

Changes in delinquency according to socioeconomic status among Finnish adolescents from 2000 to 2015

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Abstract

Background: Scientific literature suggests that the prevalence of delinquency amongst adolescents has decreased internationally in past decades. However, whether this change is consistent across all socioeconomic groups has not yet been studied.

Objective: The aim of this study was to examine changes in delinquency amongst Finnish adolescents according to socioeconomic status between 2000 and 2015.

Method: A population-based school survey was conducted biennially amongst 14-16-year-old Finns between 2000 and 2015 ($n = 761,278$). Distributions for delinquency and socioeconomic adversities (low parental education, not living with both parents and parental unemployment in the past year) were calculated using crosstabs. Associations between delinquency, time, and socioeconomic adversities were studied using binomial logistic regression results shown by odds ratios with 95 % confidence intervals.

Results: Delinquency was positively associated with all three socioeconomic adversities studied and cumulative socioeconomic adversity. Although the prevalence of delinquency varied only slightly between 2000 and 2015 in the overall population, it increased significantly amongst adolescents with most socioeconomic adversities.

Conclusions: The findings indicate that socioeconomic differences in delinquency have increased amongst Finnish adolescents in past decades. Delinquency prevention and intervention programs should take socioeconomic adversities into account.

Keywords: Adolescent; delinquency; socioeconomic factors; surveys and questionnaires

Introduction

Delinquency and other problem behaviors are rather common amongst adolescents (1, 2). Delinquency encompasses a wide range of antisocial acts which are illegal or lawfully interpreted as constituting delinquency, including theft, violence and destruction of property (3). The prevalence of delinquency amongst adolescents varies between 6 and 18 % in Europe and the United States of America (4, 5). Unlike assumed in the public debate, the prevalence of delinquency has not increased internationally in past decades, but on the contrary, it may have even decreased (6-9).

Research has identified several risk factors for delinquency, including male gender (10), genetic

factors (10), lower intellectual ability (11), aggressiveness (1), mental health disorders (12, 13), exposure to maltreatment in childhood (14, 15) and delinquent peers (16). In addition, low socioeconomic status (SES) increases the risk for delinquency. SES is an aggregate concept comprising resource-based (such as material and social resources) and prestige-based (individual's rank or status) indicators of socioeconomic position, which can be measured at both individual, household and neighborhood levels (17). It can be assessed through individual measures, such as education, income or occupation (18, 19), but also through composite measures that provide an overall index of socioeconomic level. Delinquency has been observed

to be more common amongst adolescents living in non-intact families than amongst those living in intact families (2, 20-24). Delinquency has also been associated with low level of parental education (20-22, 24) and parental unemployment (25, 26).

Scientific evidence suggests that socioeconomic disparities have increased in several areas of adolescent health and well-being in the Nordic countries in past decades. Torikka et al. (27, 28) found that socioeconomic differences in the prevalence of depression, frequent alcohol use and drunkenness increased amongst Finnish adolescents from 2000 to 2011. Socioeconomic disparities also increased in self-rated health amongst Swedish adolescents between 2002 and 2014 (29). In a Finnish time series study (30), the overall prevalence of bullying at school varied only slightly between 2000 and 2015, but both bullying perpetration and victimization increased amongst adolescents with most socioeconomic adversities. Therefore, although the overall prevalence of delinquency has not increased, this may not be true in all socioeconomic groups. To the best of our knowledge, however, no studies have so far investigated changes in delinquency amongst adolescents according to the SES.

Delinquency has negative consequences for the individual, being associated with school dropout (31), substance abuse (32), mental health disorders (33) and criminality later in life (1). In addition to individual suffering, delinquent behavior has far-reaching impacts on society, impairing perceived safety in the community (34) and inflicting significant costs on the public economy (35). In order to prevent delinquency, scientific knowledge on its risk factors and trends is essential. The aim of this study was to examine changes in delinquency according to SES amongst Finnish adolescents between 2000 and 2015. Our research questions were:

RQ1. Did the prevalence of delinquency change amongst Finnish adolescents between 2000 and 2015?

RQ2. Was delinquency associated with socioeconomic adversities (low parental education, not living with both parents and parental unemployment in the past year)?

RQ3. Were the changes in delinquency over time similar across socioeconomic groups?

Methods

Data and participants

The School Health Promotion Study is a nationwide anonymous classroom survey that examines the health, health behavior and school experiences of Finnish adolescents. The survey has been conducted biennially since 1996 amongst 8th and 9th graders with pooled two-year data. The survey is sent to every

municipality in Finland, and the municipalities decide if the schools in their area participate in the survey. This study comprises the responses of 8th and 9th graders between 2000 and 2015. Altogether, 761,278 (50,404-109,127 biennially) 8th and 9th graders participated in the survey. The 8th graders were 14-15 years old and the 9th graders were 15-16 years old at the time of the surveys. The biennial cohorts covered 43-82 % of the whole age cohort of the country. The study was approved by the ethics committee of Pirkanmaa Hospital District and the National Institute of Health and Welfare.

Measures

The self-report questions on delinquent behavior were adapted from the Finnish Self-Report Delinquency Study questionnaire, which is a modified version of the International Self-Report Delinquency Study (ISRD) instrument (36). The ISRD instrument has been shown to possess adequate reliability in test-retest studies (37). Delinquent behavior was elicited with five questions: 'During the past 12 months have you 1) drawn tags or graffiti on walls or elsewhere?; 2) deliberately damaged or destroyed school property or the school building; 3) deliberately damaged or destroyed other property; 4) stolen from a shop or a stall; 5) beaten someone up?' The questions remained constant over the study years. Response options to all questions were no (= 0), once (= 1), 2-4 times (= 2) and more than 4 times (= 3). A sum score ranging between 0 and 15 was formed of the five questions, in which a value of 4 or more (representing the 90th percentile) was used to indicate delinquency. The 90th percentile cut-off point has been used previously in the scientific literature (38). A considerable benefit of using a relative measure, as opposed to an absolute measure, is that it takes into account the varying prevalence of delinquency across different countries and cultures.

The socioeconomic variables recorded were parental education, parental unemployment in the past year and family structure. Parental education was elicited as follows: 'What is the highest educational qualification your father/mother has achieved?' The response options in the 2000 questionnaire were: 'basic school/vocational school/high school and/or vocational school/university or polytechnic'. The response options varied a little over time: for instance, in the 2013 questionnaire there was a response option 'no education', which was removed again in the 2015 questionnaire. For the analyses, parental education was dichotomized as parental basic education only (including the response alternative 'no education') versus other. Parental unemployment was elicited as follows: 'Have your parents been unemployed or laid off work during the

past year?’ The response alternatives were the same in all questionnaires: ‘neither/one parent/both parents’. The family structure was elicited as follows: ‘My family consists of...’. The response options in the 2000 questionnaire were: ‘mother and father/mother and stepfather/father and stepmother/mother only/father only/spouse/other caregiver’. The response options varied slightly over time. For the analyses, family structure was dichotomized as living with both parents versus other. In this paper, all three variables are referred to as socioeconomic adversities. In addition, a variable ‘cumulative socioeconomic adversity’ was created, in which all three socioeconomic variables were combined: a score of 0 stood for having no socioeconomic adversities (living with both parents, no parental unemployment and at least one parent with higher than basic education) and a score of 4 stood for having all socioeconomic adversities studied (not living with both parents, both parents unemployed, both parents with basic education only). The prevalence of socioeconomic adversities is presented elsewhere (30).

Statistical analyses

All statistical analyses were conducted using SPSS software (Version 24). Distributions of delinquency and socioeconomic adversities for both sexes during the time period 2000-2015 are presented in Table 1. Bivariate associations were studied using binomial logistic regression results shown as odds ratios with 95 % confidence intervals. Delinquency was entered as dependent variable. In the first model, categorical time periods (2000-2001, 2002-2003, 2004-2005, 2006-2007, 2008-2009, 2010-2011, 2012-2013, 2014-2015) were entered as independent factors using the time period 2000-2001 as a reference category. In the second model, family structure (living with both parents/other), parental unemployment in the past year (neither/one parent/both parents) and parental education (both parents basic education only/other) were entered as independent factors one at a time. In the third model, the file was split according to categorical time periods and cumulative socioeconomic adversity was entered as an independent factor.

TABLE 1. Delinquency and socioeconomic adversities among Finnish boys and girls in the 8th and 9th grades of comprehensive school.

	Boys (<i>n</i> = 381,527)	Girls (<i>n</i> = 376,814)	<i>p</i>
Age (Mean (SD))	15.4 (0.7)	15.3 (0.6)	< 0.001
<i>Delinquency</i>			< 0.001
Yes	11.0	6.4	
No	81.2	87.0	
Missing	7.7	6.6	
<i>Lives with both parents</i>			< 0.001
Yes	74.4	73.7	
No	23.3	25.1	
Missing	2.3	1.2	
<i>Both parents only basic education</i>			< 0.001
Yes	5.6	5.9	
No	86.8	87.5	
Missing	7.6	6.6	
<i>Parental unemployment past year</i>			< 0.001
No	70.9	69.9	
One parent	23.6	25.6	
Both parents	3.2	3.3	
Missing	2.3	1.2	

TABLE 2. Delinquency over time among Finnish boys and girls in the 8th and 9th grades of comprehensive school

	2002-2003	2004-2005	2006-2007	2008-2009	2010-2011	2012-2013	2014-2015
Boys	0.6 (0.6-0.7)	0.5 (0.5-0.5)	0.5 (0.4-0.5)	0.5 (0.5-0.6)	0.5 (0.5-0.6)	0.5 (0.5-0.6)	0.4 (0.4-0.5)
Girls	0.6 (0.5-0.6)	0.5 (0.4-0.5)	0.4 (0.4-0.4)	0.6 (0.5-0.6)	0.6 (0.6-0.7)	0.5 (0.5-0.6)	0.3 (0.3-0.4)

Note. OR (95% CI). Time period 2000-2001 used as a reference category

Results

Distributions of delinquency and socioeconomic adversities for both sexes during the time period 2000-2015 are presented in Table 1. Delinquency was more common amongst boys than girls: in the whole sample, 11 % of boys and 6 % of girls scored to the 90th percentile in delinquent behavior (Table 1). At the overall level, no significant changes were observed in the prevalence of delinquency amongst either boys or girls (Table 2).

Associations between delinquency and socioeconomic adversities are presented in Table 3. Delinquency was associated with all three socioeconomic adversities studied. Delinquency was more common amongst adolescents with parental basic education only compared to adolescents with higher parental education, and amongst adolescents not living with both parents compared to adolescents living with both parents. Delinquency was also positively associated with parental unemployment in the past year. The more socioeconomic adversities accumulated, the more likely was delinquency.

TABLE 3. Delinquency by socioeconomic adversities among Finnish boys and girls in the 8th and 9th grades of comprehensive school

	Boys	Girls
<i>Family structure</i>		
Both parents	ref	ref
Not living with both parents	1.9 (1.9-1.9)	1.9 (1.8-1.9)
<i>Both parents with low education</i>		
No	ref	ref
Yes	1.7 (1.6-1.8)	1.5 (1.4-1.6)
<i>Parental unemployment</i>		
Neither parent	ref	ref
One parent	1.5 (1.5-1.5)	1.6 (1.6-1.7)
Both parents	3.9 (3.8-4.1)	3.2 (3.0-3.4)

Note. OR (95% CI)

Differences in delinquency between socioeconomic groups increased over the study period. Although the prevalence of delinquency varied only slightly between years amongst adolescents with least socioeconomic adversities, it increased amongst adolescents with most socioeconomic adversities amongst both sexes (Table 4). Similarly, although the ORs for delinquency varied only slightly amongst adolescents with least socioeconomic adversities, they increased amongst adolescents with most socioeconomic adversities (Table 5).

Discussion

In this study, we found that delinquency was associated with socioeconomic adversities amongst Finnish adolescents. Delinquency was more common among boys and girls with parental basic education only than amongst adolescents with higher parental education. Delinquency was also positively

associated with not living with both parents and parental unemployment in the past year. The more socioeconomic adversities accumulated, the more likely was delinquency. Most importantly, although changes in the prevalence of delinquency were modest in the overall population, delinquency increased significantly amongst adolescents with most socioeconomic adversities.

The bivariate associations between socioeconomic adversities and delinquency were in agreement with those reported in earlier research (20, 25, 26, 39-43). Low parental education, parental unemployment and a non-traditional family structure are all associated with economic hardship in the family, which is a risk factor of delinquency (44-46). Also the prevalence of substance use and mental health problems, which are associated with delinquency, is higher amongst low-SES adolescents (47-49). Parental monitoring is a central protective factor against delinquency, and lower levels of parental monitoring in low-SES families may partly explain why these adolescents engage more in delinquent behavior (50, 51). Adolescents with socioeconomic adversities are also less likely to be committed to school and academic performance and more likely to get involved in peer groups that engage in delinquent behavior (52, 53).

Our most important finding was that differences in delinquency according to SES increased significantly amongst Finnish adolescents between 2000 and 2015. The finding is novel as changes in delinquency according to SES have not been studied previously. However, increased socioeconomic disparities have been observed in many other areas of adolescent health and well-being, such as smoking and bullying at school (27, 28, 30, 54-56). Why differences in delinquency have increased amongst adolescents in past decades is not known. According to Willis (57), some adolescents from low-SES background may adopt low SES as a part of their identities. Therefore, low-SES adolescents may perceive certain behaviors that are more common amongst people from lower socioeconomic backgrounds, such as smoking and delinquency, as a means of reinforcing their identities. It is possible that the identity processes of adolescents from different socioeconomic backgrounds are diverging in a way which has led to increased socioeconomic disparities in delinquency. Also societal changes, such as changes in income distribution, increased long-term unemployment and school inequalization, may have contributed to low-SES adolescents being worse off than earlier (58, 59).

TABLE 4. Delinquency over time by cumulative socioeconomic adversity among Finnish boys and girls in the 8th and 9th grades of comprehensive school

	2000-2001	2002-2003	2004-2005	2006-2007	2008-2009	2010-2011	2012-2013	2014-2015	<i>p</i> *
<i>Boys</i>									
Number of sociodemographic adversities									
0	9.1 (1,851/20,280)	10.4 (2,792/26,737)	8.1 (2,289/28,427)	7.3 (2,230/30,572)	9.0 (2,640/29,479)	8.7 (2,291/26,408)	7.9 (1,764/22,457)	5.7 (642/11,238)	< 0.001
1	12.2 (1,551/12,728)	14.8 (2,183/14,775)	11.0 (1,676/15,212)	10.6 (1,551/14,605)	12.3 (1,841/14,917)	12.4 (1,885/15,241)	11.3 (1,700/15,016)	9.4 (773/8,195)	< 0.001
2	18.5 (869/4,696)	19.9 (998/5,005)	15.6 (762/4,874)	17.7 (791/4,478)	18.2 (851/4,664)	18.2 (923/5,067)	17.1 (941/5,495)	12.5 (394/3,158)	< 0.001
3	26.9 (242/898)	26.7 (228/854)	26.2 (225/859)	31.0 (221/714)	30.0 (200/634)	29.6 (262/886)	26.0 (230/886)	24.0 (129/538)	< 0.001
4	46.4 (51/110)	63.1 (82/130)	58.0 (69/119)	72.7 (96/132)	74.1 (106/143)	67.6 (119/176)	64.7 (145/224)	73.1 (144/197)	< 0.001
<i>Girls</i>									
Number of sociodemographic adversities									
0	5.0 (972/19,334)	5.2 (1,291/24,946)	4.1 (1,110/26,882)	3.8 (1,121/29,410)	5.1 (1,460/28,625)	5.4 (1,375/25,437)	4.2 (913/21,970)	2.6 (290/11,269)	< 0.001
1	7.1 (907/12,767)	7.5 (1,098/14,563)	6.3 (959/15,168)	6.1 (942/15,445)	7.9 (1,249/15,846)	8.8 (1,371/15,644)	6.9 (1,051/15,316)	4.3 (366/8,577)	< 0.001
2	10.4 (542/5,188)	11.0 (591/5,360)	8.2 (465/5,662)	9.0 (456/5,062)	10.4 (529/5,085)	12.8 (741/5,785)	10.0 (615/104)	6.8 (243/3,556)	< 0.001
3	14.2 (137/968)	14.2 (136/960)	14.6 (129/885)	16.0 (120/749)	18.1 (138/764)	16.8 (181/1,078)	14.9 (159/1,068)	9.0 (59/656)	< 0.001
4	22.4 (19/85)	25.8 (24/93)	38.2 (34/89)	37.8 (37/98)	51.0 (52/102)	47.9 (78/163)	40.1 (69/172)	51.1 (47/92)	< 0.001

Note. % (n/N); **p*-values were calculated by Mantel-Haenzel χ^2 test

TABLE 5. Delinquency over time by cumulative socioeconomic adversity among Finnish boys and girls in the 8th and 9th grades of comprehensive school

	2000-2001	2002-2003	2004-2005	2006-2007	2008-2009	2010-2011	2012-2013	2014-2015
<i>Boys</i>								
Number of sociodemographic adversities								
1	1.3 (1.2-1.4)	1.5 (1.4-1.6)	1.4 (1.3-1.5)	1.5 (1.4-1.6)	1.4 (1.3-1.5)	1.5 (1.4-1.6)	1.5 (1.4-1.6)	1.7 (1.5-1.9)
2	1.9 (1.8-2.1)	2.2 (2.0-2.3)	2.1 (2.0-2.3)	2.8 (2.5-3.0)	2.3 (2.1-2.5)	2.4 (2.2-2.6)	2.4 (2.2-2.7)	2.4 (2.1-2.7)
3	3.0 (2.5-3.5)	3.1 (2.7-3.7)	4.1 (3.5-4.9)	5.9 (5.0-7.0)	4.6 (3.8-5.4)	4.5 (3.9-5.3)	4.2 (3.5-4.9)	5.4 (4.3-6.7)
4	6.6 (4.3-10.0)	15.7 (10.9-22.7)	17.2 (11.8-25.0)	35.3 (23.8-52.3)	31.8 (21.5-47.1)	24.0 (17.2-33.4)	23.3 (17.4-31.0)	50.5 (35.9-71.0)
<i>Girls</i>								
Number of sociodemographic adversities								
1	1.3 (1.2-1.5)	1.5 (1.4-1.6)	1.6 (1.4-1.7)	1.6 (1.5-1.8)	1.6 (1.5-1.7)	1.7 (1.6-1.8)	1.7 (1.6-1.9)	1.7 (1.4-2.0)
2	1.9 (1.7-2.1)	2.3 (2.1-2.5)	2.1 (1.9-2.3)	2.5 (2.2-2.8)	2.2 (2.0-2.4)	2.6 (2.4-2.8)	2.6 (2.3-2.9)	2.8 (2.4-3.3)
3	2.5 (2.0-3.0)	3.0 (2.5-3.7)	4.0 (3.3-4.8)	4.8 (3.9-5.9)	4.1 (3.4-5.0)	3.6 (3.0-4.2)	4.1 (11.5-21.5)	3.8 (2.8-5.0)
4	5.3 (3.0-9.2)	6.3 (3.9-10.1)	15.0 (9.7-23.2)	16.0 (10.5-24.2)	20.3 (13.6-30.2)	15.9 (11.6-21.7)	15.7 (11.5-21.5)	40.8 (26.5-62.7)

Note. OR (95 % CI). Adolescents in the same time period living with both parents, with at least one parent with higher than basic education and both parents employed used as a reference category

Methodological considerations

This study has some limitations. First, self-report data are susceptible to recall bias. Adolescents may perceive parental education difficult to recall, which may explain why the proportion of missing responses is a little higher on that question than on other questions. However, the proportions of missing responses on all questions studied were very small and therefore hardly affected the results. Second, mischievous responding must be considered in self-report studies. Mischievous responders are defined as 'young people who provide extreme, and potentially untruthful, responses to multiple questions' (60). The extent of mischievous responding was not assessed in this study. However, there is no reason to assume that the prevalence of mischievous responding would have changed drastically over years and therefore affected the results.

Despite the limitations, this study has several strengths. It is based on an exceptional nationwide time series study with a long time span and a large sample size consisting of Finnish 8th and 9th graders ($n = 761,278$) and a high participation rate (43-82 %). The sampling and timing of the study were held constant over the study years. Self-reported delinquency uncovers considerably more incidents than official crime statistics, and anonymity is likely to reduce the biasing effect of social desirability in the responses (38). The questionnaire included several different measures of family SES that were held constant across years, which enabled us to study the association of delinquency with several proxy measures and also a composite measure of SES.

Clinical significance

Socioeconomic adversities are a central risk factor of delinquency amongst adolescents, and it seems that in the twenty-first century delinquency has become even more common amongst adolescents with low SES. Therefore, socioeconomic adversities should be considered in the prevention of delinquency as well as delinquency interventions.

Conflicts of interest

The authors declare no conflicts of interest.

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