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Sense of coherence and school-related stress as predictors of subjective health complaints in early adolescence: interactive, indirect or direct relationships?

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Abstract

The role of sense of coherence (SOC) on the relationship between adolescent school-related stress and subjective health complaints was tested with structural equation modelling. As part of the crossnational WHO-survey 'Health behaviour in school-aged children 1997/98' Norwegian representative samples of 1592 grade 6, 1534 grade 8, and 1605 grade 10 students completed measures on SOC, school-related stress and subjective health complaints. A test of nested structural models revealed that both stress-preventive ($\Delta \chi^2$ 814. 86, p < 0.001), stress-moderating ($\Delta \chi^2$ 11.74, p < 0.02) and main health-enhancing ($\Delta \chi^2$ 1289.1, p < 0.001) effects of SOC were consistent with the data. A model including all these relationships fitted the data well (CFI=0.91, RMSEA=0.04). Age-group comparisons revealed that the association between SOC and stress grew weaker with age (p < 0.05), whereas the direct association between SOC and health complaints grew stronger (p < 0.001). The main effect of SOC accounted for between 39% (11 year olds) and 54% (15 year olds) of the variance in subjective health complaints. Findings indicate that SOC may potentially be a salutogenic factor in adolescents' adaptation to school-related stress, and that relationships between SOC and healthy adaptation, may be evident in younger age-groups than previously anticipated. © 2001 Elsevier Science Ltd. All rights reserved.

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Introduction

Subjective health complaints like headache, backache, and abdominal pains, are common in early adolescence (Aro, Paronen, & Aro, 1987; Garralda, 1996; Goodman & McGrath, 1991; King, Wold, Tudor-Smith, & Harel, 1996; Mikkelsson, Salminen, & Kautiainen, 1997). A series of studies have implicated school-related stress in the development and maintenance of such health complaints (Aro et al., 1987; Garralda, 1996; Hurrelmann, Engel, Holler, & Nordlohne, 1988; Ystgaard 1997). However, the finding that not all students develop complaints from school-related demands has directed

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the attention to factors that moderate the perception of stress, and the adverse health impact of stress (e.g. Wagner & Compas, 1990; Ystgaard, 1997). In adults,

one of the stress moderators that has generated

considerable interest is the sense of coherence (SOC), a

global orientation to view life situations as comprehen-

sible, manageable and meaningful (Antonovsky, 1987).

adolescent health is largely unexplored. With the view

that school adaptation has an essential impact on a wide

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In the original theoretical formulation Antonovsky (1987) proposed that SOC may influence stress and health in three ways: (1) SOC influences whether a stimuli is appraised as stressor or not; (2) SOC influences the extent to which a stressor leads to tension or not; and (3) SOC influences the extent to which tension leads to adverse health consequences. While research on adults in part support these assumptions (for a review, see Antonovsky, 1993), the role of SOC in child and

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range of social, psychological, and behavioural outcomes, empirical evidence on the stress moderating role of SOC during adolescence may offer particularly scope for development of prevention policies. The aim of the present paper is to examine the ways SOC and school-related stress interact in relation to subjective health complaints during early adolescence.

SOC and stress appraisal

In the processes linking life situations to health, stress appraisal is the first process that SOC may influence. Stress research indicates that level of ambiguity and uncertainty are important dimensions in appraisals of life situations. Unpredictable or incomprehensible life situations are potent sources of stress (Lazarus & Folkman, 1984). As a global orientation to life, the sense of coherence (SOC), will influence the degree to which people view life demands as chaotic and incomprehensible, or coherent and comprehensible. Through the confidence that '...the stimuli deriving from one's internal and external environments are structured, predictable and explicable...' (Antonovsky, 1987, p. 19), individuals with a strong SOC will be less likely to perceive ambiguity in encounters with life demands.

In keeping with the hypothesis that a high SOC may help to appraise demands as non-stressful, studies on adult populations have reported moderate inverse associations between measures of SOC and measures of perceived stress. A review of these studies (Antonovsky, 1993) showed that that the associations are generally stronger for perceived measures of stress than for measures of stressful life events, suggesting a role in appraisal processes, and not in the actual exposure to stressful events.

SOC and stress moderation

As a next step in the stress process, SOC has been suggested to influence coping expectancies in encounters with stress (Antonovsky, 1987, p.19). According to the transactional model of stress (Lazarus & Folkman, 1984), coping expectancies develop from secondary appraisal processes, where people assess the means that are available to deal with the stressful condition. As a global orientation to life, individuals with a strong SOC will have a general confidence that resources are available to meet the demands posed by stressful situations (Antonovsky, 1987, p.19). This confidence increases the likelihood of positive coping expectancies. In related conceptual formulations (e.g. Bandura, 1986; Kobasa, 1979; Ursin, 1988) coping expectancies are assumed to moderate reactions to stress. In line with these models, Antonovsky (1987) proposes that a strong SOC may help to prevent stress from turning into potentially harmful tension. From this perspective SOC acts as a classic moderator of life stress.

Empirical studies on the stress-moderating role of SOC show mixed findings. In a study of Finnish adult workers, Feldt (1997) found that the relationship between work demands and health complaints was stronger for workers with a low SOC, but in statistical terms the interaction was weak. In a similar vein, Vahtera and colleagues (1996) found that job demands from active jobs lead to sickness spells in workers with low SOC, but not in workers with a high SOC. In contrast, a number of other studies have failed to detect stress-distress moderation (e.g. Anson, Carmel, Levenson, Bonneh, & Maoz, 1993; Flannery & Flannery, 1990), leaving the issue of SOC as a moderator unresolved.

SOC and stress-termination

As a third mechanism, Antonovsky suggested that a high SOC may prevent stress-associated tension from developing into health problems. Stressing the point that SOC is not a particular coping style, Antonovsky (1987) proposed that individuals with a high SOC are more likely to select the coping strategy that is efficient for dealing with the stressor. High SOC individuals tend to use problem-focused strategies, they are flexible in their choices of strategies, and they are skilled in using feedback to redirect coping attempts. As a consequence, individuals with a high SOC are, in general, more likely to remove the source of stress, and to terminate the associated tension. Over time, individuals with a strong SOC will experience shorter periods of harmful tension than individuals with a weak SOC, suggesting a main effect between level of SOC and health.

In line with the tension-termination hypothesis, a high SOC has been strongly associated with measures of self-reported health and well-being, as well as low scores on markers of disease (for a review see Antonovsky, 1993). While these findings are in line with the tension-termination hypothesis, authors have suggested that the strong associations to some extent may reflect methodological confounding between measures of SOC and measures of self-reported health (Geyer, 1997; Korotkov, 1993).

SOC and the mechanisms of health complaints

Through the influence on stress appraisals, coping expectancies and coping behaviour, SOC may affect processes that are essential in the development and maintenance of subjective health complaints. Uncertainty is a potent stimuli for the stress response. Once initiated, the profile of the stress response is moderated by response-outcome expectancies and control beliefs (Ursin & Hytten, 1992). Low perceived control over

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