

## Chapter #14

### SUBJECTIVE HEALTH PROBLEMS IN THE CONTEXT OF PERSONALITY CHARACTERISTICS AND HEALTH-RELATED BEHAVIOR IN CZECH ADOLESCENTS

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#### ABSTRACT

This chapter reports partial results of an extensive research project called Health-Enhancing and Health-Threatening Behaviour: Determinants, Models, and Consequences. This project involves a detailed analysis of select variables reflected in the process of self-regulation with respect to health. Its goal is to create models of health-promoting and health-threatening behavior applicable among the Czech population. This is made possible by means of a cross-section research study carried out using sample groups of adolescents, young, middle and advanced aged adults as well as seniors. The presented results focus on the explored selected factors of health-promoting behavior in adolescents, the level of commitment that adolescents invest in taking care of their health, and their cognitive evaluations and perceptions of their own health. In addition, the role of personality characteristics in relation to maintenance, loss or restoration of one's health was also explored. The data from the following instruments were utilized in this study: Health-Related Behavior Scale (Dosedlová, Slováčková, & Klimusová, 2013); Subjective Health Problems Inventory (modified version of the inventory by Osecká, Řehulková, & Macek., 1998), and the Big Five Inventory (John, Donahue, & Kentle, 1991). The sample consisted of 835 adolescents (47.4% female) aged 12-19 years (35.3% were in the period of early and middle adolescence and 64.7% were in the period of late adolescence). A principal component analysis of the items of the Health-Related Behavior Scale yielded five factors: healthy eating habits, exercise and lifestyle, avoidance of addictive substances and other risks, regular daily routine and emotional well-being. To predict subjective health issues, we used a hierarchical regression analysis with demographic variables entered in the first block, personality factor scores entered in the second block, and health-related behaviors entered in the third block. The results indicated that girls, compared to boys, scored higher on the subjective health issues scale; among personality characteristics, higher neuroticism and lower conscientiousness predicted more subjective health issues. Furthermore, lower scores on emotional well-being, regular daily routines and healthy eating habits predicted more health issues.

*Keywords:* subjective health problems; health-related behavior; personality; adolescence.

#### 1. INTRODUCTION

The presented results illustrate subgoals of an extensive research study carried out using a sample of 3086 individuals aged 11 to 90 years. This study has several subgoals: 1. Create a model of optimism with respect to health-related behavior; 2. Create a model of health-promoting and health-threatening behavior; 3. Identify and describe neuropsychological markers of health-promoting and health-threatening behavior indicators; 4. Examine the factor of age as the mediator of cognitive strategies and personality dispositions affecting health-related behavior and determine which type of health-promoting behavior is manifested by which age group and whether this manifested behavior is related to the perceived level of one's health.

It is the 4<sup>th</sup> and last goal that the presented study examines, while focusing on the relationship between health-related behaviors, selected personality characteristics, and subjective health problems in adolescents. Adolescence is a key stage of development, when a number of desirable habits and attitudes towards health-related behaviors are being formed. During this stage the health-related behavior of adolescent individuals undergoes a gradual change (Prochaska, Johnson, & Lee, 2009), particularly their attitude towards health (Seedhouse, 2001), associated with gradual acceptance of the responsibility for one's own health, which is reflected in the manifested level of their health-promoting or health-threatening behavior. At the same time, this developmental stage is critical in terms of it being the period during which attitudes towards risk behavior are formed (Jackson, Tucker, & Herman, 2007, Mahalik et al., 2013), and habits associated with risk behavior are developed. The personality of each individual plays an important role in this process. This is the reason why this study explored how adolescents assess their health-related behavior, and the factors that predict subjective health problems.

## **2. BACKGROUND**

The study is based on fundamental principles of contemporary health psychology, which is based on the fact that the way of life of each individual, his/her attitudes and behavior towards his/her own health, is the most important determinant affecting one's health, be it in a positive or negative way (Becker, Glascoff, Mitchell, Durham, & Arnold, 2007). This is because, in addition to genetic and environmental factors, and the level of health care accessibility, the key factors of each individual's lifestyle play an indisputable role in his/her health. The main premise of this approach is that personality affects health through a range of health-threatening to health-promoting habits (e.g. lack of physical activity, bad eating habits, substance abuse, etc.), as stated by Wiebe & Fortenberry (2006). The study is, thus, constructed on models describing personality as the agent mediating health-beneficial or health-risk behavior (Smith & Williams, 1992) and is based on the subjective perception and evaluation of health/illness. It maps the personality characteristics which can be associated with health (in the absence of an objective link with disease). The role of personality characteristics in relation to maintenance, loss or restoration of one's health has been explored as well, but in adolescence this relationship has not been satisfactorily verified (Raynor & Levine, 2009). In this context, the theoretical basis of the presented study is anchored in the concept described by Kaptein and Weinman (2004), which recognizes two health-related behaviors: health-risk behavior (behavior, which by its intensity or frequency increases the risk of health problems or injury) and health-enhancement behavior (activities, which can prevent possible health difficulties, help identify illnesses in their early stages, support and maintain health or decrease the risk of injury).

## **3. OBJECTIVES**

The present study builds on the research findings mentioned above, with the aim to further refine the relationship between personality and health, by enriching the model with additional variables. Therefore, this study's goal is to examine the mutual relationships between subjectively experienced health issues, select personality characteristics and health-related behavior components, in order to create the pillars of a model of health-beneficial behavior. In addition, we also aimed to examine a possible developmental trend of the above-mentioned correlates during adolescence.

## 4. METHOD

The research sample consisted of 835 adolescents (47.4% women and 52.6% men) aged 12-19 years (35.3 % in the period of early and middle adolescence and 64.7% in the period of late adolescence). Research data were collected at middle schools and high schools of various specializations across the entire Czech Republic from which we received permission to participate in this study. Subsequently, through school psychologists and prevention professionals these schools received feedback by means of the summarized results of their students. In this research study, we administered a one-time questionnaire, using a combination of self-report questionnaire methods, within the framework of a quantitative research design. The participants in this broad research project were administered an extensive battery of tests including:

### 4.1. Descriptive measures

Descriptive measures concerning the subjects' age, gender, height, weight, etc.

### 4.2. The Health-Related Behavior Scale

The Health-Related Behavior Scale (Dosedlová et al., 2013) maps individual lifestyle areas (eating and drinking habits, sleep, regularity of daily routine, physical activity, usage of addictive substances, preventive measures, and select factors of emotional well-being). The 45-item questionnaire was created based on pre-research content analysis. The majority of the items requires a measure of agreement/disagreement with a given statement (e.g. I maintain a regular drinking routine; 1 – totally true for me, 5 – not at all true for me).

### 4.3. The Subjective Health Problems Inventory

The Subjective Health Problems Inventory is an adjusted version of the Health Issues Inventory by Osecká et al. (1998). It consists of 21 health problems, where the task of the respondents is to evaluate subjective occurrence of these problems within the last year. We consider this scale to be a one-dimensional measure of negative health issues (the ratio of the first and second eigenvalue equaled 4.3; Cronbach's Alpha = 0.88).

### 4.4. The Big Five Inventory

The Big Five Inventory (John, Donahue, & Kentle, 1991) is a self-report inventory designed to measure the Big Five dimensions. It is quite brief for a multidimensional personality inventory (44 items total), and consists of short phrases with relatively accessible vocabulary.

## 5. RESULTS

Due to the limited extent of this article, we are presenting only the key results of this study. The measure of the subjective health issues was calculated as the mean score on the Subjective Health Problems Inventory items (the one-dimensionality of the scale was verified using factor analysis; Cronbach's Alpha=0.867). Based on the factor analysis of the items from the Health-Related Behavior Scale (Principal Axis Factoring with Varimax rotation), we subsequently identified five factors of health-related behavior, which were further analyzed. The extracted factors were as follows: 1. Healthy eating habits; 2. Avoiding addictive substances and other risks; 3. Exercise and lifestyle; 4. Regular daily

routine; and 5. Emotional well-being. All these correspond to our previous research results with a university student population (Dosedlová et al., 2013, Dosedlová et al., 2015).

The most interesting results were revealed by the complex analysis of the prediction of subjective health issues by means of the regression analysis method. We used hierarchical regression with 3 blocks of variables, with the criterion variable being the measure of subjective health issues. The first block of predictors included basic demographic variables of gender and age, the second block included personality characteristics (BFI scale scores) and the last block included factor scores representing the measure of various aspects of health-related behavior. The model summary and change statistics are reported in the Table 1.

*Table 1. Regression analyses for subjective health as predicted by demographics, personality and health-related.*

Block	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0,240	0,058	0,054	0,43696	0,058	14,522	2	476	<0,001
2	0,491	0,241	0,230	0,39422	0,188	22,764	5	471	<0,001
3	0,554	0,307	0,289	0,37875	0,066	8,852	5	466	<0,001

Gender and age (1st block) explained 5.8% of the variance in the health issues ( $F(2, 476)=14.522, p<0.01$ ); however, only gender ( $\beta=0.153$ ) was a significant predictor (women claimed significantly more health issues). Personality variables were entered in the 2<sup>nd</sup> block and explained an additional 18.8% of the variance ( $F(7, 471)=22.764, p<0.01$ ); significant predictors were neuroticism ( $\beta=0.252$ ), conscientiousness ( $\beta=-0.212$ ) and openness ( $\beta=0.147$ ). Health-beneficial behavior (added as the 3rd block) further explained 6.6% of the variance in health issues; significant predictors were emotional well-being ( $\beta=-0.194$ ), healthy eating habits ( $\beta=-0.114$ ) and regular daily routine ( $\beta=-0.132$ ). In total, 30.7% of the variance was explained by the predictor variables in the three blocks ( $F(12, 466)=17.185, p<0.01$ ), namely subjective health issues were predicted by being female, having higher neuroticism and openness and lower conscientiousness scores, and lower scores on emotional well-being, daily routines and healthy eating habits. All the above mentioned coefficients were statistically significant, at  $p = .01$  significance level (see Table 2).

*Table 2. Standardized regression coefficients for the variables predicting subjective health issues.*

Predictor	Standardized Coefficients	t	Sig.
	Beta		
age group	0,070	18,606	0,000
gender	0,153	1,647	0,100
Extraversion	-0,106	3,574	0,024
Agreeableness	0,026	-2,269	0,586
Conscientiousness	-0,212	0,545	0,000
Neuroticism	0,252	-4,479	0,000
Openness	0,147	5,729	0,002
Healthy eating habits	-0,114	-3,050	0,006
Avoiding addictive substances and other risks	-0,044	-2,745	0,313
Exercise and lifestyle	0,075	1,011	0,064
Regular daily routine	-0,132	-1,856	0,001
Emotional well-being	-0,194	-3,224	0,000

## 6. CONCLUSION/DISCUSSION

Using a hierarchical regression analysis, we tested a model that predicted the level of the participants' subjectively experienced health issues from demographic characteristics, selected personality characteristics, as well as select components of health-related behavior. This study highlights the importance of personality characteristics, health-related behaviors and gender as significant predictors of the participants' subjective health problems.

Only gender, not age, was a significant predictor: adolescent women reported more health issues than men. The same conclusion was found with a sample of adolescents in the Czech Republic conducted by the research team of Osecká et al. (1998). Within the framework of personality, we found neuroticism and conscientiousness to be significant predictors. The same conclusion was reached in a number of studies, which examined the relationship between personality traits and various aspects of a healthy lifestyle (Hudek-Knezevič & Kardum, 2009; Wen, Tchong & Ching, 2015). In these studies, neuroticism is most consistently connected with poor subjective health results - this conclusion demonstrates the importance of the role of personality in relation to restoring and maintaining health.

A greater degree of negatively perceived subjective symptoms and a greater focus on them in people with higher levels of neuroticism has also been confirmed by Feldman, Cohen, Doyle, Skoner, & Gwaltney (1999). The relationship between subjectively assessed health status and personality dimensions of the Big Five traits has been explored as well in our previous studies with university students: good subjective health was positively correlated to the conscientiousness and extraversion, and negatively to neuroticism (Klimusová, Dosedlová, & Slováčková, 2013). The main focus of research covered in this area is the assumption that certain personality factors like neuroticism play an important role in the etiology and progression of diseases that result in physiological changes detrimental to health.

The main limits of the study are associated with convenience sampling: we aimed to cover different types of educational institutions - from middle schools to high schools of various types and orientations. Only the schools which actively signed up to participate in the research were included. The attendance of individual participants was anonymous and voluntary, the completing the entire questionnaire battery, however, could be rather time-consuming especially for younger individuals.

The results of the study have added validity to the current complex approach to health and illness, which emphasizes the importance of the lifestyle of each individual, since it contributes significantly to his/her physical and emotional health. Among personality characteristics, neuroticism proved to be unequivocally the strongest predictor of a person's health condition: the lower the measures of neuroticism the lower the number of health issues. Therefore, in addition to other important predictors, neuroticism can be perceived as a significant disposition factor reflected in numerous processes affecting subjective evaluation of one's health condition.

## 7. FUTURE RESEARCH DIRECTIONS

The results presented here can be informative for specialists creating and implementing specific intervention programs focused on health-enhancing behavior. Adolescent women reported more health issues than did men. Also, lower levels of conscientiousness and higher levels of neuroticism were significant predictors of health issues. In spite of the evidence that adolescents differ in the level of activity they invest in

caring for their health, as well as in their subjective experience and evaluation of their own health condition, the research of healthy lifestyle and broader health condition issues in adolescence is often isolated, without taking into account the complex view of the entire problem area. Researchers have found that individuals who exhibit active health-enhancing behavior perceive their own health in a more positive way and attain higher life satisfaction (Becker et al., 2007). Special focus should also be placed on the importance of emotional well-being and having regular daily routines and healthy eating habits, which were also significant predictors beyond personality characteristics. The importance of differentiating strategies targeted to support the development of health-enhancing behavior among various age groups, has been pointed out by several authors, who have been researching this subject for a long time (see Becker & Arnold, 2004).

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