

# Money, Peers and Parents: Social and Economic Aspects of Inequality in Youth Wellbeing

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**Abstract** Indicators of social and economic status are important health determinants. However, evidence for the influence of family socioeconomic status in adolescent wellbeing is inconsistent and during this period of development youth may begin to develop their own status positions. This study examined social and economic health inequalities by applying a multidimensional and youth-orientated approach. Using a recent (2010–2011) and representative sample of Swedish 14-year olds ( $n = 4456$ , 51 % females), the impact of family socioeconomic status, youth economic resources and peer status on internalizing symptoms and self-rated health were examined. Data was based on population register, sociometric and self-report information. Aspects of family socioeconomic status, youth's own economy and peer status each showed independent associations, with poorer wellbeing observed with lower status. However, there were equally strong or even stronger effects of peer status and youth's own economy than family socioeconomic status. Lower household income and occupational status were more predictive of poor self-rated health than of internalizing symptoms. The findings suggest that youth's own economy and peer status are as important as family socioeconomic status for understanding inequalities in wellbeing. Thus, a focus on youth-orientated conceptualizations of social and economic disadvantage during adolescence is warranted.

**Keywords** Adolescence · Health inequalities · Socioeconomic status · Peer status · Wellbeing · Youth's economy

## Introduction

Social and economic status have long been identified as important health determinants. Although higher rates of poor wellbeing are commonly observed among individuals with lower socioeconomic status (SES), a less robust association is observed in adolescence than in other age groups. A popular explanation is the *equalization in health* hypothesis (West 1997; West and Sweeting 2004), suggesting that during adolescence the importance of family background on health weakens as youth become more independent and are exposed to other influences. Extending this perspective, we argue that central features of the stage of life that adolescents inhabit should be reflected in the conceptualization and measurement of their social and economic status. This developmental period may represent a shift in the *type* of status that matters, with youth's own economic resources and position within the peer group gaining importance.

This article contributes to the understanding of economic and social forces behind health inequalities in adolescence, focusing on internalizing symptoms and self-rated health. These outcomes provide a complementary picture of overall emotional and general health and have been tested in previous studies of health inequalities in youth (West and Sweeting 2004). We use a recent and representative sample of Swedish 14-year olds ( $n = 4456$ ) to present a multifaceted framework of inequality and multiple-informant data based on sociometric, population register and self-report data. Firstly, the possibility that

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unsystematic effects of family-based SES may result from methodological choices and limitations is addressed by testing three dimensions of SES (income, education and occupational status) that may capture mechanisms of differential importance for young people's wellbeing. Secondly, the transitional nature of adolescence as a period when youth develop their own social position is emphasized by using peer status and youth's own economic resources as youth-orientated indicators of social and economic status.

### Family Socioeconomic Status and Wellbeing

Health inequalities according to SES are a well-established finding. Low SES is assumed to affect young people's health by limiting access to both tangible (e.g., material goods, activities) and intangible (e.g., low stress environments, positive role models) factors (Richter et al. 2012). Lower SES also represents lower *social status*, relating to a hierarchy of power and prestige. From a psychosocial perspective, lower social status may limit experiences of respect and pride as well as interpersonal appraisals that communicate competence and value (Marmot 2004; Östberg and Modin 2008). Such experiences can trigger shame and stress processes that have negative repercussions for both emotional and physical health (Hertzman and Boyce 2010).

SES is commonly measured as economic resources, education or occupational status and for youth, SES is normally defined in terms of parental characteristics. While many have observed no or small effects of family-based SES measures on adolescents' health (West 1997; Östberg et al. 2006), others have identified differences, with lower SES predicting poorer self-rated health and psychological wellbeing (Reiss 2013; Torsheim et al. 2004). However, there is also evidence that high SES is related to increased problems, particularly for girls' psychological wellbeing, which may be due to higher achievement and status maintenance stress (Luthar 2003; West and Sweeting 2003).

Methodological factors can potentially explain inconsistent findings on family socioeconomic status and adolescent health. Although SES is commonly used as an umbrella term, the actual measures used can vary widely (e.g., education, occupational class, family affluence) and may represent different processes and implications for health. Survey data may also fail to capture the disadvantages that are the most consequential, due to high missing data rates in the lowest segments of the SES distribution. Another limitation is that family SES is often reported by adolescents, which precludes detail and reduces reliability, leading to attenuation of estimated effects.

### Youth's Own Economic Status and Wellbeing

Importantly, given that adolescence is a transitional period between childhood and adulthood, the conceptual adequacy of family-based SES measures is questionable because such measures may not accurately reflect a youth's personal experience of material and social deprivation. Of course, parental economy sets limits for living standards and most adolescents still rely on their parents for economic support. However, parents can prioritize their spending in different ways so that the household economic situation does not necessarily represent the child's experience in terms of material deprivation, consumption and the possibility to have a living standard on a par with friends. Some children may also work for pay, or receive economic and material support through gifts from relatives or others.

The association between parental and child economic conditions has rarely been investigated and data measuring economic conditions at both the child and the parental level is uncommon. However, Mood and Jonsson (2014, 2015) examined this link using two national Swedish databases on the standard of living (Survey of Living Conditions and the Level of Living Survey). They found that Swedish youth's own economic and material conditions (e.g., their financial resources, cash margins and consumption of goods and activities) were only weakly related to the economic situation of their parents. Evidence from other countries is still lacking, but the association between parent and child economy may vary depending on the generosity and structure of government welfare benefits provided to families or the extent to which young people work for pay.

Young people's own access to financial resources promotes opportunities for consumption and activities that are perceived as meaningful, relevant and enjoyable. This may also translate to greater wellbeing through more autonomous and intrinsically motivated choices and behavior (Deci and Ryan 2000). In addition, economic resources enable integration through participation in social activities with one's peers (e.g., going to cafés, cinema, sporting clubs, etc.), which can in turn affect wellbeing. Indeed, previous research suggests that young people's lack of own economic resources has a substantial negative effect on their peer relations independently of parents' incomes and education (Olsson 2007; Hjalmarsson and Mood 2015). It is thus theoretically plausible that youth's own access to economic resources is related to wellbeing above and beyond their family's resources.

Economic deprivation can be experienced in both absolute and relative terms, with absolute deprivation referring to a standard that is equal for all, while relative deprivation refers to a lack of means in comparison to a relevant reference group. Although both aspects are potentially related to wellbeing, modern theories on

poverty in wealthy countries tend to emphasize the relative aspect and suggest that the ability to have an active social life and lead a life on a par with others is what matters most for wellbeing (e.g., Sen 1983). Given the salience of peer inclusion and social comparison during adolescence, it seems particularly important to consider the personal experience of economic deprivation relative to peers in addition to absolute deprivation.

### Peer Social Status and Wellbeing

Social relations are also an important health correlate (Umberson et al. 2010). Social acceptance, respect and integration promote emotional and physical health by enhancing social support, self-esteem and stress resilience (Baumeister and Leary 1995) as well as by increasing opportunities for tangible resources through social capital. In contrast, poor social relations can undermine health through social exclusion and feelings of shame or anxiety (Baumeister and Tice 1990; Leary 1990). Adolescence is a period during which peer group approval and social hierarchies become a central component of everyday life. Hence, peer status represents an important aspect of youth's own social standing (Östberg and Modin 2008), which may be of relevance to wellbeing beyond that of their family's social standing.

Peer status hierarchies reflect different degrees of respect, acceptance, influence and social resources among peers. These hierarchies are pervasive during secondary school and students are well aware of the prevailing pecking order (Garandean et al. 2014). Cross-sectional evidence shows that adolescents with lower peer status are more likely to report depressive and internalizing symptoms (Östberg 2003; Sandstrom et al. 2003). Furthermore, longitudinal research shows that lower peer status is associated with future health problems, such as mental and behavioral disorders as well as chronic illness and poor self-rated health (Almquist 2009; Östberg and Modin 2008). While higher peer status is considered optimal, there may be a threshold effect as the most popular youth do not necessarily report the greatest wellbeing (Cillessen and Rose 2005; West et al. 2010). Similar to the reverse trend SES effects, very high peer status may involve additional stressful demands such as status maintenance and social role pressures that impede wellbeing.

Although definitions of peer status can vary between studies, they generally represent either *acceptance* or *perceived popularity* (Mayeux et al. 2011). Acceptance (also sociometric popularity) reflects likeability and social approval and is measured using preference nominations such as who students like best, who they would like to work with, or who their friends are. Perceived popularity is measured using nominations of who is seen as most

popular. While acceptance and perceived popularity are both indicators of high social standing, they diverge in many ways. Perceived popularity is arguably a “truer” measure of status as it relates more to hierarchies, power and social visibility (Cillessen and Rose 2005; Wolters et al. 2014). In contrast, acceptance is more reflective of social affiliation and integration (van den Berg et al. 2014).

These two dimensions of peer status may have different implications for wellbeing, especially during adolescence. Unlike younger age groups, adolescents distinguish between peers that they describe as “liked” versus “popular” (van den Berg et al. 2014). Acceptance may be highly important because it captures processes that are central to positive wellbeing, such as social support and interpersonal affiliation (Berkman and Glass 2000). However, gaining popularity is a key social priority during adolescence and in some circumstances may be valued above other domains, such as romantic relationships or friendships (LaFontana and Cillessen 2010). Indeed, Litwack et al. (2012) found that greater perceived popularity, rather than acceptance predicted fewer depressive symptoms among adolescents. Thus, low status according to popularity may present more health risks than low acceptance. Nevertheless, acceptance and perceived popularity are not mutually exclusive and both aspects are likely to be important for wellbeing.

### Interrelations Between Family SES, Youth Economy and Peer Status

Although the independent associations that family SES, youth's own economy and peer status share with wellbeing are our key focus, potential mediating mechanisms among these processes must also be considered. First, youth from higher SES families are likely to have more personal economic resources than children from lower SES families, although previous research has found this relationship to be surprisingly weak (Mood and Jonsson 2014). Thus, youth's own economic situation may to some extent mediate the relationship between family SES and health. Furthermore, both family economy and adolescents' own economic resources may impact wellbeing indirectly through peer status. For example, youth with more expensive and higher status “property” are often considered popular (Elliott and Leonard 2004). Some reasons that youth with greater economic resources may hold a higher social position among peers than other youth could be due to owning expensive or designer property (such as clothes or cell phones), as well as having more resources (such as a larger home) or opportunities (such as going out more often) that enable social relations. If youth's own economic or social resources function primarily as mediators, then family SES can be considered a key driving force underlying many aspects of wellbeing during adolescence. In contrast, if

youth-orientated variables are largely independent of family SES, then they may help explain the equalization of health in adolescence or the emergence of new dimensions of inequality.

## The Current Study

The main objective of this study is to broaden the understanding of inequalities in adolescent wellbeing by considering the social and economic status of both parents and youth. Inspired by the equalization in health literature (e.g., West and Sweeting 2004), we argue that adolescence is a stage of life characterized by growing independence from parents. Consequently, health inequalities may be observed according to youth's own social and economic standing, in addition to family SES. The aim is thus not to test the equalization of health per se but rather to test a potentially important aspect of inequality that has hitherto been largely overlooked. In doing so, we respond to calls for youth-orientated measures and explicitly examine the relational and economic aspects of social inequalities (Koivusilta et al. 2006).

Another key aim is to comprehensively measure family-based SES by examining three dimensions (household income, education and occupational status). This improves on weaknesses of single SES designs and also permits a nuanced understanding of the role of different dimensions of socioeconomic advantage. Limitations of previous research will be further addressed by using objective measures of both family SES (from population registers) and peer status (based on sociometric data), thus avoiding potential biases stemming from subjective judgments and providing coverage of youth from the most vulnerable families who are often missing in self-report data. To the authors' knowledge, no studies have previously studied the relative roles of peer status, youth's economic resources and family SES.

We acknowledge the multidimensionality of wellbeing by examining both internalizing symptoms and self-rated health, which provides a complementary picture of youth's emotional and general health. Emotional symptoms are of interest due to the high prevalence among adolescents (Mojtabai 2006) and increased risk for future difficulties in mental health, academic achievement and employment. Self-rated health is an important predictor of specific illnesses as well as mortality (Fosse and Haas 2009) and is widely used in studies of health inequalities (e.g., Gesthuizen et al. 2012). Emotional difficulties have been proposed to be more liable to contextual and temporary social influences (such as peers), while physical conditions are related to more stable and long-term influences (such as family SES) (West and Sweeting 2004).

Although empirical findings on the association between family SES and adolescent health are ambiguous, the theoretical reasons to expect an association are convincing. Because three different aspects of family SES will be measured with high reliability and a good coverage of individuals in the lower part of the SES distribution, we may detect differences that other studies may miss due to measurement limitations. Therefore, higher family SES is expected to negatively predict internalizing symptoms and poor self-rated health, even after controlling for youth's own economic and social resources (Hypothesis 1). Consistent with previous studies (West and Sweeting 2004), family SES is expected to be more strongly associated with self-rated health than with internalizing problems (Hypothesis 2).

As adolescence is a transitional period when youth develop their own social and economic position, youth's own economic resources (including both relative and absolute deprivation) are expected to show independent associations with health, beyond the effects of family SES (Hypothesis 3). This is because *personal* access to economic resources is likely to affect everyday living conditions and possibilities to take part in meaningful activities. In addition, as social hierarchies in school may reflect youth's own social standing, greater peer status (including both acceptance and perceived popularity) is expected to negatively predict internalizing symptoms and poorer self-rated health (Hypothesis 4). This is because greater respect, integration and power among peers should promote wellbeing through social capital, self-esteem and stress resilience processes.

Although the current focus is primarily on distinguishing between the independent effects of family SES and youth's own economic and social position, these processes are likely to interrelate. Hence we expect that youth's own economy will partially mediate the effects of family SES, and peer status will partially mediate the effects of family SES and youth's own economic resources (Hypothesis 5).

## Methods

### Participants and Procedure

Data comes from the Youth in Europe Study (YES!), which is part of the larger study Children of Immigrants Longitudinal Survey in Four European Countries (CILS4EU), funded by New Opportunities for Research Funding Agency Co-operation in Europe (NORFACE) (Kalter et al. 2013). The project is cross-national and longitudinal with a focus on the structural and social aspects of young people's living conditions that are important for integration and wellbeing. The current study is based on Swedish data from

the first wave (autumn 2010 and spring 2011), comprising 5025 youth aged approximately 14 years from 251 classes in 129 schools.

Statistics Sweden (the Swedish government statistics agency) collected the data using a two-step cluster sampling approach. Schools across Sweden were selected, over-sampling schools with a high proportion of immigrant youth, then two classes within each school were invited to participate. The school participation rate was 92 % and the individual participation rate was 86 %. Students completed a set of self-report questionnaires and tests, including sociometric nominations. Questionnaires took approximately 80 min to complete during lesson time. Informed consent was obtained from all participants and their parents. Students were informed that participation was voluntary and that their responses were anonymous. Information used to generate measures of family-based SES came from tax and education population registers held by Statistics Sweden (the national government statistics agency). The data collection was approved by the Stockholm Regional Ethics Committee and survey data are available at [www.gesis.org](http://www.gesis.org) (ZA5353 data file).

## Measures

### Outcomes

**Internalizing Symptoms** Internalizing symptoms addressed experiences of psychological and somatic problems in the past 6 months. Such symptoms represent emotional responses to stressors that are inwardly directed (Achenbach 1966). Participants indicated how often they had felt worried, depressed, anxious and worthless or had headaches, stomachaches or difficulties falling asleep. Response options were along a 4-point scale ranging from “never” to “often/every day”. Similar measures have been extensively used in previous research, showing good reliability and validity (Haugland and Wold 2001), and form a unidimensional scale (Ravens-Sieberer et al. 2008). A mean score formed the measure of internalizing symptoms (ranging between 0 and 3, Cronbach’s  $\alpha = 0.81$ ).

**Self-Rated Health** Self-rated health indicated a subjective judgment of overall health (Cavallo et al. 2015), including general functioning and physical condition. This measure was based on the question “How good is your health compared to others of your age?” Response options were along a five-point scale ranging from “very good” to “very bad”. Due to skewness, responses of “bad” and “very bad” were combined to form a measure ranging between 0 and 3, with higher values reflecting worse general health.

### Family SES

**Household Income** Household income was the total disposable household income (income from all sources net of taxes) of participants’ custodial parents. If guardians lived in different households, the average of their disposable household incomes was used. Information was collected from Swedish income and tax registers at Statistics Sweden, and hence they are not subject to recall errors or selective misreporting.

**Occupational Status** Occupational status was based on participants’ descriptions of their parents’ occupations, which was then coded according to the International Socio-economic Index of Occupational Status (ISEI) (Ganzeboom et al. 1992; Ganzeboom and Treiman 1996). This index is an internationally standardized scale that ranks the status of occupations based on the typical income and education levels of their incumbents. Values range from 11 to 89, with higher values representing a higher status. If both parents were unemployed ( $n = 26$ ), a value of 10 was assigned (rather than declared as missing). Values for 261 cases missing all information on both parents were substituted using multiple imputation. The highest of the ISEI scores for a youth’s parents formed the measure of family occupational status.

**Parental Education** Parental education was collected from educational registers at Statistics Sweden and was measured as the highest level of education attained by the biological parent(s) with whom the participant lives regularly. A three-category measure was formed representing *junior high school* (högstadiexamen = 0), *senior high school* (gymnasieexamen = 1) and *post-secondary education* (högskoleexamen = 2).

### Youth’s Own Economy

**Miss Social Activities** Miss social activities was based on the question “How often do you miss out on doing things with your friends because you can’t afford it?” This measure captures the relative dimension of economic deprivation as it explicitly relates to having enough money for activities with peers. Response options included never, sometimes, often and always. Due to low frequencies in the latter two categories (6.04 and 1.12 %, respectively), responses were combined to form a three-category measure representing never (0), sometimes (1) and often (2) missing out on activities.

**Cash Margin** Cash margin was constructed from the survey question “If you suddenly needed 300 SEK (36 USD) by tomorrow, would you be able to get it?” This



measure targets the absolute aspect of economic deprivation as it asks about a fixed amount of money. The amount would cover the cost of a typical outing, such as the cinema and a basic meal. Responses of no or maybe were categorized as not having a cash margin (1) and yes indicated having a cash margin (0).

### Peer Status

**Acceptance** Acceptance was based on received friendship nominations (in-degree) from the following two questions: “Who is your very best friend in class” and “Who are your best friends in class?” Participants could nominate one classmate for the first question and up to five classmates for the second, in no particular order. Thus, each participant could nominate between zero and six classmates as friends. Received friendship nominations for each participant were summed (ranging from 0 to 13) and then standardized within classes to control for differences in class size, consistent with dominant methodological practices in the peer status literature (e.g., Coie et al. 1982).

**Perceived Popularity** Perceived popularity was based on the following question: “Who are the most popular students in this class?” Participants could nominate up to five classmates, in no particular order. Received popularity nominations were also summed (ranging from 0 to 21) and then standardized within classes to control for differences in class size.

To examine possible nonlinear effects, particularly a reduced protective effect of very high status, the measures of household income and occupational status were divided into quintiles (coded with values from 0 to 4) and the peer status measures were divided into quartiles (coded with values from 0 to 3). Similar categorization methods have been used to compare subgroups with differing levels of disadvantage in previous research on social status and wellbeing (e.g., Modin et al. 2011; Sweeting and Hunt 2014).

### Control Variables

Gender (males = 0 and girls = 1) and immigrant background were included as controls because they are important predictors of health (Currie et al. 2012; Markides and Rote 2015). Student immigration background was based on self-report data complemented with population register information. Students who were the biological or adoptive child of at least one Swedish born parent were categorized as *majority population* (0), those born in Sweden to foreign-born parents were categorized as *second generation* (1) and those born to foreign-born parents and having

immigrated themselves were categorized as *first generation* (2).

### Missing Data and Statistical Analyses

Stata 13 (Stata Corporation 2013) was used for all statistical analyses. Sociometric data were screened with self-nominations and double-nominations (nominating the same classmate twice within either popularity or friendship nominations) removed from the analyses. To ensure reliable peer status measures, classes where <10 students or 70 % of students had completed the sociometric questionnaire were excluded from analyses, consistent with recommended response rates for sociometric data (Marks et al. 2013). However, nominations for students absent on the day of data collection were included when calculating sociometric scores because they contribute to the average number of class-level nominations used for standardization. In addition, 26 cases that (after inspection) were judged to be unreliable due to implausible responses were removed as well as the sociometric nominations that they gave. After applying the exclusion criteria, a total of 4456 students (214 classes in 124 schools) remained (89 % of the original sample) comprising 51 % females (n = 2273).

Missing data was imputed for 539 participants missing information on the youth economy (12 %) items and 281 participants missing any information on the internalizing symptoms items (6 %). A relatively high internal non-response rate for these items most likely represented respondent fatigue due to their late position in the questionnaire. Students with missing data were more likely to speak a foreign language at home, have lower school self-efficacy and receive more punishments in school. As these characteristics relate to social disadvantage and wellbeing, these students belong to a subpopulation of key interest to the current study. Thus, multiple imputation with chained equations (MICE) (twenty imputed data sets) was used to replace missing values so that participants could remain in the analyses.

A series of regression models were performed for the two outcomes. Standard errors were adjusted for the clustering of participants within school classes, and official survey weights were used to adjust for the oversampling of immigrant-dense schools. Dummy variables for all categorical variables were automatically generated using Stata's `i.` prefix command. Model A examined the relative effect of the indicators representing family SES, Model B tested indicators of peer status and Model C tested indicators of youth's own economy. Model D examined the mutually adjusted effects of family SES and youth's own economy, and Model E examined the mutually adjusted effects of all predictors, including peer status. All regressions controlled for gender and immigration background.

In light of gender differences observed in relational and SES influences on health (Hutton et al. 2014; Rose and Rudolph 2006), interactions with gender were also tested. However none were observed and so results across the whole sample are presented.

## Results

Descriptive statistics and frequencies of internalizing symptoms and self-rated health are shown in Table 1. The average disposable household income was equivalent to USD 55,713 (477,958 SEK) and 44 % of participants' had at least one parent with a post-secondary education. Although one-third of participants did not have access to a cash margin, the majority of youth reported never missing out on social activities due to economic constraints and 7 % often missed out on social activities. Overall, participants received an average of approximately three acceptance nominations and nearly two popularity nominations. However, popularity was heavily skewed and only 24 % of youth received more than two nominations. The two measures of peer status correlated moderately,  $r = .30$ , indicating overall independence of these measures. Correlations among variables are provided in the Appendix.

All social and economic status indicators showed significant differences in frequencies of internalizing symptoms and/or poor self-rated health, generally characterized by worse health among lower status positions. However, household income, parental education, occupational status and perceived popularity did not consistently demonstrate a health advantage from holding the highest position. Gender and immigrant background showed significant differences in both outcomes, with girls and majority youth being at disadvantage.

The associations that family SES, peer status and youth's own economy shared with internalizing symptoms are shown in Table 2. Models A–C show that household income, peer acceptance and missing out on activities due to a lack of money significantly predicted internalizing symptoms. Youth from households with incomes in the fourth to fifth quintiles showed significantly fewer internalizing symptoms compared to the lowest income quintile, but there were no significant differences between youth in the three lowest quintiles. All positions of greater acceptance were associated with fewer internalizing symptoms compared to the lowest position, and these peer status effects were slightly larger than the family income effects. Missing out on social activities due to a lack of money was clearly associated with higher rates of internalizing symptoms. No significant associations were observed for popularity, cash margin, parental education or occupational status in these models.

As shown in Model D, the estimates for household income were somewhat reduced when the effect of youth's own economy was accounted for, indicating a partial mediating effect. When controlling for no cash margin and missing out on activities, youth whose parents had higher occupational status showed greater internalizing symptoms with a significant difference between the highest and the lowest quintiles. Model E presents the mutually adjusted effects for all variables. This shows that estimates for family SES and youth's own economy remained largely unchanged, suggesting that peer status does not mediate the effects of family SES or youth's economic resources.

Table 3 presents the results for self-rated health. Models A–C show that household income, occupational status, both types of peer status as well as youth's own economic resources were significantly associated with self-rated health. Youth in households with disposable income higher than the lowest quintile showed significantly better self-rated health, particularly those in the highest quintile. Furthermore, youth with parents in the third and fourth occupational status quintiles –but not those with parents in the very highest quintile –had better self-rated health than those with parents in the lowest occupational status quintile. Youth with higher acceptance positions and high perceived popularity also showed better self-rated health than low peer status youth. Having no cash margin and missing out on activities each predicted poorer self-rated health. Interestingly, the estimates for income, occupational status, peer status and youth's own economy were comparable in size. Model D (in Table 3) showed some evidence of a partially mediating role of youth's own economy in the links from household income and occupational status to self-rated health. However, as for internalizing symptoms, Model E showed no clear support for our expectation that peer status would partially mediate the relationship between family SES or youth's own economy and self-rated health.

## Discussion

It has been suggested that adolescence represents a period of *equalization in health*—when the influence of family SES on health weakens as youth become more independent and exposed to other influences (West 1997; West and Sweeting 2004; West et al. 2010). We extended this perspective and argued that adolescents may begin to develop their own status positions, and that this should be reflected in the conceptualization of their social and economic status. Youth-orientated measures of social and economic status have rarely been tested. The current study addressed this gap by applying a multidimensional and youth-orientated framework to inequalities in health. The

**Table 1** Descriptive statistics and frequencies of internalizing symptoms and self-rated health (unweighted data, N = 4456)

	Whole sample			Internalizing symptoms M (SD)	Self-rated health M (SD)
	N	(%)	M (SD)		
Outcomes				1.10 (.61)	1.02 (.89)
Family SES					
Household income (\$US)			55,713 (30,690)		
Lowest quintile	860	19	22,935 (6272)	1.14 (.62)*	1.06 (.92)***
Second	876	20	37,114 (3923)	1.14 (.64)	1.03 (.93)
Third	879	20	50,960 (3962)	1.08 (.61)	1.04 (.87)
Fourth	867	20	64,198 (4177)	1.07 (.61)	1.07 (.88)
Highest quintile	939	21	99,792 (31,953)	1.09 (.58)	.91 (.86)
Parental education					
Primary	452	10		1.09 (.66)	.97 (.90)***
Secondary	2034	46		1.11 (.60)	1.09 (.91)
Post-secondary	1946	44		1.10 (.60)	.96 (.87)
Occupational status			52.13 (21.76)		
Lowest quintile	861	21	22.64 (5.41)	1.13 (.63)	1.08 (.91)**
Second	798	19	34.54 (5.72)	1.05 (.60)	1.09 (.91)
Third	845	20	54.55 (3.62)	1.11 (.61)	1.01 (.87)
Fourth	849	20	67.80 (4.22)	1.11 (.60)	.94 (.88)
Highest quintile	842	20	80.70 (3.78)	1.11 (.61)	1.03 (.89)
Peer status					
Acceptance			3.37 (1.93)		
Lowest quartile	989	22	.96 (.871)	1.18 (.64)***	1.13 (.93)***
Second	1128	25	2.56 (.58)	1.10 (.61)	1.03 (.90)
Third	1168	26	3.80 (.68)	1.10 (.60)	1.00 (.87)
Highest quartile	1171	26	5.74 (1.29)	1.05 (.59)	.95 (.87)
Perceived popularity			1.70 (2.50)		
Lowest quartile	1077	24	0.01 (.03)	1.12 (.62)	1.13 (.91)***
Second	1083	24	0.10 (.29)	1.13 (.61)	1.13 (.87)
Third	1138	26	1.53 (.76)	1.07 (.61)	.96 (.90)
Highest quartile	1158	26	4.96 (2.77)	1.09 (.61)	.88 (.87)
Youth's own economy					
Cash margin					
Yes	2670	68		1.05 (.59)***	.98 (.89)***
No	1263	32		1.23 (.62)	1.16 (.89)
Miss social activities					
Never	2363	60		.97 (.58)***	.92 (.87)***
Sometimes	1295	33		1.28 (.59)	1.19 (.88)
Often	282	7		1.40 (.66)	1.25 (1.01)
Control variables					
Gender					
Male	2194	49		.92 (.55)***	.92 (.90)***
Female	2262	51		1.28 (.61)	1.13 (.87)
Immigrant background					
Majority	3019	68		1.14 (.61)***	1.10 (.90)***
2nd Generation	909	20		1.00 (.59)	.87 (.85)
1st Generation	528	12		1.07 (.62)	.80 (.86)

Oneway ANOVAs performed for tests of group differences

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$



**Table 2** Adjusted regressions for internalizing symptoms

	Model A B (95 % CI)	Model B B (95 % CI)	Model C B (95 % CI)	Model D B (95 % CI)	Model E B (95 % CI)
Family SES					
Household income					
First quintile (lowest)	Ref.			Ref.	Ref.
Second	.03 (−.04 to .10)			.04 (−.03 to .10)	.04 (−.03 to .11)
Third	−.05 (−.13 to −.03)			−.02 (−.10 to .05)	−.02 (−.09 to .06)
Fourth	−.08 (−.16 to −.01)*			−.05 (−.12 to .03)	−.04 (−.11 to −.04)
Fifth quintile (highest)	−.07 (−.15 to −.01)*			−.03 (−.10 to .03)	−.03 (−.09 to .04)
Parental education					
Junior high	Ref.			Ref.	Ref.
Senior high school	−.04 (−.13 to .06)			−.03 (−.13 to .06)	−.03 (−.13 to .06)
Post-secondary	−.06 (−.17 to .05)			−.06 (−.16 to .05)	−.06 (−.16 to .05)
Occupational status					
First quintile (lowest)	Ref.			Ref.	Ref.
Second	−.03 (−.11 to .05)			.01 (−.08 to .08)	.01 (−.08 to .08)
Third	−.01 (−.08 to .07)			.05 (−.02 to .12)	.04 (−.02 to .12)
Fourth	.00 (−.07 to .08)			.05 (−.03 to .12)	.05 (−.03 to .12)
Fifth quintile (highest)	.03 (−.05 to .11)			.09 (.01 to .17)*	.09 (.01 to .17)*
Peer status					
Acceptance					
First quartile (lowest)		Ref.			Ref.
Second		−.09 (−.16 to −.02)*			−.07 (−.13 to −.01)*
Third		−.09 (−.17 to −.02)*			−.07 (−.14 to −.01)*
Fourth quartile (highest)		−.12 (−.18 to −.05)***			−.09 (−.15 to −.03)**
Perceived popularity					
First quartile (lowest)		Ref.			Ref.
Second		−.01 (−.08 to .07)			.01 (−.06 to .07)
Third		−.02 (−.08 to .05)			−.01 (−.06 to .06)
Fourth quartile (highest)		.02 (−.05 to .08)			.03 (−.03 to .09)
Youth's own economy					
Cash margin					
Yes			Ref.	Ref.	Ref.
No			.04 (−.01 to .09)	.04 (−.01 to .09)	.04 (−.01 to .09)
Miss social activities					
Never			Ref.	Ref.	Ref.
Sometimes			.26 (.21 to .31)***	.27 (.22 to .31)***	.27 (.22 to .32)***
Often			.40 (.32 to .49)***	.41 (.32 to .50)***	.41 (.32 to .49)***
R <sup>2</sup>	.10	.10	.15	.16	.16

Unstandardized coefficients presented; Model A: Family SES; Model B: Peer social status; Model C: Youth's own economy; Model D: Family SES and youth's own economy; Model E: Family SES, peer status and youth's own economy

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

understanding of socioeconomic disadvantage was broadened to incorporate youth's own economic resources and social positioning among peers. Furthermore, family SES was comprehensively measured according to three dimensions (household income, parental education and occupational status).

### Findings for Family Socioeconomic Status

Hypothesis 1 proposed that higher family SES would negatively predict internalizing symptoms and poorer self-rated health, beyond the effects of youth's own economy and peer status. This hypothesis was only partially sup-

**Table 3** Adjusted regressions for self-rated health

	Model A B (95 % CI)	Model B B (95 % CI)	Model C B (95 % CI)	Model D B (95 % CI)	Model E B (95 % CI)
<b>Family SES</b>					
<b>Household income</b>					
First quintile (lowest)	Ref.			Ref.	Ref.
Second	-.11 (-.22 to -.01)*			-.10 (-.21 to .01)	-.09 (-.19 to .01)
Third	-.12 (-.21 to -.02)*			-.10 (-.20 to .01)*	-.10 (-.19 to -.01)*
Fourth	-.13 (-.24 to -.02)*			-.10 (-.21 to .01)	-.10 (-.20 to .01)
Fifth quintile (highest)	-.29 (-.40 to -.18)***			-.26 (-.37 to -.15)***	-.24 (-.35 to -.24)*
<b>Parental education</b>					
Junior high	Ref.			Ref.	Ref.
Senior high school	.05 (-.07 to .17)			.05 (-.06 to .17)	.06 (-.06 to .18)
Post-secondary	-.05 (-.18 to .07)			-.05 (-.17 to .07)	-.04 (-.17 to .08)
<b>Occupational status</b>					
First quintile (lowest)	Ref.			Ref.	Ref.
Second	-.02 (-.12 to .09)			.01 (-.10 to .10)	.01 (-.09 to .11)
Third	-.12 (-.22 to -.02)*			-.09 (-.19 to .01)	-.08 (-.18 to .02)
Fourth	-.17 (-.29 to -.05)**			-.14 (-.26 to -.02)*	-.13 (-.25 to -.01)*
Fifth quintile (highest)	-.04 (-.16 to .07)			-.01 (-.12 to .11)	-.01 (-.12 to .11)
<b>Peer status</b>					
<b>Acceptance</b>					
First quartile (lowest)		Ref.			Ref.
Second		-.09 (-.21 to .02)			-.08 (-.19 to .04)
Third		-.13 (-.23 to -.02)*			-.12 (-.22 to -.01)*
Fourth quartile (highest)		-.14 (-.25 to -.03)*			-.12 (-.23 to -.01)*
<b>Perceived popularity</b>					
First quartile (lowest)		Ref.			Ref.
Second		-.01 (-.10 to .09)			-.01 (-.08 to .10)
Third		-.11 (-.22 to .01)			-.08 (-.19 to .03)
Fourth quartile (highest)		-.21 (-.31 to .11)***			-.18 (-.27 to -.08)***
<b>Youth's own economy</b>					
<b>Cash margin</b>					
Yes			Ref.	Ref.	Ref.
No			.08 (.01 to .15)*	.06 (-.01 to .14)	.05 (-.02 to .12)
<b>Miss social activities</b>					
Never			Ref.	Ref.	Ref.
Sometimes			.20 (.13 to .28)***	.18 (.10 to .26)***	.19 (.11 to .26)***
Often			.24 (.06 to .42)*	.23 (.05 to .41)*	.21 (.03 to .39)**
R <sup>2</sup>	.05	.04	.04	.06	.08

Unstandardized coefficients presented; Model A: Family SES; Model B: Peer social status; Model C: Youth's own economy; Model D: Family SES and youth's own economy; Model E: Family SES, peer status and youth's own economy

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

ported because higher family SES predicted better self-rated health but failed to consistently predict fewer internalizing symptoms. We included household income, occupational status and parental education to reflect the multidimensional nature of family-based SES. First, income was the aspect of family SES that mattered most

consistently for youth health, albeit with a ceiling effect for internalizing symptoms: The highest two income quintiles showed a similar degree of protection. For self-rated health, no such pattern was observed, but instead a strong protective effect of belonging to the very highest income quintile. Second, the estimated effects of occupational

status revealed divergent patterns for the two outcomes. For self-rated health, there was a protective effect with higher status but not for the very highest level of occupational status. For internalizing symptoms, higher occupational status was associated with more—not less—problems when controlling for youth's own economic resources. Third, parental education showed no significant effects, which may be due to the high average level of education in Sweden. The non-significant findings may also represent power limitations as very few parents had attained less than a secondary education (<10 %). This is reflective of the broader adult Swedish population (Statistics Sweden 2015).

Taken together, the findings for family SES suggest that economic and material resources are more important for health than the more cognitive and cultural aspects presumably captured by education or occupation. This is in line with the findings in Richter et al.'s (2012) study, and also with Östberg et al. (2006) who found that economic stress, rather than low occupational status, predicted psychosomatic symptoms among Swedish youth. An alternative interpretation is that economic resources may confer prestige and status to youth in a more noticeable way than parental education and occupation because economic resources are more readily made visible through housing, material possessions, holidays, etc.

The results for occupational status indicate that the non-material aspect of family SES has both positive aspects presumably involving prestige, cognitive resources and social participation as well as negative aspects involving aspirational stress and meeting high expectations. A suppression effect was observed when youth's own economy was included in the internalizing symptoms model, resulting in a significant positive estimate for occupational status. A suppressor increases the predictive value of another variable when included in a regression model by accounting for some of the over-lapping variance in another predictor, making more visible the unique relationships between the predictor and outcome variable (Pandey and Elliott 2010). The positive aspects of occupational status dominated associations with general health, while the negative aspects were apparent for mental wellbeing and also for self-rated health among the highest status group. This interpretation aligns well with previous research indicating that adolescents with very high SES background are at greater risk for some problems, particularly emotional difficulties, than those from less privileged circumstances (Luthar 2003; West and Sweeting 2003). The fact that this was observed for a family SES measure purged of variation in income supports the proposed explanation that such risks may stem from concerns about status maintenance and meeting expectations.

In support of Hypothesis 2, family SES was more strongly related to self-rated health than to internalizing

symptoms. This was consistent with previous findings pointing to weaker effects of family SES in psychological and malaise symptoms than in self-rated health (West and Sweeting 2004). Furthermore, complete equality in either outcome with respect to family-based SES was not observed, as household income and/or occupational status remained relevant even when accounting for youth's own economic and social positioning. However, as the current analyses were cross-sectional and examined a single age group, we cannot draw conclusions about reductions in the influence of family SES across childhood. Nevertheless, the current findings demonstrated that household income and occupational status are associated with youth's general health and to a lesser extent, emotional wellbeing.

### Findings for Youth's Own Economic Status

In support of Hypothesis 3, youth's own economy showed significant associations with both self-rated health and internalizing symptoms, independently of the effects of family SES. In the descriptive analyses, both the relative (affording activities with friends) and the absolute (having a cash margin) measures were strongly related to the two outcomes. However, the adjusted findings indicated that relative deprivation was more relevant to adolescent wellbeing than absolute economic deprivation. Furthermore, youth's personal experience of relative economic deprivation showed associations with internalizing symptoms and self-rated health beyond the effects of absolute family income. This is consistent with contemporary theories of poverty, suggesting that what matters in wealthy societies (such as Sweden) is the ability to live a life on a par with others (Sen 1983; Townsend 1979). The current findings point in particular to the importance of having resources allowing social engagement with one's peers. This is particularly relevant to adolescents as the social integration literature emphasizes the importance of social participation for health and wellbeing (Baumeister and Leary 1995; Berkman and Glass 2000). Previous research addressing family wealth has also found that relative deprivation is more predictive of psychosomatic symptoms in youth than absolute deprivation (Elgar et al. 2013). The current findings for youth's own economy must be interpreted in relation to the Swedish setting and the fact that the level of the cash margin was rather high—absolute economic deprivation at more basic levels may still matter for health. However, such extreme circumstances are rare in Sweden (Mood and Jonsson 2014).

### Findings for Peer Social Status

Overall, Hypothesis 4 was supported as indicators of greater peer status negatively predicted internalizing

symptoms and poor self-rated health. Peer status as defined by acceptance was significantly associated with both health outcomes, which aligns with theories that emphasize the role of social support and peer affiliation in adolescent wellbeing (Goodenow 1993; Newman et al. 2007). The current findings also supported empirical evidence linking social relationships with physical health and mortality (e.g., Holt-Lunstad et al. 2010). Nevertheless, there was a ceiling effect of acceptance as the highest quartile did not entail a substantially greater health protection than the second or third quartiles. Although greater acceptance was beneficial, the main advantage appeared to primarily come from the avoidance of social exclusion and isolation, rather than the cumulative benefits of increasing social integration.

Perceived popularity was associated with self-rated health, with very popular youth having greater general wellbeing than unpopular youth. This is likely due to factors such as prestige and social power. Such mechanisms should also be related to emotional wellbeing, particularly given youth's peer reputation concerns (cf. LaFontana and Cillessen 2010) and so it is surprising that no such association was observed. This finding is in contrast to Litwack et al. (2012) who found that perceived popularity negatively predicted depression. However, the current study used a single measure of "most popular" nominations, rather than by subtracting "most unpopular" from "most popular" nominations. This distinction may mean that very popular youth in the current study were heterogeneous and included a subgroup of "controversial" individuals, possibly with emotional difficulties (Cillessen and Rose 2005). Nevertheless, the current findings showed that acceptance and perceived popularity captured unique dimensions of peer status and shared unique associations with wellbeing.

### Mediation Findings

Another surprising finding was that only weak mediation effects were observed. Hypothesis 5 proposed that youth's own economy would partially mediate the effects of family SES, and that peer status would partially mediate the effects of family SES and youth's own economic resources. However, this hypothesis was only partially supported. The influence of household income was to some extent mediated by youth economy, but none of the family SES or youth's own economy effects were mediated by peer status. Thus, peer status was not strongly determined by family SES, nor by youth's own economy. This supports arguments that peer status reflects a social position that youth gain that is not necessarily tied to their ascribed social position (family SES) (Östberg and Modin 2008; West et al. 2010). The current findings also support the suggestion that peer processes may be useful in explaining inequalities during adolescence (West and Sweeting 2004).

As the youth-orientated variables were largely independent of family SES, the findings indicated that non-familial influences relating to youth's own social and economic resources are a distinct source of health inequalities in adolescence.

### Strengths, Limitations and Directions for Future Research

The current study addressed growing calls for adolescents' own social position and alternative measures of SES to be examined in health inequalities (e.g., Hanson and Chen 2007; Koivusilta et al. 2006). A unique contribution was the use of youth-orientated measures in addition to "traditional" family-based SES indicators. We also contributed to the understanding of the mechanisms behind family-SES inequalities by simultaneously including income, occupational status, and education. The use of register data enabled us to include participants from disadvantaged backgrounds that are otherwise often missing. Furthermore, the multiple-informant nature of the data boosted reliability and reduced potential biases stemming from subjective judgments.

However, a key limitation relates to causal inference. Control variables were used to reduce potential confounding, but a risk remains that the observed associations are due to unobserved variables or reverse causality. It is likely that reciprocal relationships between health and social status exist, particularly for peer status. Although health may influence one's social networks (Haas et al. 2010), much research indicates an effect of peer status on wellbeing rather than vice versa (e.g., Kiesner 2002; Layouts et al. 2012; Nolan et al. 2003). Furthermore, appraisals of status depend on many factors, particularly group norms, and the characteristics considered desirable differ between different group dynamics and social settings. Therefore, while we acknowledge a feasible influence of health on status, the results are unlikely to be strongly biased by reverse causality. Future research may come closer to causal conclusions by using longitudinal or experimental designs. A longitudinal study would also enable a closer examination of possible compounding effects stemming from cumulative exposure to low social and economic status.

While internalizing symptoms and self-rated health are important aspects of wellbeing, it would clearly be relevant to examine implications for other health outcomes that are also of relevance to youth. For example, peer status, youth's own economy and equalization processes may be particularly relevant for risky behaviors such as smoking or drinking (Holstein et al. 2009). Furthermore, it is likely that social and economic deprivation is more closely related to more severe (diagnosable) emotional difficulties and health problems. Nevertheless, even moderate improvements in

internalizing symptoms and self-rated health may substantially protect against more serious problems, especially in terms of cumulative effects across time.

## Conclusion

Protecting youth from the adverse effects of social and economic inequalities is important in itself, but also because it may reduce the likelihood of future health difficulties (Almquist 2009; Cohen et al. 2010). This study demonstrated that, while there are health inequalities among youth based on family income and occupational status, youth's own economic resources and social position within the peer group are equally relevant. Economic deprivation relative to peers was a particularly important aspect. The independent effects of family-based and youth-orientated measures demonstrated the complementarity of these measures and points to the value of applying a multidimensional perspective. Thus, multiple aspects of social and economic status matter for wellbeing during adolescence. Theoretical frameworks and policy approaches to health inequalities would benefit by embracing a multidimensional perspective of social disadvantage. Interventions to reduce health inequalities among youth can thus go beyond family-directed policies and target youth directly, for example by providing meeting places or subsidized leisure activities to reduce the impact of youth's

own economy on social participation, or by actively seeking to minimize social hierarchies and promoting social integration in schools.

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**Authors' Contributions** S.P. conceived the study, performed the statistical analyses and drafted the manuscript; C.M. participated in the design and interpretation of the data and provided statistical guidance. Both authors drafted the manuscript, revisions and approved the final version. Author share: SP 80 %, CM 20 %.

**Conflicts of Interest** The authors report no conflicts of interest in the preparation or publication of this manuscript.

**Ethical Approval** The current study received approval from the Regional Ethics Committee, Stockholm. Approval reference number 2010/1557-31/5.

**Informed Consent** Informed consent was obtained from all individual students included in the study and from their parents.

## Appendix

See Table 4.

**Table 4** Correlations among predictor variables ( $r$  from Spearman's non-parametric correlations)

	Household income	Parent education	Occupational status	Cash margin	Miss social activities	Acceptance	Perceived popularity
Household income							
Parent education	<b>.33</b>						
Occupational status	<b>.33</b>	<b>.47</b>					
Cash margin	<b>-.07</b>	<b>-.04</b>	<b>-.08</b>				
Miss social activities	<b>-.10</b>	<b>-.07</b>	<b>-.10</b>	<b>.32</b>			
Acceptance	<b>.06</b>	<b>.06</b>	.02	-.03	<b>-.03</b>		
Perceived popularity	<b>.04</b>	-.01	.02	<b>-.08</b>	-.03	<b>.29</b>	
Female	<b>-.04</b>	-.03	<b>-.04</b>	<b>.06</b>	<b>.07</b>	<b>-.08</b>	<b>-.08</b>
Immigrant background	<b>-.32</b>	<b>-.17</b>	<b>-.24</b>	<b>-.05</b>	<b>-.04</b>	-.01	.01

Significant correlations bolded,  $p < .05$



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