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Socioeconomic background and high school completion: Mediation by health and moderation by national context

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ABSTRACT

This study uses longitudinal data from the Norwegian Health Study linked with registry data ($n = 13262$) and the U.S. National Longitudinal Survey of Youth 1997 ($n = 3604$) to examine (1) whether adolescent health mediates the well-established relationship between socioeconomic background and successful high school completion, and (2) whether this mediated pathway of influence varies by national context. Adolescents from lower educated and lower income families reported poorer health, which negatively impacted their likelihood of graduating from high school. The partial mediational effect of adolescent health was stronger in the U.S. than in Norway. These results suggest that policies aimed at preventing high school dropout need to address adolescent health, in addition to the unequal opportunities derived from socioeconomic disadvantage.

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High school credentials are important for social mobility as well as adult health (Montez & Friedman, 2015). A large evidence-base has documented that adolescents from lower socioeconomic backgrounds are likely to lag behind their more advantaged peers in educational attainment (Breen & Jonsson, 2005). A more limited, albeit growing body of research has shown that adolescent health has an effect on educational outcomes, including high school completion (Brekke & Reisel, 2015; Ding, Lehrer, Rosenquist, & Audrain-McGovern, 2006; Haas & Fosse, 2008; Haas, 2006; Jackson, 2009; Lê, Diez Roux, & Morgenstern, 2013; Sagatun, Heyerdahl, Wentzel-Larsen, & Lien, 2014; Suhrcke & de Paz Nieves, 2011; Sznitman, Reisel, & Romer, 2011). Indeed, poor health can have a direct effect on successful high school completion because it may lead to illness-related absences, or render adolescents less physically or psychologically able to complete assignments and exams or concentrate in class (Basch, 2011).

While the effects of socioeconomic background and health are often examined empirically as separate factors for determining educational attainment (Haas, 2006), it is possible that there is a synergistic relationship between them that is not captured in conventional analyses (Basch, 2011). Indeed, adolescent health disparities are often *educationally relevant health disparities* (e.g. vision, asthma, teen pregnancy, aggression and hyperactivity), meaning that they do not only disproportionately affect socioeconomically disadvantaged youth, they also have consequences relevant to educational attainment because they obstruct motivation and ability to learn and thus succeed in school (Basch, 2011).

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As such, it is plausible that adolescent health functions as a mediator in the relationship between socioeconomic background and educational attainment. Yet, the extant literature is limited. Haas and Fosse (2008) found that when adolescent health is taken into account, the relationship between household income and high school completion is reduced, but remains significant. Although not formally tested, this finding suggests a partial mediation by adolescent health. A stronger mediation research design was conducted by Haas (2006), with robust evidence that disadvantaged social background leads to poorer childhood health, which in turn results in lower levels of completed education. Despite its strong design, childhood health was based on a retrospective account of perceived health from childhood to adolescence, which may be subject to recall bias.

In addition to a potential mediating effect of adolescent health, the synergistic relationships in question may be affected by broad policy factors (Peter, Edgerton, & Roberts, 2010; Rathmann et al., 2015). Therefore, it is possible that the relative strength of the relationships between socioeconomic background, adolescent health and educational outcomes vary by national context. For instance, countries that provide universal health care may be able to mitigate some of the negative effect of health on educational outcomes by providing better access to health care services (Courtemanche & Zapata, 2012; Freeman, Kadiyala, Bell, & Martin, 2008; Hadley, 2003; Institute of Medicine, 2009). Further, research has shown that the slope of the curve describing the relationship between socioeconomic background and education varies across nations, with a steeper slope found in the U.S. as compared to European countries (Brooks-Gunn, Duncan, & Britto., 1999). Some research has, however, found less of a stark difference across countries; a study comparing educational inequality in Norway and the U.S. found more similarities than differences in the extent to which parental resources correlated with children's educational attainment (Reisel, 2011). Yet, very little research has been conducted outside the United States on the relationship between socioeconomic background, adolescent health and educational attainment (Suhrccke & de Paz Nieves, 2011).

1. The present study

The purpose of this study is twofold: to examine (1) whether adolescent health mediates the relationship between socioeconomic background and successful high school completion; and (2) whether this mediated pathway of influence varies by national context (Norway vs. U.S.). To this end, we examine the direct, indirect and conditional indirect effects of socioeconomic background on high school completion (see Fig. 1 for a graphical illustration).

A comparison of the U.S. and Norway makes it possible to evaluate whether the relationship between adolescent health and educational attainment holds across divergent contexts and to theorize about how SES and welfare policies shape disparities. Indeed, as shown in previous research (Olafsdottir, 2007), comparing two capitalist societies that differ in levels of social and welfare policies is a useful way to reach an understanding of how the relationship between SES, health and

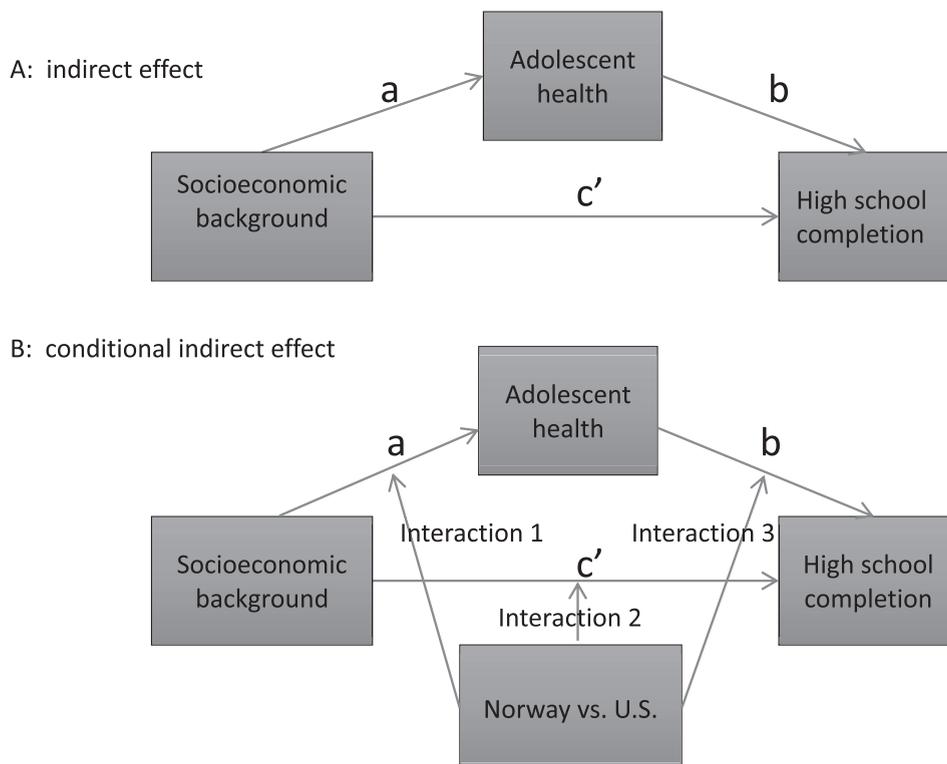


Fig. 1. Hypothesized models showing direct, indirect, and conditional indirect effect.

educational attainment is created and sustained. Norway and the U.S. have divergent social and welfare policies, in particular with regard to health care and education. Norway has universal health care coverage and 85.5% of health expenditures in Norway are public, compared to only 47% in the U.S. (The World Bank, 2015, table 2.15). With regards to education, secondary and tertiary education is free and centrally regulated in Norway while in the U.S. there is little central regulation of curricula or cost, allowing for great variation in quality and affordability across schools (Reisel, 2011).

Despite being different in some respects, Norway and the U.S. are also similar in important areas pertinent to the current research. For instance, the two countries have populations with relatively high education levels (46% of the U.S. population and 49% of the Norwegian population age 25–34 have a tertiary degree, OECD, 2015, p. Table A1.3a). Both countries rank among the 10 richest countries in the world (Knoema, 2015) and both are advanced economies increasingly reliant on highly educated workers.

2. Data and methods

The current study is based on comparable longitudinal datasets from Norway and the U.S. The Norwegian data is based on information from several data sources. Between 2000 and 2004 a health survey (UNGHUBRO) was administered to all 10th graders in six counties in central and northern Norway, Oslo included ($N = 13262$). We limit the sample to normal aged 10th graders (15–16 year olds) who were still registered as living in Norway in 2013. UNGHUBRO was linked to two longitudinal registry databases that include longitudinal information about the survey respondents' high school completion and household income. The study has been approved by Regional Ethical Committee in Norway.

The data from the U.S. comes from the publicly available version of the National Longitudinal Survey of Youth (NLSY97). The NLSY97 is a nationally representative panel survey of almost 9000 youths (aged 12–17). In 1997 information about adolescents' health and household income was collected and throughout the years data were collected on high school completion. In the current study we only use data from adolescents that were 15–16 year olds in 1997 to create a comparative age sample to that of the Norwegian data ($N = 3604$). Since analysis is based on secondary data the study was exempt from needing an Institutional Review Board (IRB) approval. The original data were collected by other researchers who obtained IRB approval.

For the first study goal examining the mediated effects of adolescent health, we tested our models separately using the U.S. and Norwegian datasets. For the second goal of testing the moderating effect of national context, we pooled the two datasets. Since the two national datasets were not collected with the intention of comparative analyses, there were differences in how the data were collected. For this reason, the moderated mediation model should be seen as a suggestive guide for future research.

2.1. Variables

2.1.1. Dependent variable

High school completion was coded as receiving a regular high school diploma by age 21. This age cut-off allows for some delay or other irregular paths through the education system, and is frequently used in studies of high school completion (Brekke & Reisel, 2015; Haas & Fosse, 2008). High school completion in the U.S. sample was limited to regular high school diploma and excluded the General Educational Development (GED) test due to evidence that GED confers fewer economic and health benefits than traditional diplomas (Tyler, 2003). Since GED does not exist in Norway, coding the GEDs as non-completers increases the comparability of the two national data sets. All waves of the NLSY97 data were used in the construction of high school completion, but its value did not vary within adolescents. In the Norwegian sample, the variable is based on register data and includes both general education and vocational high school diplomas.

2.1.2. Independent variables

Household income and parental education were used as measures of socioeconomic background. In NLSY97, father's and mother's income and highest completed education level were reported by the responding parent in 1997, when adolescent respondents in the current sample were 15–16 years old. The household income variable was created by combining mother's and father's income and averaging the combined income. Parental education variables were coded as highest education level attained by any parent (1 = less than high school, 2 = high school diploma, 3 = undergraduate degree, 4 = post-graduate or professional degree).

In the Norwegian sample, information about household income was taken from official registry data. The income variable was created by combining mother's and father's income and averaging the combined income over ten years, from the respondent's age 7 to 16. To create comparable national household income variables, the income variables were coded in percentile categories. The Norwegian data for parental education were coded identically as described for the U.S. data.

2.1.3. Mediation and moderation variables

The mediator variable, adolescent self-reported health, is considered a valid and stable measure of adolescent well-being including both physical and mental health indicators (Fosse & Haas, 2009). In both samples, self-reported health was measured when the adolescents were 15–16 years old. In NLSY97, respondents were asked "in general, how is your health?" followed by the following five answer categories: poor, fair, good, very good, excellent. In the Norwegian survey, the question

asked: “how is your current health?” followed by four answer categories: poor, not so good, good and excellent. In the U.S. mediation analyses the original answer categories were used. In the Norwegian sample ‘poor’ and ‘not so good’ were combined because the ‘poor’ category was too small ($n = 91, 0.7\%$) to create a meaningful category. In the multi-group models testing for moderated mediation, we created comparably coded variable for adolescent health in both data sets with the following categories: 1 = poor/fair, 2 = good/very good, 3 = excellent for both datasets.

For pooled data analyses a variable called ‘national context’ was created, coded 0 if the respondent was from the U.S. sample and 1 if they were part of the Norwegian sample.

2.1.4. Covariates

Gender (0 = male, 1 = female) was controlled for based on past evidence of gender disparities in adolescent health and educational attainment (Buchmann, DiPrete, & McDaniel, 2008). In the U.S. sample, race-ethnicity (non-Hispanic whites, non-Hispanic blacks, Hispanics, and others) was included as an additional covariate given that minority children can have significantly different outcomes in terms of school failure (Kao & Thompson, 2003; Lee, 2002) and health status (Dressler, Oths, & Gravlee, 2005), as compared to white children.

In Norway, ethnic minority youth is commonly conceptualized as immigrants or descendants of immigrants from non-Western countries. Most of the immigrants or descendants of immigrants in the sample are of Pakistani origin. Other common countries of origin are Iran, Turkey, Somalia and Vietnam. For these analyses we used a dummy variable for Western vs. non-Western ethnicity in the Norwegian sample.

Research has shown that there are average differences in socioeconomic background between native born and immigrants in both Norway (Støren, 2005) and the U.S. (Waters & Eschbach, 1995). Thus, we included a control dummy variable for immigrant status based on country of birth. Respondents in the U.S. sample who reported that they were born outside of the U.S. were coded as immigrants. The information about country of birth in the Norwegian data were taken from official register data.

2.2. Analytic plan

Our analytic approach involved two steps. First, we tested the mediation model in the U.S. and Norwegian samples separately, investigating the direct effect of adolescent health on high school completion and the direct and indirect effects of household income and parental education, as mediated by adolescent health. Path analysis models were tested using logistic regression in Mplus 7.0 (Muthén & Muthén, 2012) employing robust estimation procedures to account for any violations of normality (Yuan & Bentler, 2000). Mediated effects were estimated using the product of coefficients method (MacKinnon, 2008) involving multiplication of regression coefficients for the regression of the mediator on the independent variable (a path) and for the regression of the outcome on the mediator (b path) with the independent variable included in the model (c path). The product of $a*b$ is considered to be the mediated effect (see Fig. 1A). Missing data were handled using full information maximum likelihood (FIML) (Schafer & Graham, 2002). FIML produces reliable estimates similar to other missing data techniques, such as multiple imputation, particularly when predictors are available for missing values (Enders & Bandalos, 2001), as was the case with these samples.

This was followed by a multi-group path analysis to assess variations in the mediated and direct effects across the U.S. and Norwegian samples. Moderated mediation was determined by the presence of a significant drop in model fit when the paths comprising the mediated effect were constrained to be equal across the U.S. and Norwegian samples. We also tested the moderating effect of national context on the direct effect of household income and adolescent health on high school completion (see Fig. 1B).

Model fit was assessed using multiple fit indices and examination of residual diagnostics. The criteria for a good fit included a non-significant χ^2 test statistic, RMSEA (Root Mean Square Error of Approximation) value less than 0.05, and values of comparative fit index (CFI) and Tucker-Lewis Index (TLI) greater than 0.90 (Hu & Bentler, 1999).

3. Results

Table 1 presents descriptive statistics. The U.S. sample had a slightly higher high school graduation rate than the Norwegian sample (75% and 71% respectively). Females were more likely than males to complete high school by age 21 in both countries. In both countries, high school completion was significantly linked to better adolescent self-reported health, higher parental education and higher household income. In terms of racial-ethnic differences in the U.S., Hispanics and non-Hispanic blacks were less likely to complete high school as compared to non-Hispanic whites. In the Norwegian sample, immigrants and students of Non-Western origin were significantly less likely to complete high school than non-immigrant and native origin students.

3.1. Single-sample direct and indirect effects

In the Norwegian sample ($N = 13262$), adolescent self-rated health reported at age 15–16 was a significant predictor of high school completion by age 21 (see Table 2 and Fig. 2a). Household income was a significant predictor of successful high school completion, with effects being partially mediated by adolescent self-rated health. Specifically, household income had a

Table 1
Descriptive statistics of variables used.

	Norway				United States			
	Non High School Graduates	High School Graduates ^a	P-value ^b	Obs	Non High School Graduates	High School Graduates ^a	P-value ^b	Obs
All	29%	71%		13.262	25%	75%		3.604
Male (%) [referent]	35%	65%		6.589	29%	71%		1.852
Female (%)	24%	76%	<0.001	6.673	22%	78%	<0.001	1.752
Race								
White non-Hispanic (%) [referent]	na	na	na	na	17%	83%		1.468
Black non-Hispanic (%)	na	na	na	na	33%	67%	<0.001	926
Hispanic (%)	na	na	na	na	31%	69%	<0.001	759
Other (%)	na	na	na	na	24%	76%	0.580	30
Norwegian or Western origin (%) [referent]	28%	72%		11.352	na	na		na
Non-Western origin (%)	38%	62%	<0.001	1.910	na	na		na
Native born (%) [referent]	28%	72%		12.110	23%	77%		2.832
Immigrant (%)	41%	59%	<0.001	1.152	23%	77%	0.904	185
Average self-rated health (Mean, S.D.)	2.12 (0.658)	2.27 (0.624)	<0.001	13.080	2.22 (0.612)	2.37 (0.564)	<0.001	3.604
Parents' education (Mean, S.D.)	2.08 (0.798)	2.62 (0.878)	<0.001	13.143	1.92 (0.675)	2.50 (0.812)	<0.001	2.931
Household Income (Mean, S.D.)	3.33 (1.241)	4.08 (1.250)	<0.001	13.233	3.33 (1.294)	4.20 (1.197)	<0.001	2.541

Note:

NA = not applicable.

^a Completed High School by age 21.

^b P-values are based on unadjusted logistic regression for categorical variables and two sample t-tests for continuous variables.

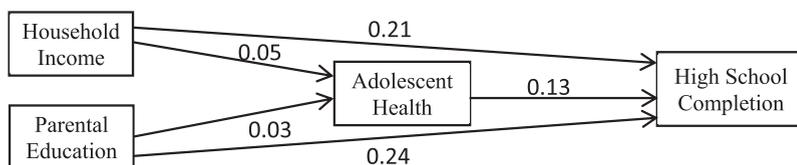
Table 2

Unstandardized regression coefficients and standard errors associated with direct and mediated effects in Norwegian and U.S. Samples.

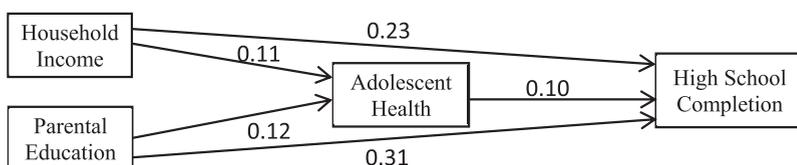
Pathways of Influence	B (SE)
<i>Norwegian Sample (N = 13262)</i>	
Direct Effects	
Household Income → High School Completion	0.32 (0.02)***
Parental Education → High School Completion	0.54 (0.03)***
Adolescent Health → High School Completion	0.42 (0.03)***
Female → High School Completion	0.66 (0.04)***
Immigrant status → High School Completion	−0.26 (0.09)**
Non-western ethnicity → High School Completion	0.24 (0.08)**
Household Income → Adolescent Health	0.02 (0.01)***
Parental Education → Adolescent Health	0.02 (0.01)***
Female → Adolescent Health	−0.17 (0.01)***
Mediated Effects	
Household Income → Adolescent Health → High School Completion	0.01 (0.002)***
Parental Education → Adolescent Health → High School Completion	0.01 (0.003)**
<i>U.S. Sample (N = 3604)</i>	
Direct Effects	
Household Income → High School Completion	0.37 (0.05)***
Parental Education → High School Completion	0.78 (0.08)***
Adolescent Health → High School Completion	0.22 (0.05)***
Female → High School Completion	0.50 (0.09)***
Race-Ethnicity (Non-Hispanic Whites omitted as reference)	
Non-Hispanic Black → High School completion	−0.13 (0.11), n.s.
Hispanic → High School Completion	0.25 (0.12)*
Other → High School completion	0.40 (0.30), n.s.
Household Income → Adolescent Health	0.08 (0.02)***
Parental Education → Adolescent Health	0.13 (0.02)***
Female → Adolescent Health	−0.19 (0.03)***
Mediated Effects	
Household Income → Adolescent Health → High School Completion	0.02 (0.01)***
Parental Education → Adolescent Health → High School Completion	0.03 (0.01)***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. n.s. = $p > 0.05$.

a. Mediation model in the Norwegian sample



b. Mediation model in the U.S. sample



c. Moderated mediation model in the combined sample. Path coefficients that varied significantly across national context are denoted in bold (Norway/US). Pathways that did not vary across national contexts were fixed to be equal.

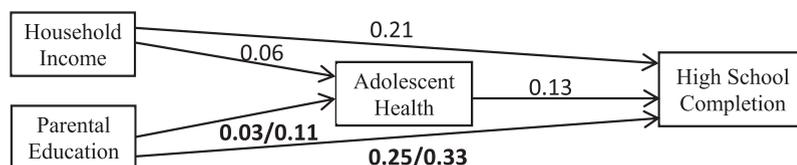


Fig. 2. a, b & c: Standardized coefficients for the final models in the Norwegian sample (2a), U.S. sample (2b), and the combined samples (2c).

direct positive effect ($B (SE) = 0.32 (0.02)$, $p < 0.001$), and a significant, albeit small, mediated effect ($B (SE) = 0.01 (0.002)$, $p < 0.001$) representing 3.13% of the total effect. Parental education also had a significant direct ($B (SE) = 0.54 (0.03)$, $p < 0.001$), and significant, albeit small, mediated effect ($B (SE) = 0.01 (0.003)$, $p < 0.001$), representing 1.65% of the total effects. Additionally, girls reported higher rates of high school completion, but poorer self-reported health. Effect of other covariates are reported in Table 2.

In the U.S. sample ($N = 3604$), we observed similar patterns of direct effects and partial mediation. Specifically, adolescent self-rated health reported at age 15–16 was a significant predictor of high school completion by age 21 (see Table 2 and Fig. 2b). The total effect of household income was positive and significant, and comprised of the mediated effect, $B (SE) = 0.02 (0.01)$, $p < 0.001$, and the direct effect, $B (SE) = 0.37 (0.05)$, $p < 0.001$. Similarly for parental education, there was a significant direct, $B (SE) = 0.78 (0.08)$, $p < 0.001$, and mediated effect, $B (SE) = 0.03 (0.01)$, $p < 0.001$. As in the Norwegian sample, the mediated effects of household income and parental education were small, respectively representing 4.34% and 3.03% of the total effects. Girls reporting higher rates of high school completion, but poorer self-reported health. Effects of other covariates are reported in Table 2.

3.2. Moderated mediation

Multi-group path modeling procedures were used to test if the direct and mediated effects of household income were moderated by national context, i.e., if they varied across the two samples. An unconstrained model was fit to the data first, with all path coefficients free to be estimated for each group. In the next step, all path coefficients were constrained to be equal across the two samples. This resulted in a significant drop in model fit, $\chi^2 (5) = 40.85$, $p < 0.001$, suggesting that at least one of the paths in the model varied by national context. To identify the pathway(s), paths were freed one at a time while evaluating change in model fit at each step.

This iterative process showed that two of the pathways varied based on national context: the direct effect of parental education on high school completion, and one of the indirect effects involving the effect of parental education on adolescent health. Specifically, as shown in Fig. 2c, the effects of parental education on high school completion and adolescent health

were stronger in magnitude in the U.S. context as compared to the Norwegian context ($\beta_{\text{U.S.}} = 0.33$ and 0.11 , respectively vs. $\beta_{\text{Norway}} = 0.25$ and 0.03 , respectively).

4. Discussion

High school dropout is a persistent and increasingly serious problem considering that national economies are becoming more dependent on highly skilled workers. The current study was set out to gain a better understanding of health as one of the mechanisms that may contribute to socioeconomic disparity in school dropout. The results replicate previous research that shows socioeconomic inequalities in high school completion and studies that show a direct effect of adolescent health on high school completion. Furthermore, the current study extends this research by documenting that socioeconomic background partially affects high school completion through its effect on adolescent health. The fact that we find evidence for direct and indirect health effects in the U.S. as well as Norway points to the robustness of these findings. Nevertheless, it needs to be pointed out that the mediated effects were relatively small in both countries.

Interventions to improve academic attainment are usually designed to alter the school curriculum, improve support for teachers, or change the institutional school mind-set (Freudenberg & Ruglis, 2007; Rasberry, Slade, Lohrmann, & Valois, 2015). Thus, much of the approach for school dropout prevention ignores the relation between educational attainment, adolescent health, and socioeconomic inequality. The current study suggests that adolescent health can be a contributing factor to the persistent problem of high school dropout in general.

Integrating health as a condition for effective learning is the basis of a holistic approach that has only recently been integrated into education programs (Basch, 2011). For instance, the Whole Child Approach, a novel initiative promoted in the U.S. since 2006, is based on the idea that health is fundamental for enabling students to learn (Rasberry et al., 2015). Despite this important foundation, one challenge of the initiative is that it has been viewed as a health initiative, as opposed to conceptualizing health as a core component of an effective school and education system (Rasberry et al., 2015). This is symptomatic for other initiatives as well; it has been noted that school-based health programs seldom target (and thereby measure) reduction in school dropout rates or other educational factors as outcomes (Freudenberg & Ruglis, 2007; Rasberry et al., 2015).

In light of the finding that adolescent health has a direct effect on high school completion, there is a need for health programs to be evaluated based on their influence on academic attainment, to inform the literature supporting health programs for enhancing academic outcomes. Furthermore, and in light of the finding that health partly mediates the effect of socioeconomic inequality on high school completion, there is a particular need to develop and examine educational attainment outcomes of school health programs that focus on *educationally relevant health disparities* (Basch, 2011).

The current study also finds that the effect of socioeconomic disadvantage on high school completion is stronger in the U.S. than in Norway. The results suggest that unspecified conditions in Norway reduce socioeconomic disparities in adolescent health, and inequality in high school completion. Unfortunately the current study is restricted to a comparison of only two countries which limits the ability to test the influence of specific country level conditions that may reduce or exacerbate the negative effect of health and health inequality on educational attainment. Furthermore, as noted at the outset, due to data collection methods that were not completely comparable across countries, the results pertaining to the moderation by national context should be interpreted as preliminary.

Despite these caveats previous research suggests that health care policies may be one important element in explaining the findings of the current study. Studies have, for instance, found that improving primary care reduces social inequality in health (Macinko, Shi, & Starfield, 2004; Shi, Starfield, Politzer, & Regan, 2002). Others have, however, suggested that the role of health care in reducing socioeconomic inequalities in health is limited (Mackenbach, 2003). Focusing on broader social policies, another study showed that social democratic welfare state regimes reduce the strength of the association between adolescent socioeconomic position and health outcomes, while the liberal welfare regimes do not (Zambon et al., 2006).

Combined, these studies suggest that the ways in which access to social resources are realized and distributed through medical, political and economic institutions influence how social inequalities affect health and life chances. Combined with the current study, evidence suggest that social policies, including but not limited to health care policies, are among the appropriate means to reduce the negative effects of socioeconomic background on adolescent health and educational attainment. Research with more comparable data, from more countries, is needed in order to investigate this further and to help specify types of policies that may impact these relations.

4.1. Methodological considerations

Strengths of this study include use of longitudinal data and that household income and parental education was based on parental report (U.S. sample) and register data (Norwegian data) as opposed to adolescent self-report which may be more subject to measurement error. A limitation of the study is that individuals with the same true health status may have different reference levels against which they judge their health which may bias their self-assessed health (Jürges, 2007). This is particularly important to carefully consider in cross-national comparisons because respondents from different countries may not only have different health reference levels; response categories may also have different connotations inducing different response styles (Jürges, 2007). Therefore, the self-reported health measures used in the current study cannot be taken at face value and differences in absolute levels of self-rated health across the two countries should not be taken as an indicator of

national differences in adolescent health. This study is, however, comparing the relative, not the absolute, levels of self-assessed health and its gradients against socioeconomic background and educational attainment. Potential national differences in the understanding of subjective health and report styles should therefore not be of significant concern. Nevertheless, future research should consider the effects of socioeconomic status on specific health symptoms (using health bio markers) and the allostatic load of the individual.

We find that adolescent health significantly contributes to inequality in educational attainment, but the effect is small. Previous research indicates that adolescent mental well-being is strongly associated with educational outcomes (Brekke & Reisel, 2015; Needham, Crosnoe, & Muller, 2004). The Surgeon General's Report on Mental Health has noted that 20% of children and adolescents in the U.S. suffer from mental illnesses significant enough to impact social and educational functioning (Surgeon General, 1999). In the present study, we were not able to untangle mental well-being from other health symptoms. Based on previous research we speculate, however, that we may be underestimating the effect of health on educational achievement by applying only a general measure of adolescent health.

The limitation of including only two countries and differences in data collection has already been discussed. There is a need for large scale cross-national datasets on youth that gathers information, preferably longitudinal, on both health and education. This will allow for further development of international comparisons to tease out the contextual variables that may significantly influence health inequality and thereby impede on successful high school completion.

5. Conclusion

The results presented in this study are of particular importance to current policy debates concerning how to reverse the trend in school dropout rates that have stagnated and that are most prevalent among adolescents from lower socioeconomic backgrounds. Even though it is important to focus on improving school quality and developing national standards (in the U.S.), what is urgently missing from that policy debate is a larger framework that takes into serious consideration the relationship between young people's health, socioeconomic status and their educational attainment.

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