Adolescent Sense of Coherence and Antidepressants Usage 11 Years Later

Else Toft Würtz1,2*, Jens Tølbøll Mortensen1 and Kirsten Fonager1,3

1Department of Social Medicine, Aalborg University Hospital, Denmark
2Department of Occupational Medicine, Aalborg University Hospital, Denmark
3Department of Clinical Medicine, Aalborg University, Denmark

*Corresponding author: Else Toft Würtz, Department of Social Medicine, Aalborg University Hospital, Havrevangen 1, 2, Post Box 561, DK-9100 Aalborg, Denmark, Tel: +45-50568856, E-mail: etw@rn.dk

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To the Editor

Sense of Coherence (SOC) was introduced in 1979 by Aaron Antonovsky as a salutogenic concept that captured the strength and determinants in health [1] from an orientation to life questionnaire [2]. A strong SOC indicates that a person will be likely to cope more successfully with stressful situations and a strong SOC has been found to predict good health and to be related to a high quality of life [3]. SOC-13 (the short version) with 13 items varies with gender and age in cross-sectional population studies [4,5]. In general, men usually have a slightly stronger SOC than women [3]. A few studies have found SOC to be negatively correlated with anxiety and depression, positively correlated with optimism and self-esteem, moderately correlated with life events and to be connected with attitudes and behaviour [3]. We have previously shown that especially girls (aged 12-16) with a weak SOC-7 (SOC-13 reduced to seven items) had an elevated risk for receiving social benefits 11 years later [6]. SOC-7 was limited to the items the pupils was considered to be capably answering giving their age (questions No 1, 4-6, 8-9, and 13). A few phrases were slightly altered compared with the later Danish version [7].

In this follow-up, we studied if an association also could be found between a weak baseline SOC-7 and later use of antidepressant as a proxy for mental health problems in the same population.
Table 1: Relative Risk (RR) for using antidepressants (N06A) in young adulthood, N = 794.

<table>
<thead>
<tr>
<th>Use of pain-killers</th>
<th>Sex</th>
<th>RR Crude</th>
<th>95% CI</th>
<th>Adjusted&lt;sup&gt;a&lt;/sup&gt;</th>
<th>RR 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td></td>
<td>47 (6)</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>SOC-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong</td>
<td>Boy</td>
<td>24 (4)</td>
<td>1</td>
<td>(1.45-4.67)</td>
<td>1.98</td>
</tr>
<tr>
<td>Weak</td>
<td>Boy</td>
<td>21 (11)</td>
<td>2.60</td>
<td>(0.73-3.06)</td>
<td>1.46</td>
</tr>
<tr>
<td>Use of pain-killers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seldom</td>
<td>Boy</td>
<td>18 (4)</td>
<td>1</td>
<td>(2.00-8.10)</td>
<td>3.06</td>
</tr>
<tr>
<td>Monthly</td>
<td>Boy</td>
<td>13 (6)</td>
<td>1.50</td>
<td>(2.46-4.03)</td>
<td>1.46</td>
</tr>
<tr>
<td>Weekly</td>
<td>Boy</td>
<td>14 (16)</td>
<td>4.03</td>
<td>(1.28-4.73)</td>
<td>1.46</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boy</td>
<td></td>
<td>12 (3)</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Girl</td>
<td></td>
<td>35 (8)</td>
<td>2.46</td>
<td></td>
<td>1.59</td>
</tr>
</tbody>
</table>

<sup>a</sup>: RR adjusted for sex and baseline use of painkillers (n = 721). Significant RR is highlighted in bold.

a substantial confounder. The SOC-7 scores from 1998 were dichotomized into first (weak) and second-to-fourth (strong) quartile SOC-7, as several studies have used the lowest 25% of the scores to characterize the weak group [3]. Poisson Regression was used to estimate the risk of antidepressant usage depending on the baseline SOC-7 score. Other variables addressed in the baseline questionnaire were issues about sex, form, spare time, no of siblings, rural living, family arrangements, pain last week, use of painkillers, wellbeing, friends and self-rated health. Only variables with a significant crude association were included in the adjusted analysis. One of these, the baseline use of painkillers was scaled in three ordinal levels by the frequency of use: i) Seldom (60%), never or 1-2 times each half year; ii) Monthly (29%), about once a month; iii) Weekly (12%), about once each half month to daily. The proportion of weak SOC-7 scores were significantly higher among the 30 participants who ignored the questions regarding their use of painkillers. Recall bias or errors of reported use of painkillers might lead to potential misclassifications. However, Andersen, et al. have shown high correspondence in 11 and 13-year-old. Danes self-report of used painkillers compared to what their parents reported [12].

In 2009 antidepressants were used by 6% (n = 47) recorded as 205 prescriptions. Antidepressants were used significantly more in 2009 among participants with a weak SOC-7 in 1998, those who weekly used painkillers in 1998, and girls (Table 1). In the adjusted analysis, the sex difference disappeared while the SOC-7 (RR 1.98, CI 1.06-3.71) and weekly used painkillers (RR 3.06, CI 1.41-6.66) remained significantly associated with the use of antidepressants 11 years later.

The longitudinal design with almost complete follow-up using registry based information is the main strength of the study. Cross-sectional studies report medicine use associated with bullying at school [13] and a weak SOC [14]. This study verifies that a weak SOC-7 and weekly use of painkillers are likely predictors for later usage of antidepressants that might be a proxy for mental struggles. Together with our prior study according social benefits in the same population [6], SOC-7 now seems to be a useful target for prevention among both boys and girls, though it is to some extent unstable in this age group [6]. A study limitation is the use of SOC-7 as a replacement for the entire official SOC-13 questionnaire which later have been shown to be applicable to children from 12 years [15]. The shortened SOC scale reduce the comparability to other studies in the field. Prospectively it would be very appealing to create an additional follow-up study and supplement with a qualitative part among current adolescents and participants within the ‘weak SOC-7’ group. We have demonstrated associations, but have a reduced amount of information of possible initiatives to defeat the adolescents difficulties. However, studies have addressed possible interventions as sport activities and salutegenic training programmes [16,17] as ones SOC is formed during childhood and adolescence [7]. The present study might add valuable knowledge to teachers, social workers and policy makers in the future.

**Ethical Statement**

The study was conducted in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments. In 2010 the North Denmark Region approved and notified the Danish Data Protection Agency about the present study.

**References**

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