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Country of birth, parental background and self-rated health among adolescents: A population-based study

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Abstract

Objective: The aim of this study was to investigate differences according to country of birth and parental country of birth in relation to poor self-rated health (SRH) in Swedish adolescents.

Material and methods: The Scania public health survey among children and adolescents conducted in 2012 is a cross-sectional study including most pupils in grades 9 (15 year), including 32 of 33 municipalities. The participation rate was 83% (9,791 of 11,735). Logistic regressions were performed to investigate the association between country of birth, parental country of birth, and poor SRH.

Results: Boys born outside Europe had an OR 2.1 (1.6-2.8) of poor SRH in the unadjusted model which was reduced to 0.7 (0.4-1.3) in the multiple model compared to boys born in Sweden with both or one parent born in Sweden. Boys born in Europe had an odds OR 0.4 (0.2-0.9) of poor SRH after multiple adjustment. Girls born in Sweden with both parents born abroad, and girls born outside Europe had significantly lower OR:s of poor SRH in the multiple model. Particularly, adjustment for sociodemographic and psychosocial factors reduced the OR:s of poor SRH among boys but to a lesser extent among girls.

Conclusions: Differences in sociodemographic and psychosocial factors explained the higher odds of poor SRH among boys born outside Europe. Girls born in Sweden with both parents born abroad, and girls born outside Europe had significantly lower odds ratios of poor SRH. The results indicate gender differences in the factors behind poor self-rated health according to country background.

Key Words: Self-rated health, adolescence, pupils, country of birth, social capital, life course, Sweden.

Introduction

Sweden has in recent decades undergone a distinct historical population transformation from a highly homogeneous society to a multicultural society, and this transformation has been driven by immigration. In 2012 a 15.4% proportion of the Swedish population was born in other countries than Sweden. Ethnic differences in self-rated health have been shown to be strong predictors of mortality differences among adults between ethnic groups in the USA (1), and previous research has demonstrated significant differences in self-rated health between ethnic groups in Sweden. These ethnic differences were greatly reduced by psychosocial and economic factors, suggesting that these factors may be important determinants of health in certain minority groups (2). Public health studies concerning self-rated health of first and second generation immigrant adolescents and school pupils are scarce in Sweden and internationally, and no investigations of self-rated global health have been conducted or internationally published from Sweden, although self-rated health is internationally regarded as a valid indicator of health among adolescents (3).

Adolescence is an important period of life regarding health. Several health-related behaviours are founded during adolescence (4,5), and psychosomatic and mental health problems become more prevalent with a peak in the 16-18 year age interval, particularly among girls (6). Although adolescence is a life period which lay important foundations for health and health-related behaviours in adult life (4), several studies have indicated that there are no socioeconomic differences in health during adolescence (7) while others have concluded that there are (3).

Numerous studies have indicated that poor psychosomatic (8) and psychological health (9) among adolescents are major and increasing public health concerns in Sweden, as well as globally (10,11). In Sweden, girls report poorer health in terms of psychosomatic problems, such as musculoskeletal pain, sleep disorders and anxiety, and poorer mental health (6,12). Psychological complaints and psychosomatic pain are highly correlated among adolescents and more common among females (13), which is probably the reason why similar sex differences are observed for global self-rated health among Swedish adolescents (14).

In a life course perspective adolescent immigrants have been subject to health determinants in their country of birth, during the migration process and in the country of arrival. The life course perspective may be extended to parental background because parents' life course experiences may plausibly affect adolescents' health. The definition of the concept foreign born was altered in Sweden on December 31, 2003 from one parent born abroad to both parents born abroad (15). Some disparities in terms of for instance psychosomatic symptoms between children and young people with foreign backgrounds compared with those of their parents have been demonstrated in surveys (8,16), and children of immigrants run greater risks of suicide (17) and psychoses (18) compared to their parents. This study exclusively concerns current conditions and health determinants such as parental household, psychosocial and psychosomatic conditions as well as current health-related behaviours in Sweden. Trust is an aspect of social capital, which is a factor that enhances cooperation and health in society and promotes self-rated general health as well as mental health (19).

The aim of this study is to investigate differences according to country of birth and parental history (born in Sweden but with both parents born in other country/countries) in relation to poor self-rated health, taking sociodemographic, psychosocial, physical health conditions and lifestyle into account.

Material and methods

Study population

The Scania public health survey among children and adolescents conducted in 2012 in the southernmost part of Sweden is a cross-sectional study, which was performed primarily in order to assess social, economic, school and health conditions among school pupils in the 6th and 9th grades in primary school (*grundskolan*) and the 2nd grade in secondary school (*gymnasium*). The Swedish school system entails 9 school years in primary school and three school years in secondary school. Schools in 32 of 33 municipalities in Scania participated in this study in the 9th grade in primary school (*grundskolan*). Questionnaires were distributed by the teachers, answered by the respondents and gathered in the class room during school time. Only pupils in the 9th

(15-16 year olds) grade are included in the present study. A total of 9,791 pupils in the 9th grade (of a total 11,735 pupils) participated, yielding an 83% participation rate. The study has been approved by the Ethical Committee at Lund University, Sweden (No. Dnr. 2013/317).

Definitions

Self rated health was assessed with the item “How do you rate your general health status?” with the five optional answers “very good”, “good”, “neither good nor poor”, “poor” and “very poor”. The answers were subsequently dichotomised into good (the two first alternatives) and poor (the three latter alternatives) health.

Parental occupation assessed whether no parent, father, mother or both parents worked (full- or part-time).

The *family situation* item included the options living with both parents, living with one parent, and neither living with the mother or father.

Daily smoking was assessed with the question “Do you smoke?” with the optional answers “No, I have never smoked”, “No, but I have tried”, “No, I have smoked but stopped”, “Yes, every day”, “Yes, almost every day”, “Yes, at parties” and “Yes, sometimes”. This item was dichotomized with the “Yes, every day” alternative versus the others.

Intense alcohol consumption was assessed by a question measuring how often a large quantity of alcohol had been consumed in one session. Examples of alcohol were given in different standard containers, i.e. “alcohol corresponding to at least four cans of strong beer (“starköl”), *or* strong cider/alcopop *or* six cans of medium-strong beer (“folköl”) *or* a whole bottle of wine or 25 cl hard liquor (about 6 shots or drinks)”. Those who reported drinking any of these alternatives in one session at least once a month were defined as intense alcohol consumers (20).

The presence of *asthma* during the past twelve months was assessed with the optional answers “Yes” or “No”.

Body mass index (BMI) (kg/m^2) was assessed by the self-report of height (m) and weight (kg) with boys classified as overweight if BMI 23.29-28.29 and obese if BMI 28.30-, and girls classified as overweight if 23.94-29.10 and obese if BMI 29.11- (21).

Generalized trust in other people was assessed with the statement “Most people can be trusted” with the options “Do not agree at all”, “Do not agree”, “Agree”, and “Completely agree”, which was dichotomized with the two first alternatives as “No” and the two latter as “Yes” with regard to trust.

Close friend was assessed with the item “Do you have any really close friend with whom you can talk intimately concerning almost any subject?” with the alternatives “Do not have any close friends”, “Have one close friend”, “Have two close friends”, and “have several close friends”. The item was dichotomized as the first alternative versus the three latter alternatives.

Easy to talk with friends and parents if problems were assessed by the question “If you have any problems or just want to talk with someone, how easy or difficult do you think it is to turn to...” with the two sub-items “Parents or other grown-ups” and “Friends”, and the optional answers “Very easy”, “Rather easy”, “Neither easy nor difficult”, “Rather difficult” and “Very difficult”. Both sub-items were dichotomized with the two first two options as “Yes” and the three latter as “No”.

Country of birth and parental background. Participants were categorized into born in Sweden with both or one parent born in Sweden, born in Sweden with both parents born abroad, born in other European countries, and born outside Europe.

Statistics

Prevalence (%) of poor self-rated health, parental occupation, family situation, daily smoking, intense alcohol consumption, asthma, weight (BMI), generalized trust in other people, close friend, easy to talk with friends if problems, easy to talk with parents if problems, stratified by sex, were calculated according to country of birth

and parental background (tables 1 and 2). Prevalence (%) and odds ratios with 95% confidence intervals (OR:s, 95% CI) of poor self-rated health were calculated according to parental occupation, family situation, daily smoking, intense alcohol consumption, asthma, weight (BMI), generalized trust in other people, close friend, easy to talk with friends if problems, easy to talk with parents if problems and country of birth and parental history, stratified by sex (table 3). Unadjusted and multiple adjusted odds ratios and 95% confidence intervals of poor self-rated health according to country of birth and parental background adjusted for parental occupation, family situation, daily smoking, intense alcohol consumption, asthma, weight (BMI), generalized trust in other people, close friend, not easy to talk with friends if problems and not easy to talk with parents if problems are presented in table 4. Multilevel analyses in Mlwin 2.15 showed only a small clustering effect on the school level with regard to poor self-rated health (the intraclass correlation (ICC) was less than 4%). Therefore, all statistical analyses in tables 3-4 were conducted in individual-level logistic regression models and stratified by sex. The statistical analyses were performed using the PASW software package version 22.0 (22).

Results

Tables 1 and 2 show that approximately 75% of the 15-16 year boys and girls in 9th grade were born in Sweden with both or one parent born in Sweden, approximately one in seven were born in Sweden with both parents born abroad, 5% were born in other European countries and 6-7% were born in countries outside Europe. Parental occupation showed profound differences according to adolescent country of birth. A vast majority, 87.1% of boys and 84.3% of girls, of adolescents born in Sweden with both parents or one parent born in Sweden reported that both parents worked, the corresponding proportion of both parents working for adolescents born in Sweden with both parents born abroad was approximately two of three, for adolescents born in other European countries two of three, and for adolescents born outside Europe almost as low as one in three. Correspondingly, 1.4% of boys and 1.7% of girls born in Sweden with both or one parent born in Sweden reported no working parent compared to 31.7% of boys and 30.6% of girls born outside Europe. Tables 1 and 2 also display prevalence of other relevant variables. Male adolescents born outside Europe (18.0%) had a higher prevalence of poor self-rated health than male

adolescents born in Sweden (9.4%) with both or one parent born in Sweden, born in Sweden with both parents born abroad (7.0%) and born in Europe (11.2%). Female adolescents display less pronounced differences with 19.0% among girls born in Sweden with both or one parent born in Sweden, 13.7% among girls born in Sweden with both parents born abroad, 14.9% born in Europe and 18.9% born outside Europe. There are thus differences between boys and girls, but no difference between boys and girls born outside Europe.

Table 3 shows that male adolescents born outside Europe have a higher odds ratio 2.1 (95% CI: 1.6-2.8) of poor self-rated health compared to male adolescents born in Sweden with both or one parent born in Sweden. In contrast, girls born in Sweden with both parents born abroad had a significantly lower odds ratio 0.7 (0.5-0.9) of poor self-rated health. Male and female adolescents with one parent working, no parent working, one parent working, mostly living with one parent, neither living with mother or father, smoking daily, having experienced intense alcohol consumption, being obese, reporting asthma, low trust, no close friend, problems talking to friends and problems to talk to parents had significantly higher odds ratios of poor self-rated health compared to their respective male and female reference groups.

Table 4 shows that male adolescents born outside Europe had a significantly higher unadjusted odds ratio 2.1 (1.6-2.8) of poor self-rated health compared to the reference group male adolescents born in Sweden with both parents or one parent born in Sweden (model a). In the full model adjusted for all covariates the odds ratio of poor self-rated health for male adolescents born outside Europe was reduced to 0.7 (0.4-1.4) (model f). The covariates that reduced this odds ratio most were parental occupation and family situation (model b), and low trust, no close friend, easy to talk with friends if problems and easy to talk with parents if problems (model d), while daily smoking and intense alcohol consumption (model c) as well as BMI and asthma (model e) had less impact. Female adolescents born in Sweden with both parents born abroad had a significantly lower unadjusted odds ratio 0.7 (0.5-0.9) of poor self-rated health than the reference group female adolescents born in Sweden with both or one parent born in Sweden (model a). In the full model adjusted for all covariates female adolescents born in Sweden with both parents born abroad, 0.5 (0.4-0.7), and born outside Europe, 0.6 (0.4-0.97), had significantly lower odds ratios of poor self-rated

health than the reference category born in Sweden with both or one parent born in Sweden (model f). The covariates that decreased these odds ratios most were the same as among male adolescents.

Discussion

Boys born outside Europe had an odds ratio 2.1 (1.6-2.8) of poor self-rated health in the unadjusted model, which was reduced to 0.7 (0.4-1.4) in the multiple-adjusted model compared to boys born in Sweden with both or one parent born in Sweden. Girls born in Sweden with both parents born abroad, and born outside Europe had significantly lower odds ratios of poor self-rated health compared to girls born in Sweden with both or one parent born in Sweden in the multiple-adjusted model. The results indicate important gender differences in the factors behind poor self-rated health according to parental background and country of birth, and the association between country background and self-rated health was not affected by the sociodemographic and psychosocial factors to the same extent among girls. Still, it should also be observed that only small differences in the prevalence of poor self-rated health between boys (18.0%) and girls (18.9%) born outside Europe were observed (tables 1 and 2). Parental household conditions and psychosocial and trust conditions particularly reduced the odds ratios of poor self-rated health for boys in the models, but not for girls to the same extent.

The large differences in poor self-rated health observed in the initial unadjusted model between boys born outside Europe and boys born in Sweden with both or one parent born in Sweden were heavily reduced in the full model adjusted for all covariates by the introduction of particularly current parental household, psychosocial and trust conditions in the multiple logistic regression models. This result among adolescents in the 2012 public health survey among adolescents in Skåne is very similar to the results among adults aged 20-80 years in Malmö in Skåne in 1994, in which current psychosocial conditions reduced ethnic differences in poor self-rated health (2). These results point to conditions in Sweden outside the area of public health which may be possible to affect by a Health in all policies (HiAP) approach by systematically addressing health in policymaking (23).

Girls born in Sweden with both parents born abroad and born outside Europe had significantly lower odds ratios of poor self-rated health after multiple adjustments. One possible explanation may be the “healthy migrant” effect, i.e. that migrants are selected in a positive way compared to the native population in the country of immigration (24). However, this seems less plausible in Sweden where a huge proportion of immigration in recent decades has been refugee immigration. Factors suggested in the introduction such as psychosomatic and mental health problems (6), musculoskeletal pain, sleep disorders, anxiety (6,12,13,14) may be less common among female adolescents with immigrant background, but only future studies can explore this possibility.

Some international studies have suggested the absence of socioeconomic differences in health during adolescence (7), but some other studies have drawn the conclusion that such socioeconomic differences exist (3). This study shows significant socioeconomic differences for both adolescent boys and girls according to parental occupation versus lack of occupation, which must be regarded as a very important socioeconomic trait given the high long-term levels of structural unemployment and absence of work and their positive relation to poor self-rated health. In fact, currently adult people without employment have higher odds ratios of poor self-rated health than any socioeconomic group with employment (25). These results suggest further studies including a life course perspective on unemployment starting with the study of adolescents, because this period may plausibly be formative in connection with attitudes, norms and hopes regarding for instance employment. Factors such as parents’ occupation, education and income should be included (25).

Strengths and limitations

The comparatively high 83% participation rate is a strength. Furthermore, the study is not based on a random sample of the population of this age-cohort, but on a large part of the major part of the cohort in Scania aged 15 years since 32 of 33 municipalities were included, school attendance is mandatory up to the 9th grade in Sweden and most schools were included. The risk of selection bias is thus comparatively low.

The outcome measure, self-rated health, is internationally regarded as a valid indicator of health in general populations because it is a predictor of e.g. total mortality as well as cardiovascular mortality and incidence (26,27).

Potential confounders such as parental household conditions, psychosocial and trust conditions related to peers and community, and health and lifestyle factors have been adjusted, and by stratifying by sex.

The fact that this study is a cross-sectional study is a limitation because causality cannot be discerned in studies without temporal relationships between independent and dependent variables. However, some of the most important variables in the analyses such as country of birth and parents' country of birth as well as parental household conditions are apparently only unidirectional.

Conclusions. Boys born outside Europe had nearly doubled odds of poor self-rated health in the unadjusted model which disappeared in the multiple-adjusted model compared to boys born in Sweden with both or one parent born in Sweden. Girls born in Sweden with both parents born abroad, and born outside Europe had significantly lower odds ratios of poor self-rated health compared to girls born in Sweden with both or one parent born in Sweden in the multiple adjusted model. Parental household conditions and psychosocial and trust conditions related to peers, parents and community particularly reduced the odds ratios of poor self-rated health more among boys than girls. The results indicate important gender differences in the factors behind poor self-rated health according to parental background and country of birth. Only small differences in the prevalence of poor self-rated health between boys (18.0%) and girls (18.9%) born outside Europe were observed.

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Table 1. Characteristics (%) of 15-year Swedish boys by country of birth and foreign background. The Scania public health survey among children and adolescents, 2012.

	Born in Sweden (n = 3646; 75%)	Born in Sweden, foreign background* (n = 611; 13%)	Born outside Sweden in Europe (n = 263; 5%)	Born outside Europe (n = 321; 7%)
<i>Sociodemographic factors</i>				
Mean age (SD)	15.3 (0.5)	15.3 (0.5)	15.4 (0.6)	15.5 (0.7)
Parental occupation				
Both parents working	87.1	70.7	65.7	35.7
One parent working	11.5	24.4	26.1	32.6
No parent working	1.4	5.0	8.3	31.7
Family situation				
Living with both parents	67.3	78.5	68.0	68.8
Living with one parent	31.7	19.8	29.3	22.4
Neither living with mother or father	1.0	1.7	2.7	8.9
<i>Life-style habits</i>				
Daily smoking	6.6	6.7	7.4	9.7
Intense alcohol consumption	17.3	10.0	19.5	16.0
<i>Physical health</i>				
Weight				
Overweight	19.2	21.1	22.7	18.4
Obese	4.0	4.6	4.7	4.2
Asthma	13.1	7.7	10.0	12.5
<i>Psychosocial factors</i>				
Low trust	54.3	61.8	61.2	63.1
No close friend	6.6	6.6	13.3	20.2
Not easy to talk to friends if problems	22.2	28.1	27.7	37.5
Not easy to talk to parents if problems	34.0	32.7	32.3	45.6
<i>Self-reported health</i>				
Poor self-rated health	9.4	7.0	11.2	18.0
* Both parents born abroad				

Table 2. Characteristics (%) of 15-year Swedish girls by country of birth and foreign background. The Scania public health survey among children and adolescents, 2012.

	Born in Sweden (n = 3549; 74%)	Born in Sweden, foreign background* (n = 699; 15%)	Born outside Sweden in Europe (n = 228; 5%)	Born outside Europe (n = 301; 6%)
<i>Sociodemographic factors</i>				
Mean age (SD)	15.3 (0.5)	15.3 (0.5)	15.3 (0.6)	15.5 (0.6)
Parental occupation				
Both parents working	84.3	65.2	67.7	38.0
One parent working	14.0	26.4	23.2	31.4
No parent working	1.7	8.4	9.1	30.6
Family situation				
Living with both parents	65.6	75.1	69.3	69.8
Living with one parent	33.4	23.6	27.1	25.5
Neither living with mother or father	1.0	1.3	3.6	4.3
<i>Life-style factors</i>				
Daily smoking	7.1	8.0	5.8	5.9
Intense alcohol consumption	17.4	7.0	12.7	7.5
<i>Physical health</i>				
Weight				
Overweight	9.2	10.9	9.4	10.6
Obese	1.9	1.3	2.0	1.1
Asthma	12.8	6.1	7.6	8.6
<i>Psychosocial factors</i>				
Low trust	66.0	77.3	67.3	69.3
No close friend	3.9	6.0	7.6	11.7
Not easy to talk to friends if problems	17.1	29.8	26.2	36.4
Not easy to talk to parents if problems	38.4	43.7	40.7	46.4
<i>Self-reported health</i>				
Poor self-rated health	19.0	13.7	14.9	18.9
* Both parents born abroad				

Table 3. Odds ratios (OR) and 95 % confidence intervals (CI) of poor self-rated health by sociodemographic factors, life style factors, physical health and psychosocial factors in 15-year Swedish boys and girls. The Scania public health survey among children and adolescents, 2012.

	Boys		Girls	
	OR	95 % CI	OR	95 % CI
<i>Sociodemographic factors</i>				
Country of birth				
Sweden	1.0		1.0	
Sweden, both parents born abroad	0.7	0.5, 1.0	0.7	0.5, 0.9
The rest of Europe	1.2	0.8, 1.8	0.7	0.5, 1.1
Outside Europe	2.1	1.6, 2.8	1.0	0.7, 1.3
Parental occupation				
Both parents working	1.0		1.0	
One parent working	1.3	1.0, 1.7	1.7	1.4, 2.1
No parent working	3.2	2.2, 4.8	1.8	1.3, 2.6
Family situation				
Living with both parents	1.0		1.0	
Living as much with mother as the father	2.1	1.7, 2.6	1.7	1.5, 2.0
Neither living with mother or father	10.9	6.9, 17.4	4.0	2.4, 6.7
<i>Life-style factors</i>				
Daily smoking				
No	1.0		1.0	
Yes	3.1	2.4, 4.2	3.3	2.6, 4.1
Intense alcohol consumption				
No	1.0		1.0	
Yes	1.7	1.4, 2.2	1.9	1.6, 2.3
<i>Physical health</i>				
Weight				
Normalweight	1.0		1.0	
Overweight	1.2	0.9, 1.5	1.2	0.9, 1.6
Obese	1.9	1.3, 2.9	2.9	1.8, 4.6
Asthma				
No	1.0		1.0	
Yes	1.5	1.2, 2.0	1.5	1.2, 1.8
<i>Psychosocial factors</i>				
Low trust				
No	1.0		1.0	
Yes	2.3	1.9, 2.9	2.3	1.9, 2.7
Close friend				
Yes	1.0		1.0	
No	5.5	4.3, 7.1	3.4	2.6, 4.5
Easy to talk to friends if problems				
Yes	1.0		1.0	
No	3.2	2.7, 3.9	3.3	2.8, 3.9
Easy to talk to parents if problems				
Yes	1.0		1.0	
No	4.1	3.3, 4.9	2.8	2.4, 3.3

Table 4. Adjusted odds ratios (OR) and 95 % confidence intervals (CI) of poor self-rated health by country of birth in 15-year Swedish boy and girls.
The Scania public health survey among children and adolescents, 2012.

	Model 1 ^a		Model 2 ^b		Model 3 ^c		Model 4 ^d		Model 5 ^e		Full model ^f	
	OR	95 % CI	OR	95 % CI	OR	95 % CI	OR	95 % CI	OR	95 % CI	OR	95 % CI
Boys												
Born in Sweden	1.0		1.0		1.0		1.0		1.0		1.0	
Born in Sweden, both parents born abroad	0.7	0.5, 1.0	0.8	0.5, 1.1	0.7	0.5, 0.9	0.7	0.5, 0.98	0.8	0.6, 1.1	0.8	0.5, 1.2
Born in Europe, outside Sweden	1.2	0.8, 1.8	0.7	0.4, 1.2	1.0	0.6, 1.6	0.9	0.6, 1.4	1.0	0.6, 1.5	0.4	0.2, 0.9
Born outside Europe	2.1	1.6, 2.8	0.9	0.6, 1.5	1.7	1.2, 2.5	1.2	0.8, 1.8	1.8	1.3, 2.7	0.7	0.4, 1.4
Girls												
Born in Sweden	1.0		1.0		1.0		1.0		1.0		1.0	
Born in Sweden, both parents born abroad	0.7	0.5, 0.9	0.6	0.4, 0.8	0.7	0.5, 0.9	0.5	0.4, 0.7	0.7	0.6, 0.9	0.5	0.4, 0.7
Born in Europe, outside Sweden	0.7	0.5, 1.1	0.7	0.4, 1.0	0.7	0.5, 1.1	0.6	0.4, 0.9	0.7	0.5, 1.1	0.6	0.4, 1.0
Born outside Europe	1.0	0.7, 1.3	0.6	0.4, 0.9	1.0	0.7, 1.4	0.6	0.5, 0.9	0.9	0.6, 1.3	0.6	0.4, 0.97
a Unadjusted												
b Adjusted for age, parental occupation, and family situation												
c Adjusted for age, smoking, and intense alcohol consumption												
d Adjusted for age, low trust, no close friend, not easy to talk with friends if problems, and not easy to talk with parents if problems.												
e Adjusted for age, weight, and asthma												
f Adjusted for Models a-e												