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The association between self-esteem and sense of coherence in adolescents aged 13–18 years—The role of sex and age differences ☆

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ABSTRACT

The aim of this cross-sectional study was to investigate the effects of sex and age differences on sense of coherence as well as the association between self-esteem and sense of coherence in Norwegian adolescents aged 13 to 18 years. The moderating roles of sex and age on the relationship between self-esteem and sense of coherence were also investigated. A total of 1239 adolescents from public elementary and secondary schools in mid-Norway participated in the school-based survey study. Results showed that boys scored significantly higher on sense of coherence than girls. Adolescents aged 13 to 14 years scored significantly higher on sense of coherence than those aged 15 to 16 years. A significant positive association was found between self-esteem and sense of coherence when controlling for sex, age, stress, subjective health complaints, and subjective health. No moderating effect of sex or age was found on the relationship between self-esteem and sense of coherence. These results give support for the positive role self-esteem plays in the sense of coherence in adolescents, when controlled for the relevant covariates stress and subjective health complaints, and this relationship is equally strong for both sexes and across age.

1. Introduction

Medical sociologist Aron Antonovsky introduced the salutogenic perspective, which focused on the sources of people's resources and their capacity to create health (salutogenesis) rather than on the classic risk, ill health, and disease (pathogenesis; Antonovsky, 1987; Lindström & Eriksson, 2010). Sense of coherence (SOC) and general resistance resources (GRRs) are core concepts in the salutogenic theory. According to Antonovsky, SOC is viewed as a dispositional orientation present in everyday life that conditions the way in which an individual reacts to life demands and the extent of the effect of those demands. In other words, SOC is considered a coping resource or a life orientation which reflects a person's capacity to respond to stressful situations. It is composed of three highly interrelated dimensions: comprehensibility, manageability, and meaningfulness (Antonovsky, 1987; Eriksson, 2007).

A review by Rivera, Garcia-Moya, Moreno, and Ramos (2012) found contradictory results regarding the effects of sex and age on SOC during adolescence. While no sex-based differences were found among adolescents younger than 15 years of age, most studies involving adolescents aged at least 15 years reported that SOC was stronger in boys. The review also found that SOC was relatively stable during adolescence (Rivera et al., 2012), at least when SOC was initially strong.

Strong SOC is found to be associated with positive perceived health, particularly mental health and quality of life (Eriksson & Lindström, 2006, 2007). Having a strong SOC is also in relation to psychological symptoms such as depression and anxiety in both adolescent and adult populations (Eriksson & Lindström, 2006; Moksnes, Espnes, & Haugan, 2014; Myrin & Lagerström, 2008).

While many studies have investigated the role of SOC in association with health, little is known about its prerequisites, especially during adolescence (Eriksson & Lindström, 2006; Marsh, Clinkinbeard, Thomas, & Evans, 2007; Peker, Bermek, & Uysal, 2012; Rivera et al., 2012; Volanen, Lahelma, Silventoinen, & Suominen, 2004). According to Antonovsky, full development of one's SOC can be reached only when the GRRs for SOC are present (Antonovsky, 1987; Lindström & Eriksson, 2005). The GRRs can include characteristics of the person, a group, or an environment that facilitate effective tension management during the continuous challenges in life, thereby strengthening SOC. The more GRRs an individual possesses, the better their chance for positive coping and strong SOC. However, the key factor is not what is available to the person, but whether he or she is able to identify and use the GRRs for an intended purpose (Eriksson, 2007).

A study by Volanen et al. (2004) investigating the association between GRRs and SOC in adults aged 25 to 64 years found that SOC

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was associated with GRR factors such as socioeconomics, psychosocial variables, and childhood living conditions. A review by Rivera et al. (2012) found that developmental contexts such as school, neighborhood, family, and peer group were crucial GRRs. Other studies emphasize the importance of personal and interpersonal factors, including self-esteem, for the development of SOC (for a review, see Johnson, 2004; Lindström & Eriksson, 2010; Volanen et al., 2004).

Self-esteem is the most important part of the self-concept, susceptible to internal and external influences during adolescence (Birkeland, Melkevik, Holsen, & Wold, 2012; Orth & Robins, 2014). Rosenberg (1965) defined self-esteem as an individual's set of thoughts and feelings about his or her own worth and importance. This definition reflects the notion of "global" or "general" self-esteem or self-worth. Self-esteem is not only seen as a basic feature of mental health, but also as a protective factor that contributes to better health through its role as a buffer against the impact of negative influences (Orth, Robins, & Meier, 2009).

Several studies report an increase in self-esteem (Birkeland et al., 2012; Erol & Orth, 2011), whereas others report a decrease (Robins, Trzesniewski, Tracy, Gosling, & Potter, 2002), during adolescence. In a longitudinal study of adolescents aged 13 to 30 years, self-esteem was found to be high and stable, on average, during adolescence (Birkeland et al., 2012), though considerable inter-individual variance in baseline and development of global self-esteem was seen. Moreover, boys seem to report higher self-esteem than girls (Moksnes & Espnes, 2012; Moksnes, Moljord, Espnes, & Byrne, 2010b); however, findings regarding sex-based differences are inconsistent (Erol & Orth, 2011).

Studies of adult populations have shown support for a positive association between self-esteem and SOC (Eriksson & Lindström, 2006; Johnson, 2004). However, this association is, to our knowledge, not largely investigated in adolescents. A study by Gauffin, Landtblom, and Raty (2010) found a decline in both SOC and self-esteem over time for young people with epilepsy; the association between these variables was not investigated. The body of knowledge about the roles of self-esteem and SOC in health and positive functioning during adolescence has accumulated in the literature over recent years (Birkeland et al., 2012; Eriksson & Lindström, 2006). However, possible temporary fluctuations in these variables during adolescence have necessitated investigation of how they are related, evaluating self-esteem as a potential GRR for SOC (Marsh et al., 2007), controlling for the covariates of stress, subjective health and subjective health complaints. Furthermore, studies investigating the potential moderating effects of sex and age on the association between self-esteem and SOC are rare. Based on the previous empirical findings, the aims of our study were to:

- investigate the effects of sex and age differences on SOC,
- investigate the association between self-esteem and SOC while controlling for sex, age, subjective health, stress, and chronic health conditions, and
- investigate the potential moderating roles of sex and age on the relationship between self-esteem and SOC.

2. Method

2.1. Participants

Every fifth year since 1996, a school-based survey has been conducted using a convenience sampling of adolescents living in rural areas in Sør-Trøndelag county in mid-Norway. This cross-sectional study uses data collected in 2011 from schools including inland to coastal areas in five of the county's 25 municipalities. A total of 1924 students from 12 public lower- and upper-secondary schools were asked to participate, and 1289 completed the questionnaire (response rate of 67%). Nonresponses were primarily a result of absence at the time of questionnaire administration or refusal to answer the questionnaire. No detailed information is available on nonresponders. Students aged less than 13 or more than 18 years ($n = 50$) were excluded, leaving $N = 1239$ (64%) who met the target age. The sample comprised 634 (51.2%) girls and 603 (48.7%) boys (sex was not identified for two participants). Mean age was 15.00 years ($SD = 1.62$); for boys it was 14.99 years ($SD = 1.63$), and for girls it was 15.02 years ($SD = 1.63$).

2.2. Procedure

Data collection was approved by the Regional Committee for Medical Research Ethics and the Norwegian Social Science Data Services. The headmaster at each school approved participation in the survey. The students and parents of students aged less than 16 years received a letter briefly explaining the purpose of the study, emphasizing that participation was voluntary and anonymous, that participants were free to withdraw at any time, and that the collected information was confidential. Written consent was gained from all participants and additionally from parents of students aged less than 16 years. One regular school period of 45 min during the autumn of 2011 was used for questionnaire administration, which was completed in whole class groups.

2.3. Measures

Sense of coherence was measured using the Norwegian 13-item short version of the Orientation to Life Questionnaire (Antonovsky, 1987), where each item is rated on a seven-point scale and the ratings are summed. Higher sums indicate stronger SOC. The questionnaire seems to be a cross-culturally valid and reliable instrument both in adult and adolescent samples (Eriksson & Lindström, 2005; Moksnes & Haugan, 2013) with Cronbach's αs ranging between .70 and .92 (Eriksson & Lindström, 2005). In our sample, sums ranged from 13 to 91, and Cronbach's α was .84.

Self-esteem was measured using Rosenberg's Self-Esteem Scale (Rosenberg, 1965), a 10-item questionnaire where each item is rated on a Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Ratings are summed, yielding a total ranging from 10 to 40, and higher totals indicate higher levels of global self-esteem. The scale is found to be a reliable (Cronbach's $\alpha = .86$) and valid measure of global self-esteem for adolescents (Erol & Orth, 2011; Moksnes et al., 2010b). In our sample, Cronbach's α was .88.

Subjective health was measured by one item, "How is your health at the moment?" Response options were: (a) *bad*, (b) *not so good*, (c) *good*, (d) *very good*, and (e) *extremely good*.

Subjective health complaints were assessed using 12 questions concerning psychological (e.g., felt nervous, worried, or scared, felt loneliness or sadness, been irritable, or been in a bad mood) as well as somatic symptoms (headache, back pain/pain in arms/legs, stomachache, cold, asthma, and skin problems). The instrument is closely related to other measures of subjective health complaints, reporting satisfactory reliability and validity (Haugland & Wold, 2001). The items are rated on a four-point scale ranging from 1 (*not bothered*) to 4 (*very much bothered*). In our sample, summed rankings ranged from 12 to 45, and higher sums indicated greater levels of symptoms. In addition, Cronbach's α was .81.

Adolescent stress was assessed using the Norwegian version of the Adolescent Stress Questionnaire (ASQ-N; Moksnes & Espnes, 2011). The original version, a 56-item questionnaire where each is rated on a Likert scale ranging from 1 (*not at all stressful* or *irrelevant to me*) to 5 (*very stressful*), has been successfully tested for use in a Norwegian adolescent sample (Moksnes, Byrne, Mazanov, & Espnes, 2010a). Further validations of the instrument reduced the questionnaire to 30 items (Moksnes & Espnes, 2011), and using this version, in our sample, sums ranged from 30 to 150; higher scores indicated higher stress levels. Cronbach's α of the scale in the present study was .95.