not involved in health activities

In this group, there was a noticeable transformation, beginning (Sub-model W_1) with passive and withdrawn women who avoided engaging in pro-health activities (irregular medical visits, not following doctors' recommendations, sporadically avoiding strong emotions and stress, attempts to maintain a positive attitude in difficult situations) and who engaged in risky activities (competitive sports, fast driving, unhealthy eating – consuming products rich in preservatives, fats, salts and sugars). These women also had a positive relationship with God (sporadic gratitude, praise, occasional dissatisfaction with God's actions, frequent pleas for intervention, help in problem solving).

Sub-model W_2 : Women declaring a sense of responsibility for their actions

In the second stage of the transformation (Sub-model W_2), the women exhibited responsibility for themselves and for maintaining their health behaviours (sports, attempts to eat healthily, relatively regular medical check-ups, though with difficulties in following doctors' recommendations), but they also engaged in risky activities (fast driving, competitive sports) and showed an ambivalent attitude towards God (sporadic adoration, pleas for help, anger, lack of fear).

Sub-models $W_{3,4}$: Women who assume responsibility for themselves and their actions

In the third stage of the transformation (Sub-model W_3), the women were responsible for themselves and their actions (regular physical activity, healthy eating, frequent medical check-ups and diagnostic tests, following doctors' recommendations). They attempted to abstain from risky behaviours (smoking, competitive sports, fast driving) and they had a positive attitude towards God (gratitude, praise, lack of fear, and cooperation, especially in difficult situations). In the last stage (W_4), the women demonstrated a sense of responsibility for themselves, their actions and their maintained pro-health behaviours (systematic physical exercise, diet, medical visits, tests, a positive approach to life – avoiding tension and negative emotions; family and social engagement, healthy eating). They also manifested a sense of control over their lives and their pro-health behaviours. They built a positive relationship with God (praise, gratitude, lack of fear and dissatisfaction, active pleas for cooperation and praise for the received blessings).

DISCUSSION

In each of the groups, transformation can be noticed, from (a) a positive view of oneself and one's actions with a simultaneous avoidance of engagement in pro-health activities and abstain from risky activities; sporadically following medical and dietary guidelines, as well as a positive attitude towards God, to (c) a sense of responsibility for one's health, consistent engagement in pro-health activities (sports, following medical and dietary guidelines), and fostering a positive relationship with God. The analysis revealed varying characteristics in the students. Two tendencies in functioning were observable in the sample, and the first one is related to overstating and overvaluing one's abilities and responsibilities. Young people who engage in risky activities are characterised by an excessively idealised view of themselves and their activities, as well as by a lack of responsibility for the consequences of their actions. However, they lack consistency and responsibility in their attempts to take up new commitments.

Young people who engage in risky sexual activity were the least protective of their health. Hardy et al. (2013, 364) noticed that students' moral values, treated as an important part of identity, are a predictor of risky sexual behaviour, while having a developed identity, is not related to risky sexual behaviours. On the other hand, Schwartz et al. (2010, 214) hold that an integrated identity can serve as a protective factor against harmful behaviours. It is generally known that identity has a motivating function, and its content gives direction to that motivation, leading to concrete behaviours. Young people often place love at the top of their hierarchy of values. Thus, it seems that this value might constitute the strongest motivating factor towards displaying sexual behaviours as a form of expressing love.

The transition from self-reliance to cooperation with God in the most important areas of one's life seems to be an expression of openness towards transcendence and an attempt to find fulfilment in love. Adults with an internal locus of control and a conscious attitude towards God have better mental health, while this relationship was not observed in people treating God as an external source of control. Ryan and Francis (2012, 774) confirmed the moderating role of the internal locus of control between one's relationship to God and better health. In the present research, the greatest variability in the personal relationship to God could be seen among young people engaging in and those abstaining from sexual activity. The differentiating element among young people who did not abstain from sexual activity, who did not engage in it at all, and who limited risky sexual activity was the quality of their relationship to God. On the other hand, in people not abstaining from risky sexual activity, there was a transition from ambivalence to a positive attitude towards God.

The transformations described above took place both among sexually active and abstaining young people, which suggests that they might be treated as a universal developmental process. Perhaps the decision to abstain from sexual activity stems from a positive relationship with God, which serves an integrative function for the person's behaviour: consistency of one's religious beliefs with one's behaviour is a protective factor against personally and socially undesirable consequences of sexual activity (Burris et al. 2009, 282).

LIMITATIONS TO THE STUDY

As with every study, ours is not without limitations. The qualitative analysis allowed us to observe certain tendencies in the studied phenomenon. However, it also revealed some limitations which should be addressed in subsequent research projects. The analyses led to detecting trends in health and religious functioning of young people, though they did not fully reveal the mechanisms of genesis and maintenance of their responsibility for own health and for avoiding risky sexual behaviours. Additional analyses on larger samples of men would also be warranted in order to explore this issue further.

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