Association of Optimism and Health-Related Behavior with Mental Health in Czech Adolescents

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Abstract

Dispositional optimism is a psychological trait associated with both physical and mental health in adults. Less is known about the associations between optimism and health among adolescents. This study aimed to investigate the relationship between dispositional optimism, health-related behavior and mental health among Czech adolescents. Further on, the effect of gender and age (early vs. late adolescence) on mental health levels was explored. Instruments: short form of the Mental Health Continuum (MHC-SF); Health Behaviours Scale; Life Orientation Test – Revised (LOT-R). Sample: 1376 Czech adolescents aged 11-19 (M = 15.9; SD = 2.3), 56.8% females. Statistical analysis: Hierarchical multiple regression analysis with three sets of predictors. The first set of predictors (age and gender) explained 7.3% of variance in MHC-SF scores; the second set of predictors – LOT-R optimism and pessimism scores – explained another 25% of variance; and the third set of predictors (health-related behaviors) explained additional 16.3% of variance. The final model explained 48.6% of variance in mental health among adolescents. Dimensions of dispositional optimism turned out to be the strongest set of predictors of positive mental health in adolescents, while health behavior components predicted the mental health levels to a lesser extent. Gender and age were also significant predictors of mental health, with boys and younger adolescents scoring higher.

Keywords: Mental health; adolescents; optimism; health-related behavior.

1. Introduction

   While there are multiple approaches to optimism in current psychology, in the field of health psychology, the concept of dispositional optimism is probably the most explored one. Optimists have positive expectations of the future and experience mostly positive emotions. From this perspective,

optimism can be viewed as a form of adaptation (Scheier & Carver, 2003; Seligman, 1990). There is a substantial body of research documenting the relationship between optimism and positive physical health outcomes. Rasmussen, Scheier, & Greenhouse (2009) conducted a meta-analytic study on the association between optimism and physical health and showed that optimism was a significant predictor of cardiovascular health, immune function, less feelings of pain, lower mortality, and other physical health outcomes. According to Hart & Hittner (1995), one possible explanation of the negative association between optimism and illness is a lower level of emotional arousal and consequent lower levels of physiological reactivity in stressful situations. This explanation is consistent with the conclusions of a meta-analytic study of the effects of optimism on the reduction of stressors and negative emotions through better coping strategies by Nes & Segerstrom (2006). Their review also suggests that optimists may flexibly change their coping strategies to meet the demands of current stressful situations. Most studies of optimism and health outcomes used adult participants. However, there is increasing evidence that optimism plays a major role in adolescent health, both physical and mental. Adolescence is a period of change, in which emotional and behavioral difficulties commonly occur. Patton et al. (2011) conducted a longitudinal study on Australian adolescents aged between 12 and 14 years, finding significant protective effects of optimism on adolescent health risk, mainly on depressive symptoms, substance use and antisocial behavior. Similarly to studies with adult participants, Puskar, Sereika, Lamb, Tusaie-Mumford, & McGuinness (1999) in their research conducted on rural teenagers found that optimism was not only related to lower levels of depressive symptoms, but also to a more frequent use of problem-focused coping strategies. Moreover, optimism was linked to similar physical health outcomes in adolescents as in the adult population, e.g. to cardiometabolic risks (Räikkönen, & Matthews, 2008; Oreskovic, & Goodman, 2013). Health behavior is currently considered as one of the key factors in promoting both physical and mental health (Steptoe, Wardle, 2004). Habits like dietary behavior and exercise begin in childhood but are established more permanently during adolescence (Cohen, Brownell, & Felix, 1990). Health-related behavior has been linked not only to health outcomes but also to optimism as their predictor (Yarcheski, Mahon, & Yarcheski, 2004; Dosedlová et al., 2015). Another important factor of mental health and subjective well-being, particularly in adolescence, is the amount and quality of social support provided by parents and peers. In a study by Shochet, Dadds, Ham, & Montague (2006), school connectedness correlated substantially with general functioning and mental health symptoms like depression and anxiety. The importance of peer relationships in childhood was demonstrated in a study by Jones, Schinka, van Dulmen, Bossarte, & Swahn (2011), in which loneliness indirectly affected self-harm behaviors and suicidal thoughts through depression and behavior problems.

2. Problem statement

Dispositional optimism is a psychological trait associated with both physical and mental health in adults. Less is known about the associations between optimism and mental health among adolescents. In our study, we explored the complex relationships between positive mental health and three sequentially analysed sets of variables – demographic (gender and age), dispositional (optimism and pessimism), and behavioral (five factors of health-related behavior, and loneliness).

3. Research questions & purpose of the study

The present study aimed to investigate the relationship between dispositional optimism, health-related behavior and mental health among Czech adolescents. In addition, the effects of gender and age (early vs. late adolescence) on mental health were explored. The research questions were as follows:

How is mental health in adolescents associated with dispositional optimism dimensions (optimism and pessimism)?

What role do health-related behaviors (including loneliness) play in promoting mental health among adolescents?

4. Research methods

4.1. Instruments

Life Orientation Test – Revised (LOT-R; Scheier, Carver, & Bridges, 1994) is a revised version of the original Life Orientation Test (Scheier & Carver, 1992). Optimism and pessimism are understood by the authors as personality characteristics that influence individual orientation (future expectations) during people's lives. The revised version consists of 10 items, three measuring optimism, three measuring pessimism, and four serving as fillers. The scale exhibits good psychometric properties, including high stability in time. The two-dimensionality of the scale with two largely unrelated factors of optimism a pessimism has been confirmed several times (e.g. Vautier, Raufaste, & Cariou, 2003; Creed, Patton, & Bartrum, 2002). The correlation between the two scales in our sample was r = -0.391. Cronbach's alphas for optimism and pessimism scales in our sample were 0.680 and 0.675, respectively. Mental health was measured by the Mental Health Continuum – Short Form (MHC-SF), which is based on Keyes' concept of mental health as a syndrome of symptoms of both positive feelings and positive functioning (Keyes, 2002). The instrument consists of 14 items representing the construct definition for each facet (emotional, psychological, and social) of positive mental health. The respondents indicate the frequency of each symptom on a 6-point scale (from 0 = never to 5 = every day). The response format was chosen to simulate the standard format used for the assessment of a major depressive episode (Keyes, 2002, 2007). The scale had a very high internal consistency in our sample (Cronbach's alpha = 0.907). The Health-Related Behavior Scale (Dosedlová, Slováčková, & Klimusová, 2013) explores individual lifestyle areas (eating and drinking habits, sleep, regularity of daily routine, physical activity, substance use, preventive measures such as avoidance of "junk" food or harmful substances, and selected factors of mental health self-care). The 42-item questionnaire was created based on pre-research content analysis and on pilot studies conducted on university pre-graduates. Most items require the respondent to agree/disagree with a given statement (e.g. I engage in many joyful activities; 1 – totally true for me, 5 – not at all true for me). The last variable – loneliness – was measured by a subset of items from the Close Relationships and Social Support Scale.

4.2. Sample

Data were collected at elementary schools and high schools of various types across the Czech Republic. Participation in the study was based on the principal's permission to include the selected classes in the research. The adolescents were asked to complete an extensive battery of tests during classes. Only students with informed agreement signed by parents participated in the study, with the right to withdraw at any point. The final sample used in our study consisted of 1376 adolescents aged from 11 to 19 years (M = 15.9; SD = 2.3); 38.5% were early adolescents (11-15 years of age), the rest (61.5%) were late adolescents (16-19 years). The proportion of males and females was 43.2% and 56.8%, respectively.

4.3. Statistical analysis

Principal components analysis (with Varimax rotation) was used to identify the factors of health related behavior. To test for predictors of mental health, we used a hierarchical regression analysis with demographic variables (gender, age group) entered in the first block, dispositional optimism/pessimism scores entered in the second block, and health-related behaviors and loneliness entered in the third block.

5. Findings

5.1. Health-Related Behavior Scale

The structure of the Health–Related Behavior Scale was explored using Principal Component Analysis. All variables were coded in the same direction (with higher scores reflecting higher health-promoting behavior). The PCA yielded five components of health behavior, which explained 45.0% of total variance. Factor 1 could be interpreted as avoidance of harmful substances and other risks, particularly harmful food intake (e.g. "empty calorie" or "junk" food). Factor 2 correlated mostly with items of active lifestyle, including regular healthy diet, physical activity and sports, and thermoregulation enhancement techniques (contrast showers, sleeping with windows open etc.). Factor 3 could be described as maintenance of a regular and healthy daily routine (e.g. regular bedtime, regular meals). Factor 4, labelled as Maintenace of mental health, had high loadings of items describing activities that help establish, maintain and promote mental wellbeing (e.g. joyful activities, time management to avoid stress, meditation, etc.). Finally, Factor 5 represented avoidance of addictive substances such as alcohol, cigarettes and illegal substances. These five new variables (Avoidance of harmful substances and other risks; Active lifestyle; Regular daily routine; Maintenace of mental health; and Avoidance of addictive substances) were used as predictors in the subsequent regression analysis.

5.2. The relationship between mental health and dispositional optimism/pessimism and health-related behaviors

The relationships between mental health (measured by the total score in the MHC-SF) and the three sets of variables were examined using hierarchical regression analysis. The summary of explained

variance and change statistics for the models can be seen in the Table 1. The first set of predictors (gender and age) explained 7.3% of variance in MHC-SF scores ($F_{(2, 1338)} = 52.51$, $p < 0.001$). Both predictors were entered into the analysis as dummy variables, with female gender and early adolescence as baseline categories. The second set of predictors – LOT-R optimism and pessimism scores – explained another 25% of variance ($F_{(4, 1336)} = 159.03$, $p < 0.001$), and the third set of predictors (health-related behaviors, including loneliness) added further 16.3% of explained variance ($F_{(10, 1330)} = 125.51$, $p < 0.001$). The final model explained 48.6% of variance in mental health in adolescents.

Table 1. Regression analyses of mental health as predicted by gender and age, dispositional optimism/pessimism and health-related behaviors

Block	R	R^2	Adj. R^2	Std. Error of the Estimate	Change Statistics				
					R^2 Change	F Change	df1	df2	Sig. F Change
1	0.270	0.073	0.071	0.916	0.270	0.073	0.071	0.916	<0.001
2	0.568	0.323	0.321	0.783	0.568	0.323	0.321	0.783	<0.001
3	0.697	0.486	0.482	0.684	0.697	0.486	0.482	0.684	<0.001

Standardized regression coefficients and significance values for all three models are reported in the Table 2. Although the LOT-R scales as a set added most explained variance to the model, the strongest predictor of mental health turned out to be the Maintenace of mental health factor of health-related behavior. While optimism had a moderate effect on mental health, pessimism was only a weak, although significant negative predictor. Another significant negative predictor was loneliness. Apart from loneliness and the Maintenace of mental health factor, another two behavioral factors were significant positive predictors of mental health – Active lifestyle and Regular daily routine. The effects of Avoidance of harmful substances and other risks and Avoidance of addictive substances were both non-significant. Regarding the demographic variables, as evident from the model summary, these were rather weak, though significant predictors of mental health. Namely, boys and early adolescents tended to achieve higher scores on mental health scale than girls or late adolescents.

Table 2. Standardized regression coefficients for variables predicting mental health

Model	Predictor	Beta Coefficients	t	Sig.
1	Gender	0.131	4.965	<0.001
	Age group	-0.231	-8.753	<0.001
2	Gender	0.070	3.082	<0.001
	Age group	-0.180	-7.788	<0.001
	LOTR_optimism	0.428	17.010	<0.001
	LOTR_pessimism	-0.151	-6.119	<0.001
3	Gender	0.068	3.330	<0.001
	Age group	-0.113	-5.245	<0.001
	LOTR_optimism	0.212	8.623	<0.001
	LOTR_pessimism	-0.083	-3.752	<0.001
	Avoidance of harmful substances and other risks	0.016	0.790	0.429

Active lifestyle	0.120	5.941	<0.001
Regular daily routine	0.096	4.614	<0.001
Maintenace of mental health	0.350	15.177	<0.001
Avoidance of addictive substances	0.007	0.342	0.733
Loneliness	-0.173	-7.851	<0.001

6. Conclusions

6.1. Study limitations

The main limitations of the study regard convenience sampling. Although we approached different types of educational institutions – from elementary schools to high schools of various types and orientations, across rural and urban environment – only those schools that voluntarily signed up to participate were included in the study. Furthermore, our findings are based on self-reports that are affected by a complex interaction of cognitive processes, personality characteristics and other factors. Self-reports might be even less reliable when provided by young adolescents less than 12 years of age.

6.2. Conclusions

Dimensions of dispositional optimism turned out to be the strongest set of predictors of positive mental health in adolescents, while components of health-related behavior predicted mental health to a lesser extent. The associations of optimism and loneliness with mental health were of expected sizes and directions, which makes our findings consistent with the above-mentioned previous studies on both adult and adolescent populations. Among behavior factors of mental health, the maintenace of mental health activities were unsurprisingly the strongest predictor of mental health – in concordance with findings about the effect of optimism on mental health through strategies of better adjustment to diverse stressors (Nes & Segerstrom, 2006). The observed effects of physical activity and avoidance of unhealthy foods and other substances also corresponded to previous findings documenting the effect of these variables on the quality of life, depression, and stress (e.g. Brooks, Harris, Thrall, & Woods, 2002; Penedo, & Dahn, 2005). Finally, gender and age also proved to be significant predictors of mental health, with boys and younger adolescents scoring higher than girls or older adolescents. These findings are consistent with the conclusions of studies of gender prospective studies of mental health developmental trajectories that showed a steady increase in incidence of mental disorders (particularly the major depressive disorder) across adolescence, which continued to early adulthood (e.g. Lewinsohn, Rohde, & Seeley, 1998; Thapar, Collishaw, Pine, & Thapar, 2012). Higher incidence of depressive disorders in women and adolescent girls has also been previously observed (e.g. Compas et al.. 1997; Worchel, Nolan, & Wilson, 1987). In addition, gender differences in global self-esteem, with adolescent boys consistently scoring higher than girls, are well documented (e.g. Bolognini, Plancherel, Bettschart, & Halfon, 1996; Quatman, & Watson, 2001).

One strength of our study is that we tested a complex model on a relatively large sample, examining the effects of dispositional variables such as age, gender, and optimism/pessimism, as well as behavioral factors. In future research, it would be beneficial to include other personality characteristics

(e.g. neuroticism and consciousness) to the model. Nevertheless, our model successfully explained nearly 50% of the variance in mental health scores, as measured by the MHC-SF. The protective role of activities leading to the maintenance of mental health, such as spending time with the loved ones, engaging in joyful activities, and using techniques designed to reduce stress such as time management or meditation, was clearly demonstrated in our study. Active lifestyle with plenty of physical activity and adherence to a regular daily routine with sufficient sleep also proved to be important factors. The findings of our study could help in designing mental health promotion and prevention programs aimed at adolescents.

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