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BRIEF REPORT

Close relations to parents and emotional symptoms among adolescents: beyond socio-economic impact?

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Abstract
Objectives This study examined the relationship between trustful communication with parents and frequency of emotional symptoms in schoolchildren and whether this relationship was modified by the family's socio-economic position.
Methods Pooled data ($n = 15{,}646$) from the Danish Health Behaviour in School-aged Children surveys 2002, 2006 and 2010 were analysed by multilevel multivariable logistic regression.
Results 8 % of all schoolchildren reported emotional symptoms almost daily. Odds ratio for daily symptoms was 2.1 (1.8–2.4) for children without trustful communication with parents compared to children with trustful communication. This association appears unaffected by family occupational class. A substantial socio-economic gradient in emotional symptoms persisted, independent of parent–child communication.
Conclusions Trustful communication with parents might have a fundamental importance, regardless of socio-economic position.

Keywords Adolescents · Emotional symptoms · Mental health · Parent–child communication · Socio-economic inequality · Schoolchildren

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Introduction

Many schoolchildren experience emotional symptoms during adolescence (Currie et al. 2012). Experiencing emotional symptoms frequently can have implications for daily life, school attendance, ability to learn, and social relations (Patel et al. 2007). Emotional symptoms in adolescence may also track into adulthood and have serious consequences for mental and physical health (Due et al. 2011; van Eijck et al. 2012; Morgan et al. 2012; Stewart-Brown et al. 2005).

Early adolescence is a vulnerable time period for development of emotional symptoms (Patel et al. 2007) which we define as the perception of anxiety and depressed mood. Adolescence is characterised by physical, psychological and social changes in which the reciprocal exchanges between the young person and the social environment play an important role (Due et al. 2011). Feeling related and socially supported are basic needs for a positive psychosocial development (Small and Memmo 2004). Most adolescents become more autonomous and independent, and peer relationships play an increasingly important role in daily life and development. The adolescent's relationship with parents becomes more equal and peripheral (van Eijck et al. 2012). Parental support is, however, still important offering a secure base enabling the adolescent to retain a stable sense of identity through a turbulent stage of life (Smith et al. 2009). Lacking close relations to one's parents may therefore be a serious psychological strain with increased risk of emotional problems.

There is a strong documentation for an association between problematic parent–child relations and emotional symptoms in adolescence (Brumariu and Kerns 2010; Colonnesi et al. 2011). Low socio-economic position furthermore seems to increase the risk of emotional symptoms

(Reiss 2013), although the findings are not completely consistent. According to the Adolescent Pathway Model (Due et al. 2011), schoolchildren from higher socio-economic groups may be less vulnerable to a range of risk factors for experiencing emotional symptoms.

The combined role of socio-economic position and parent–child relations on emotional symptoms in adolescence is much less investigated. Only few studies address the issue of social differential vulnerability among children and adolescents. According to Brumariu and Kerns (2010), the few studies on this topic have contradictory findings. Colonnesi et al. (2011) found no socio-economic modification of the association between parent–child attachment problems and the risk of child anxiety. Gecková et al. (2003) and Salonna et al. (2012) found that socio-economic conditions do not modify the association between parental social support and self-rated health or symptom prevalence. A study by DuBois et al. (1994) showed that the effect of daily stressors on psychological distress of young people was markedly greater among the socio-economically disadvantaged. A study by Wright et al. (2006) found that the mental health benefits of perceived social support among teenagers were dampened in socio-economically disadvantaged areas. In summary, there are only few studies on whether socio-economic conditions modify the association between close parent–child relations and emotional symptoms among adolescents. These studies are difficult to compare because of the differences in study population and measurement of the key variables, and the studies have contradictory findings.

Therefore, the objectives of this paper are (1) to examine the association between close parent–child relations and emotional symptoms among schoolchildren and (2) to analyse whether this association is modified by the family's socio-economic position.

Methods

Study design and participants

This paper is based on the Danish contribution to the international cross-sectional study Health Behaviour in School-aged Children (HBSC) in 2002, 2006 and 2010. The HBSC study gathers information on health, well-being, social environments and health behaviour among nationally representative samples of 11-, 13- and 15-year-old schoolchildren through a standardised survey procedure. The schoolchildren answer the internationally standardised HBSC questionnaire in the classroom (Roberts et al. 2009). This questionnaire has a core of mandatory questions which are included in all countries over several survey waves.

In Denmark, the study population includes all students in the fifth, seventh, and ninth grade from a random sample of schools in Denmark. The schoolchildren in these grades are fairly age homogenous. Fifth grade mean age: 11.8 years (SD = 0.4), seventh grade: 13.8 (0.4) and ninth grade: 15.8 (0.4). This paper combines data from the Danish HBSC surveys in 2002 (participation rate for students: 89.3 %, $n = 4{,}824$), 2006 (88.8 %, $n = 6{,}269$) and 2010 (86.3 %, $n = 4{,}922$) to obtain a greater statistical power. Pooling was possible because the three study waves used identical sampling schemes and data collection procedures. Out of 315 sampled schools, 224 (71 %) participated in the study. The combined study population included 16,015 schoolchildren.

Measures

Emotional symptoms

Emotional symptoms were assessed by three items from the HBSC Symptom Check List (HBSC-SCL) (Haugland et al. 2001). Schoolchildren were asked how often they had experienced the following three symptoms in the past 6 months: feeling low, irritability or bad tempered, and feeling nervous. We dichotomized the responses to each item into daily vs. less often and we constructed an index of experiencing *at least one emotional symptom daily*. Thirty-two children with missing information were excluded.

Close relationship with parents

Close relationship with parents was measured by the item: "How easy is it for you to talk to the following persons about things that really bother you? (Father; Stepfather/mother's boyfriend; Mother; Stepmother/father's girlfriend)" with response options "very easy", "easy", "difficult", "very difficult" and "don't have or see this person". We dichotomized the responses into *trustful communication* ("very easy" or "easy" to at least one parent or stepparent) vs. no trustful communication with parents. Children with no answers were excluded ($n = 369$).

Socio-economic position

We coded the schoolchildren's reports about their parents' occupation into *family occupational class*, according to the standards of the Danish National Institute of Social Research. This standard is almost identical to the UK Registrar General's classification of occupations. Each child was classified by the highest ranking parent and categorised into high (I and II), medium (III and IV), low

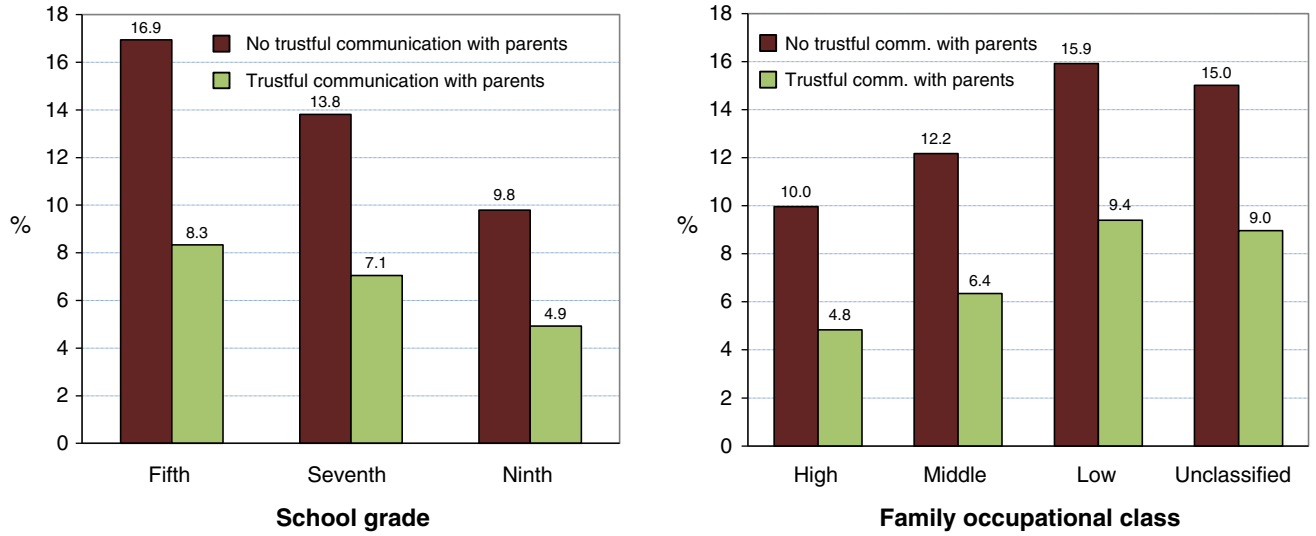

Fig. 1 Prevalence (%) of daily emotional symptoms among Danish school-children 2002–2010. Standardised by survey year, sex and school grade

(V and economically inactive), and unclassifiable family occupational class. The reason for the fourth category was that 14.9 % ($n = 2{,}333$) of the students (18.0 % from fifth, 14.4 % from seventh and 11.6 % from ninth grade) gave insufficient information for a proper coding of their parents' occupational class.

Covariates

Finally, we used sex of the child, age group, and survey year (2002/2006/2010) as covariates. We used school grade as a proxy measure for age group.

Statistical analyses

After removal of individuals with missing information, the study population was 15,614: 7,664 boys and 7,950 girls. We applied multilevel logistic regression with daily symptoms as outcome and with school class as random effect. School class showed no effect on the associations and was excluded. We conducted additive and multiplicative interaction analysis to study the potential effect of family occupational class on the association between communication and symptoms. A weighting variable was applied for each survey/sex/age group to calculate standardised, absolute prevalence of emotional symptoms (used in Fig. 1).

Ethics

The study complies with national guidelines for data protection and is registered at the Danish Data Protection Agency. There is no formal agency for ethical approval of school surveys in Denmark. Therefore, we asked the school leader, the school board representing the parents, and the board of students in each of the participating schools for approval of the study. We informed the participants orally and in writing that the participation was voluntary and that the study was anonymous, since we did not collect information that could identify the participants.

Results

The proportion of boys in fifth, seventh and ninth grade with at least one emotional symptom daily was 7.1, 5.3 and 3.7 %. The corresponding figures for girls were 11.3, 11.1 and 8.3 %. The proportion with no trustful communication with parents among boys in fifth, seventh and ninth grade was 9.5, 14.5 and 20.7 %; corresponding figures for girls 10.8, 19.7 and 20.0 %. The proportion of the schoolchildren in high, middle and low occupational class was 25.7, 41.6 and 17.8 % leaving 14.9 % as unclassifiable. The proportion of schoolchildren with at least one emotional symptom daily in these occupational classes was 5.7, 7.4, 10.6 and 10.4 %. The proportion with no trustful communication in the same groups was 14.0, 15.5, 16.1 and 17.3 %.

Table 1 shows that the odds ratio for daily emotional symptoms is significantly higher among schoolchildren without trustful communication with parents, among girls, and higher in the younger schoolchildren. The OR for daily emotional symptoms also increased with decreasing family occupational class. The association between trustful communication with parents and daily emotional symptoms did not change when controlled for family occupational class (Table 1 model 2).

Table 1 Odds ratio for at least one emotional symptom daily among Danish schoolchildren 2002–2010

	Crude OR (95 % CI)	Model 1[a] OR (95 % CI)	Model 2[a] OR (95 % CI)
Trustful communication with parents			
No vs. yes	2.01 (1.76–2.30)	2.09 (1.82–2.41)	2.05 (1.79–2.36)
Sex			
Girls vs. boys	2.00 (1.77–2.26)	1.97 (1.74–2.22)	1.97 (1.75–2.23)
School grade			
Fifth vs. ninth	1.59 (1.37–1.86)	1.75 (1.50–2.04)	1.68 (1.44–1.97)
Seventh vs. ninth	1.40 (1.19–1.63)	1.44 (1.22–1.68)	1.41 (1.20–1.65)
Survey year			
2002 vs. 2010	1.19 (1.02–1.38)	1.14 (0.98–1.33)	1.12 (0.96–1.31)
2006 vs. 2010	1.19 (1.03–1.37)	1.14 (0.99–1.32)	1.09 (0.94–1.26)
Family occupational class			
Middle vs. high	1.32 (1.12–1.55)		1.24 (1.06–1.47)
Low vs. high	1.95 (1.63–2.33)		1.83 (1.52–2.19)
Unclassified vs. high	1.90 (1.58–2.30)		1.79 (1.48–2.16)

[a] Mutually adjusted

Table 2 Analysis of modification by family occupational class of the relation between trustful communication with parents and emotional symptoms daily. Danish schoolchildren 2002–2010

Family occupational class	Trustful communication with parents		
	Yes OR (95 % CI)	No OR (95 % CI)	No vs. yes within strata of family occup. class OR (95 % CI)
High	1.00	2.32 (1.69–3.18)	2.32 (1.69–3.18)
Middle	1.27 (1.05–1.53)	2.70 (2.11–3.45)	2.13 (1.71–2.65)
Low	1.93 (1.57–2.37)	3.54 (2.62–4.78)	1.84 (1.37–2.46)
Unclassified	1.86 (1.50–2.32)	3.62 (2.65–4.93)	1.94 (1.42–2.65)

Odds ratios for emotional symptoms are adjusted for survey year, sex and school grade

Measures of effect modification by contrasting Low-No with Low-Yes and High-No: On additive scale, relative excess risk due to interaction, RERI (95 % CI) = 0.29 (−0.85 to 1.44); on multiplicative scale, ratio of odds ratios (95 % CI) = 0.79 (0.52–1.22)

Figure 1 shows the survey-, sex-, and age group-standardised prevalence of daily emotional symptoms. The prevalence decreases by age group and increases by decreasing occupational class. In every age group and every occupational class, the prevalence was approximately twice as high among students without compared to students with trustful communication with parents.

Interaction analysis (Table 2) revealed no significant modifying effect of occupational class on the association between communication and emotional symptoms—neither on an additive nor on a multiplicative scale.

Discussion

This study has two main findings. First: schoolchildren without trustful communication with parents had significantly increased odds for experiencing emotional symptoms on a daily basis. This finding is in agreement with most other studies (Brumariu and Kerns 2010; Colonnesi et al. 2011). Second: the association between trustful communication with parents and emotional symptoms is not affected by the family's occupational class. Family occupational class is neither a confounder in this association, nor does it modify the association. The few available studies of this issue have diverging findings (Brumariu and Kerns 2010). In line with our findings, a few other studies found that there is no effect modification (Colonnesi et al. 2011; Gecková et al. 2003; Salonna et al. 2012). Others (DuBois et al. 1994; Wright et al. 2006) found that the association between parental social support and psychological distress differs by socio-economic conditions. We did not find support for social differential vulnerability, i.e. that children from lower social classes were more vulnerable to poor parent–child communication. It seems that parent–child communication is important for

schoolchildren's emotional health regardless of the family's socio-economic position.

The merit of the study is the large and randomly chosen study population, the high participation rate, and the use of well-known standardised measures. The main limitation is the cross-sectional design which impedes causal interpretation. This could be important as some studies have suggested that the association between parent–child communication and health problems is bi-directional (Branje et al. 2010; van Eijck et al. 2012). We can not rule out the risk of selection bias. If schoolchildren absent from school had poorer parent–child relations and a higher frequency of emotional symptoms, analyses could underestimate the association between parent–child communication and emotional symptoms.

There is also a risk of information bias since the validity of the measurement of parent–child communication is unknown. The measure of emotional symptoms has good validity (Haugland et al. 2001). The measure of emotional symptoms is a frequency measure. Therefore, we can not rule out differential socio-economic vulnerability to poor parent–child communication in relation to *intensity* of daily emotional symptoms. Also long-term consequences of poor parent–child communication may differ across socio-economic groups. Approximately one in seven schoolchildren was unable to provide sufficient information about parents' occupation for the coding of occupational class. Still, many studies have demonstrated that most schoolchildren from the age of 11 are able to provide valid information of their parents' occupation (see Lien et al. 2001). Therefore, we trust that the measurement has a sufficient validity.

Initial analyses demonstrated that sex, age group and family occupational class could not be considered as confounders of the association between parent–child communication and emotional symptoms. Still, the risk of residual confounding must be considered.

The practical implication of the findings is that stimulation of trustful parent–child communication is one way of promoting adolescents' mental health. This effort may be equally appropriate for children from higher and lower socio-economic classes. The findings call for further studies on the intensity of symptoms and for studies of long-term consequences of poor parent–child communication. Further, to assess whether other factors such as social deprivation in the residential area, major life events in the family, parents' mental health, and parenting style confound the findings. It is also important to pursue the study of effect modification to assess whether the association between poor parent–child communication and emotional symptoms is a universal relationship.

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