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Health behaviours and health in adolescence as predictors of educational level in adulthood: a follow-up study from Finland

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Abstract

A longitudinal study design is used to find out whether health and health behaviours at age 12–16 predict educational level in early adulthood. The purpose is to study *direct* (based on health) and *indirect* (based on health behaviours) *health-related selection mechanisms* in adolescence. These mechanisms contribute to the allocation of people into various educational positions and thus to the creation of socio-economic health differences in adulthood.

Baseline data at age 12–16 from the Adolescent Health and Lifestyle Survey (Finland) in 1981, 1983 and 1985 were linked with data on highest attained education at age 27–33, obtained from the Register of Completed Education in 1998. In the baseline surveys, all 12-, 14- and 16-year-olds born within a specified range of birth dates in July 1964, 1966, 1968, or 1970 were included in the samples ($N = 11{,}149$). The response rate in the mailed surveys varied between 74% and 88% in boys and between 85% and 92% in girls. Associations between baseline variables and attained educational level were assessed by polychotomous logistic regression analysis.

Health-compromising behaviours and poor perceived health in adolescence predicted low educational level in adulthood. Several behaviours had independent associations with attained educational level, while associations between health and educational level were mostly accounted for by school achievement and sociodemographic background, which were strong and independent predictors of educational level. The study indicates that in adolescence, indirect selection based on health behaviours, rather than direct selection by perceived health, contributes to the production of socio-economic health differences.
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1. Introduction

Associations between health and socio-economic background are less visible in adolescence than at other ages (Blane et al. 1994; Goodman, 1999). However, there are important processes starting in adolescence, which may influence the emergence of health differences from early adulthood onwards (West, 1988, 1991). These processes include *direct* and *indirect health-related selection.*

Direct health-related selection signifies a process where health in early phases of life influences the social class that a person is going to achieve in adulthood. Associations between health problems and poor success at school have been found (Koivusilta, Rimpelä, & Rimpelä, 1995; Pless, Power, & Peckham, 1993), although, without proper longitudinal study designs, the direction of the causality remains controversial. On the one hand, satisfactory health status is a prerequisite for success in education. On the other hand, poor health may be related to stress caused by expectations set on young people by many quarters, and especially the

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pressure to succeed at school (Hurrelmann & Maggs, 1995; Natvig, Albrektsen, Anderssen, & Qvarnstrom, 1999). Research on direct selection has mainly dealt with childhood health (van de Mheen, Stronks, Looman, & Mackenbach, 1998a,b; Montgomery, Bartley, Cook, & Wadsworth, 1996; Pless et al., 1993; Wadsworth, 1986), while adolescence as a phase of life when direct health-related selection could happen, has been neglected. Although adolescence has generally been regarded as characterised by good health, a large proportion of young people experience long-term illnesses and other health complaints, like tiredness and depression (Haugland, Wold, Stevenson, Aarø, & Woynarowska, 2001; Kaltiala-Heino, Rimpelä, Marttunen, Rimpelä, & Rantanen, 1999). These health problems are likely to influence the course of their educational careers.

In adolescence, health-related behavioural patterns take shape, which form the core of the health-related lifestyle in adulthood and are associated with various dimensions of health (Feinstein, 1993). Health-compromising behaviours are adopted by adolescents who have poor school achievement or modest educational aspirations (Aarø, Wold, Kannas, & Rimpelä, 1986). Such behaviours may be seen as inadequate or dysfunctional coping styles in face of stress caused by educational demands (Koval & Pedersson, 1999; Rutter & Quine, 1994). The differentiation of lifestyle profiles according to the selected educational track and expected future social class is visible already in early adolescence (Koivusilta, Rimpelä, Rimpelä & Vikat, 2001; Petridou et al., 1997). The involvement of adolescent health behaviours in a process that simultaneously produces health and social status in adulthood might be interpreted as a type of *indirect health-related selection* to the adult social status (Glendinning, Hendry & Shucksmith, 1995; West, 1991). Behaviours would thus constitute a common predictor of both socio-economic position and health later in life (see Blane, Davey Smith, & Bartley, 1993).

Health behaviours have been considered as a link through which socio-economic factors influence the formation of health and social position (van de Mheen, et al., 1998a). Among the essential features of social environment is the quality of family relationships. Health-compromising behaviours and school problems are linked with difficulties in homes or living in single-parent families (Mulkey, Crain, & Harrington, 1992).

There are only a few longitudinal studies on the selectional processes related with health (Isohanni et al., 2001a,b) or health behaviours (Isohanni et al., 2001a,b; Koivusilta, Rimpelä & Rimpelä, 1998; Rönkä & Pulkkinen, 1995) between adolescence and adulthood. In their follow-up study, Power and Matthews (1997) showed that socio-economic health differences reproduce through varying and complex pathways. Longitudinal studies with adequate follow-up periods are essential in determining which factors acting in adolescence are associated with later development of health and social status. Using the available opportunity to combine survey data with data from national registers, we constructed a longitudinal study design, to provide information on factors shaping educational and health careers from early adolescence to adulthood. Finland, with 5.2 million inhabitants, is a Nordic welfare state (Stephens, 1996). Internationally low poverty levels and equal income distributions are typical of these countries. Equality of educational opportunities among citizens has been a central objective of the welfare state, and reforms of educational systems as well as increase in public investment in higher education have been introduced to fulfil this goal (Kivinen & Rinne, 1992). In Finland, everybody has to take a gratuitous compulsory education of 9–10 years (Statistics Finland, 2000a).

The aims of this study were to find out whether health and health behaviours in adolescence predict attained educational level in adulthood, and if so, when does it become obvious between ages 12 and 16. Since socio-economic background and accumulative experiences of educational successes and failures influence children's educational careers (Erikson & Jonsson, 1996), we also studied whether associations of adulthood educational level with behaviours and health in adolescence persist, when school achievement and sociodemographic background are taken into account. The conceptual model of the study is presented in Fig. 1. The lines and arrows show how both health behaviours and health can be directly associated with attained educational level or associations can be mediated through school achievement and sociodemographic background.

Methods

Study design

Baseline data were collected in 1981, 1983, and 1985 in the Adolescent Health and Lifestyle Survey in Finland. This is a nation-wide survey, conducted every second year from 1977 on, by structured postal questionnaires, which are sent in February and followed by two re-inquiries to non-respondents. The nationally representative samples were drawn from the Central Population Register that includes information on all permanent residents of the country. Every 12-, 14- and 16-year-old adolescent born within a specified range of birth dates of July in 1964, 1966, 1968, and 1970 was included in the samples ($N = 11149$, Table 1).

Follow-up data, the highest attained educational level for each participant, were obtained from the Register of Completed Education and Degrees kept by Statistics Finland (Repo, 1997). This register contains information

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