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Intrapersonal factors, social context and health-related behavior in adolescence

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General discussion, implications for future research and practice and conclusions

This study was carried out to examine the association between perception of self (e.g. self-esteem, self-liking, self-competence and self-efficacy) and health-related behaviors (e.g. smoking behavior, drunkenness, cannabis use and physical activity) among adolescents. The contribution of other intrapersonal and interpersonal factors (e.g. mental health and resilience) to the above mentioned associations was also taken into account and explored. Additionally, I was interested in the role of socioeconomic status as a background socio-cultural variable.

In this final chapter the main findings of the study are discussed on the general level in the context of theoretical background, as outlined in Chapter 1. Next, the most important strengths and limitations of the present study are reviewed. The last part of this chapter deals with possible implications in the field of future research and public health practice.

8.1 Main findings

Research question 1

Chapter 3 of the thesis discussed the following research question: Do personality, mental health and social support contribute to the relationship between socioeconomic status and self-esteem?

Findings reveal that an association does exist between low socioeconomic status and lower self-esteem. This association changed after adjustment for personality and mental health, but not after additional adjustment for social support. Family affluence as an indicator for socioeconomic status remained significantly associated with self-esteem from the first to the final model, but its explanatory power decreased after adding personality dimensions and mental health variables (depression/anxiety and social dysfunction).

Research question 2

In Chapter 4 the focus moved to the association between the perception of self and health-compromising behavior, and the following research question was explored: Does self-esteem along with resiliency factors influence selected types of health-compromising behavior (smoking experience, regular smoking, cannabis experience) among adolescent boys and girls?

Of the two self-esteem factors, only negative self-esteem was significantly associated with health-compromising behavior among adolescent boys and girls in such a way that the probability of smoking or cannabis experience and engagement in regular smoking increased. No significant association was found among girls after the adding of resilience subscales. Boys and girls did not differ with regard to resilience factors. Among both groups the same factors (structured style, social competence and family cohesion) were significantly associated with health-compromising behavior. Structured style and family cohesion decreased and social competence increased the probability of smoking or cannabis experience and regular smoking.

Research question 3

Chapter 5 provided answers to the following research question: Does affectivity contribute to the association between self-efficacy and selected types of health-compromising behavior (smoking experience, regular smoking) in young adolescence?

Social efficacy was found to be significantly associated with smoking behavior (previous experience with smoking and also regular smoking) but only in connection with affectivity. Social self-efficacy increased the likelihood of previous experience with smoking and regular smoking among adolescents. Additionally, negative affectivity was found to be associated with both aspects of smoking behavior and positive affectivity with regular smoking. Positive affectivity decreased and negative affectivity increased the likelihood of smoking. General self-efficacy was not found to be significantly associated with smoking behavior in the present study.

Research question 4

In Chapter 6 the focus moved from health-compromising to health-enhancing behavior in connection with the perception of self. The following research question was explored: Do aspects of self perception (self-esteem, self-liking, self-competence, and self-efficacy) associate with different levels of physical activity among adolescent boys and girls? Findings show that positive self-esteem, self-liking, self-competence,

general self-efficacy and social self-efficacy were higher, and negative self-esteem was lower among adolescents with a higher frequency of physical activity. The differences were much more pronounced for girls than for boys. Self-liking and social self-efficacy were higher among adolescent boys with a higher frequency of physical activity. At the same time, positive self-esteem, self-liking, self-competence and general and social self-efficacy were higher, and negative self-esteem was lower among adolescent girls with a higher frequency of physical activity.

Research question 5

In Chapter 7 focus remained in the field of health-enhancing behavior and the following research question is explored: Does self-esteem contribute to the relationship between socioeconomic status and physical activity?

Youths with high socioeconomic status engage in regular physical activity more often than their peers with middle or low socioeconomic status and also report higher self-esteem. The association of socioeconomic status with physical activity decreased after adding in self-esteem, suggesting that at least a part of this association is mediated by self-esteem. The connection between socioeconomic status and physical activity may thus be mediated by the self-esteem of adolescents.

8.2 Discussion of the main findings

Smoking behavior, cannabis use and physical activity as explored in this study are all health-related behaviors. Previous research (Van Nieuwenhuijzen et al., 2009; Lam, Stewart, & Ho, 2001; Jessor, 1991) shows that the mentioned behaviors cluster and therefore might have similar patterns of determinants. Empirical evidence supports the existence of organized patterns in adolescent health-related behaviors with several domains of determinants (Petraitis, Flay, Miller, 1995; Jessor, 1991). Based on the theoretical framework of Jessor (1991) and Petraitis, Flay and Miller (1995), we proposed in Chapter 1 a model connecting expected variables from the socio-cultural, interpersonal and intrapersonal domains.

Perception of self and health-related behavior

Emerging from this theoretical framework, the main aim of this study was to explore the connections between the perception of self (self-esteem, self-liking, self-competence, and self-efficacy) and various types of health-related behavior which might be considered as health-compromising (smoking or cannabis use) or as health-enhancing (physical activity).

In line with the proposed model, we found that self-esteem and self-efficacy were connected with health-compromising behavior such as smoking and cannabis use (Chapters 4 and 5). To be more specific, negative

self-esteem, and high social efficacy serve as risk factors regarding smoking and cannabis use. Our findings are in line with previous studies in this field (Kokkevi et al. 2007; Engels, Hale, Noom, & De Vries, 2005; Wild, Flisher, Bhana & Lombard 2004; Simons-Morton & Haynie, 2003, Carvajal et al., 2000). Moreover, these aspects of self perception were connected with health-enhancing behavior such as regular physical activity (Chapters 6 and 7). Positive self-esteem, self-liking, self-competence and general and social self-efficacy serve as protective factors, while negative self-esteem serves as a risk factor regarding regular physical activity. Once again this is in line with previous research in this field (White, Kendrick & Yardley, 2009; Schmalz, Deane, Birch & Krahnstoever Davison, 2007; Parfitt, Eston, 2005).

However, we did not explore behavior-specific self-efficacy or self-esteem regarding health-related behavior. Evidence suggests that these are associated with smoking, cannabis use and physical activity (Peters, 2009; Kahn et al., 2008; Victoir, 2007; Annesi, 2006), and it might be of further interest to explore their association jointly with the already explored aspects of self-perception. Behavior-specific determinants are usually associated more strongly with health-related behaviors than more general determinants (Flay, 2002). This also holds true for our study. In Chapter 5 social self-efficacy as a behavior-specific efficacy was associated with smoking, whereas general self-efficacy was not found to be significantly associated. In addition, it is interesting to examine their contribution to the already established association of socio-cultural background (e.g. socioeconomic status) with health-related behaviors as was outlined in the recent research of Droomers, Schrijvers & Mackenbach (2004). Finally, it is important to focus on different stages and levels of health-compromising behaviors like smoking and on health-enhancing behaviors like physical activity, and to explore similarities and dissimilarities in patterns of influence. We made a first attempt regarding this issue in Chapters 4, 5 and 6, but further research is needed for better understanding.

Contribution of other intrapersonal and interpersonal factors

In addition to the association between the perception of self and health-related behaviors, other intra- and interpersonal factors can be expected to contribute, as outlined in the model in Chapter 1. Comprehensive social-psychological frameworks for explaining health-related behavior such as those proposed by Petraitis, Flay and Miller (1995) and by Jessor (1991), as well as our model outlined in Chapter 1, include several major explanatory domains of determinants.

Therefore, the contribution of other intrapersonal and interpersonal factors (e.g. affectivity or resilience) to the above mentioned association was taken into account and explored. As expected, other intrapersonal and interpersonal factors were associated with health-compromising behavior

and significantly influenced the connection between the perception of self and health-related behavior. After adding resilience factors, negative self-esteem was no longer connected with smoking behavior and substance use among adolescent girls (Chapter 4). After adding affectivity social self-efficacy was associated with smoking behavior (Chapter 5). This is in line with models on adolescent substance use and other health-related behaviors (Flay, 2002; Petraitis, Flay, Miller, 1995; Jessor, 1991) that consider emotional aspects and resilience as relevant factors in the association between the perception of self and health-compromising behavior. In addition, the family is another important factor in the social environment which is strongly associated with health-endangering behavior. Parental support, monitoring and communication with parents may serve as buffer against risk factors connected with health-endangering behavior (Freisthler, Byrnes, & Gruenewald, 2009; Tomcikova et al., 2009; Griffin et al., 2000). These factors were not explored in the present study and offer new directions for future research.

Role of socioeconomic status as a socio-cultural variable

Regarding the health-related behavior of adolescents it is important to take into account the socio-cultural (or environmental) domain and especially the role of socioeconomic status. Previous research suggests a direct connection between socioeconomic status and health-related behavior (Richter et al., 2009; Currie et al., 2008; Piko & Keresztes, 2008; Madarasova Geckova et al., 2005).

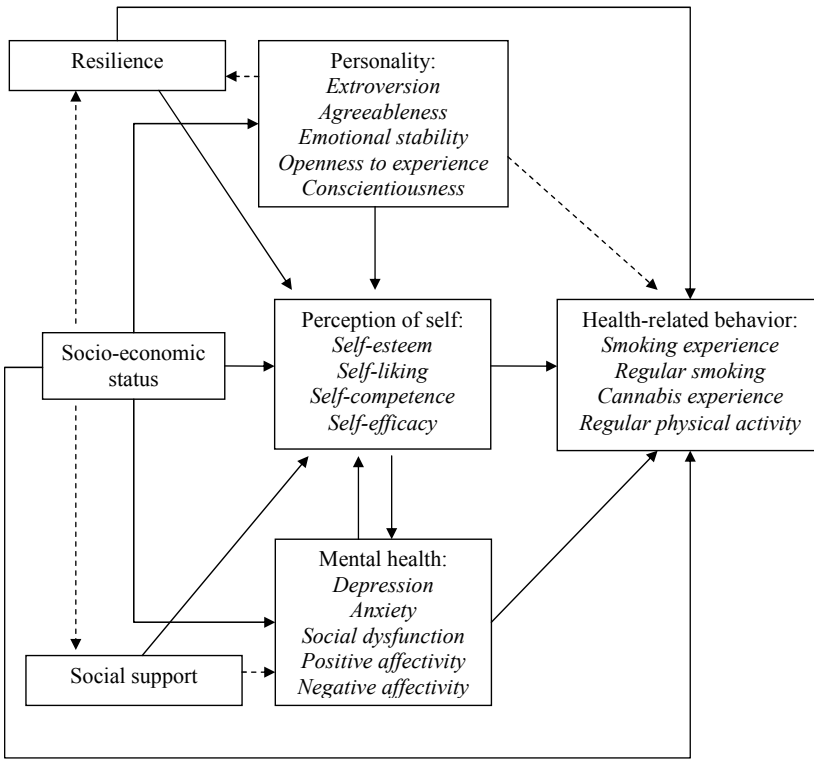
The findings of this study confirm the assumption that this connection is mediated by adolescent's perception of self. Firstly, the contribution of personality and mental health to the connection between socioeconomic status and self-esteem of adolescents was explored. Low socioeconomic status was found to be associated with low self-esteem, and personality and mental health were found to mediate this association (Chapter 3). Next, the contribution of self-esteem to the connection between socioeconomic status and health-related behavior was also explored. Confirming the model proposed in Chapter 1, socioeconomic status was associated with health-related behavior, and self-esteem mediated this association (Chapter 7).

Based on the mentioned results it is assumed that socioeconomic status indeed influences adolescents' health behavior through the way they perceive themselves. Previous studies have shown that higher socioeconomic status was associated with higher self-esteem (Birndorf, Ryan, Auinger, Aten, 2005; Rhodes, Roffman, Reddy, Fredriksen, 2004). Our findings are in line with these studies. Previous research has also revealed a connection between self-esteem and health behavior (White, Kendrick, Yardley, 2009; Schmalz, Deane, Birch, Krahnstoever Davison, 2007; Annesi, 2006), which is also in line with our work. Based on this

previous research and the results of present study it could be concluded that feelings of self-worth play an important role in the connection between socioeconomic status and health behavior in adolescence. The lower socioeconomic status of adolescents might be reflected in their negative perception of self. Consequently, low self-esteem creates a barrier to their engagement in health-enhancing behavior and at the same time leads to health-compromising behavior.

Our findings can be integrated into the model which was proposed in Chapter 1 and lead to an elaborated theoretical model. Figure 8.1 covers the confirmed associations but also includes possible connections between variables that were not explored but could be studied in future research. Confirming the assumptions of the proposed model, we assumed aspects of self-perception to influence health-related behavior. Other intrapersonal factors (resilience and affectivity) significantly contribute to this association. However, we did not fully explore the connection between other intrapersonal factors and health-related behaviors or the connection between intrapersonal factors themselves. Finally, based on recent literature (Flay, 2002; Petraitis, Flay, Miller, 1995; Jessor, 1991), a number of associations should be further explored in subsequent research, i.e. the contribution of other domains e.g. socio-cultural or interpersonal. We expect to find an influence of socioeconomic status and family or peers factors.

Figure 8.1 Model of the relationships between key constructs as a framework for future research



8.3 Strengths and limitations of the study

This study has several important strengths, the most important being its large, nationally representative sample covering the different regions of the country and focusing on the age group of young adolescents. This provides valuable information about health-related behavior and its possible antecedents. A second important strength is the availability of an additional international sample, which enabled the study of more detail information about the association between the perception of self and health-related behavior. Finally, a third strength is the high response rate in both study samples.

However, this study also has some limitations. One is the use of subjective self-reports for measuring health-related behavior, e.g. smoking behavior or physical activity. However, previous studies support the validity of self-reports (Reijneveld, Crone, Verhulst, & Verloove-Vanhorick, 2003; Rebagliato, 2002). Also, confidentiality, anonymity and

privacy provided by self-administration of questionnaires in the absence of teachers decreased the probability of under or over reporting of health-related behavior (Brenner, Billy, Grady, 2003). A review by Brenner, Billy and Grady (2003) reported high reliability of self-reports regarding tobacco and substance use and moderate to high reliability of self-reports regarding physical activity. A second limitation is the cross-sectional design of our study, by which it is impossible to make conclusive statements about causality in our findings. They thus need to be confirmed in a study with a longitudinal design.

8.4 Implications

8.4.1 Implications for future research

As has already been mentioned in the limitations of the study, our cross-sectional design did not provide sufficient information for conclusive statements about the causality of our findings. This leads to a main implication for future research, which should be longitudinal in design in order to assess such causal relationships between the explored variables from the socio-cultural, interpersonal and intrapersonal domains. Such longitudinal or cross-sectional data collections should also bring a more detailed overview of trends in health-related behavior among adolescents.

Additionally, our results show that much can be gained in the health of adolescents by further exploration of the studied variables in a more complex way with the possible influence of other determinants. Models of health behavior proposed by Petraitis, Flay and Miller (1995) and Jessor (1991) imply the importance of studying determinants of health-related behavior from different domains (socio-cultural, interpersonal and intrapersonal) and of testing for their potential connections and influences. Future research should provide insight into the pathway mechanisms and possible mediating and moderating effects. It would be also of interest to explore the contribution of family, peers and community factors. These aspects were not covered in this study but are expected to have an important role in health-related behavior.

Another important issue is the clustering (i.e. co-occurrence) of health-related behavior. It is important to examine in more depth which behaviors cluster together and may be influenced by similar factors. An evident example is age, but apparently other factors, like family factors (Tomcikova et al., 2009), may contribute too. This should be tested further in order to prepare more efficient prevention programs which enable us to focus on several behaviors at the same time instead of separate prevention programs for each of them.

8.4.2 Implications for public health practice

Based on the findings of this study several implications for public health practice arise. It is well-known that adolescents of low socioeconomic status are a more vulnerable group than their peers of higher socioeconomic status and are thus a target group for health promotion programs. Socioeconomic status is clearly associated with an adolescent's self-esteem and has an impact on the way young people evaluate themselves. Regarding this, our findings suggest that health promotion programs should focus on the enhancement of self-esteem, which was identified as a possible mediator between socioeconomic status and health-related behavior. This may offer a route for achieving substantial gains in public health.

Our results indicate that prevention and intervention programs aimed at the reduction of health-endangering behaviors should focus on several issues. One of the essential aspects of intervention strategies is the social influence of peers and the social environment. Young adolescents with higher levels of social self-efficacy or social competence might be more exposed to substance use among their peers and especially in social settings like bars, pubs and other places. It is important to provide adolescents with places to meet that at the same time do not offer them the opportunity for substance use. Solutions could also be found in enhancing appropriate social self-efficacy or competence, especially the skills needed to resist the pressures emerging from peers and the wider social environment regarding substance use (Crone et al., 2003). At the same time, we identified negative self-esteem and negative affectivity as potential risk factors for health-endangering behavior. This shows a need to prepare programs in which adolescents could learn to cope with or improve their negative self-esteem by providing a variety of activities establishing the feeling of self-worth and cope with their negative emotions, e.g. anxiety and depression, in other ways than through health-endangering behavior.

Intervention programs should focus not only on a specific individual, but also on his/her social and environmental setting. In addition, the family is another important factor in the social environment which is strongly associated with health-endangering behavior. Parental support, monitoring and communication with parents may serve as buffers against risk factors connected with health-endangering behavior (Freisthler, Byrnes, & Gruenewald, 2009; Tomcikova et al., 2009; Griffin et al, 2000). A good place to deliver programs may be school, which is the most important place in adolescence next to family and at the same time is easily reachable. This is the place where health promotion could be easily implemented in the concept of the healthy school. However, parental and community involvement enhances health promotion activities and provides the

necessary background (Derzon, Wilson, Cunningham, 1999). Parental and wider community involvement may be key elements for a more effective approach in health promotion programs. Finally, interventions need take into account possible differences between participants (e.g. age, gender, or ethnicity) (Haney, Durlak, 1998).

Conclusion

Smoking behavior, cannabis use and physical activity as explored in this study are all health-related behaviors. Patterns of health-compromising behavior, initiation and progression in adolescence are generally considered to be predictive of later involvement in this behavior and exposure to its harmful consequences (Tucker, Ellickson, Orlando, Martino, & Klein, 2005). In addition, healthy lifestyle patterns that include health-enhancing behavior can be traced back to childhood and adolescence (Hallal, Victora, Azevedo, Wells, 2006). Understanding the factors associated with health-related behavior and pathways of their influence in adolescents are therefore essential in the field of prevention and health promotion. Our results support the idea of connection between the perception of self and health-related behavior in adolescence. Our findings also shed some light on the contribution of other domains. It is important to have in mind other factors from the environmental, intrapersonal and interpersonal domains to explore the connection between the perception of self and health-related behavior in an appropriate way. Intrapersonal factors like perception of self are clearly connected with health-related behaviors in adolescence. At the same time they are connected with other domains of influence which need to be taken into account in creating health promotion programs.

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