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## **Socio-economic status and mental health – the importance of achieving occupational aspirations**

Cay Gjerustad<sup>a\*</sup> and Tilmann von Soest<sup>a,b</sup>

<sup>a</sup>*Norwegian Social Research, Oslo, Norway;* <sup>b</sup>*Department of Psychology, University of Oslo, Oslo, Norway*

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This article examines whether achieving occupational aspirations accounts for some of the frequently noted relationship between socioeconomic status and mental health. The analysis draws on longitudinal survey and register data for 1644 young people, following the respondents over a 13-year period. The findings show that aspiration achievement was a significant predictor of symptoms of depression and anxiety. A linear relationship was found for depressive symptoms, indicating that symptoms of depression decreased as aspiration achievement increased. A curvilinear relationship emerged for anxiety symptoms, indicating increased levels of anxiety symptoms among those in occupational levels substantially lower and higher than their previous expectations. The results suggest that aspiration achievement qualified as a mediator of the relationship between socioeconomic status and mental health, even though only part of the relationship was explained. The findings point to the importance of obtaining a job that is in accordance with previous expectations.

**Keywords:** aspirations; occupational aspirations; socioeconomic status; mental health; depression; anxiety

### **Introduction**

A number of studies have shown that low socioeconomic status is related to reduced mental health (Lorant *et al.* 2003, Zimmerman and Bell 2006, Adkins *et al.* 2009, Andersen *et al.* 2009). What is not properly understood, however, are the mechanisms involved in this relationship (Zimmerman *et al.* 2004, Bjelland *et al.* 2008, Dalgard 2008). This article examines whether aspiration achievement is involved in the association between socioeconomic status and mental health. Failure to achieve occupational aspirations may be more common among those in lower socioeconomic strata, because such failure involves their ending lower in the social hierarchy than expected. Furthermore, achievement of aspirations may be particularly important for good mental health (Michalos 1985). Therefore, aspiration achievement may be involved in explaining the relationship between socioeconomic status and mental health. However, aspiration achievement has so far not been investigated as a possible factor in the relationship between socioeconomic status and mental health.

The current study is, therefore, designed to examine how aspiration achievement relates to socioeconomic status and mental health, and to investigate whether it is a

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\*Corresponding author. Email: cgj@nova.no

mechanism that operates in the relationship between socioeconomic status and mental health. Symptoms of depression and anxiety are used as indicators of mental health, because anxiety and mood disorders are among the most common forms of mental disorders (Kessler *et al.* 2005). The analyses draw on data from a 13-year follow-up of a population-based survey data-set linked to national register data.

### ***Socio-economic status and mental health: models and mechanisms***

A common explanation for the relationship between socioeconomic status and mental health is the stress process model (Pearlin *et al.* 1981, Pearlin 1989). The model suggests that different roles or positions in the social structure involve varying levels of exposure to stressors. Low socioeconomic status increases the probability of stress-inducing factors such as a lack of resources, limited opportunities and low self-regard, and limits access to privileges and security. Hence, a low social position increases the risk of impaired mental health. The stressors may be chronic, for example long-lasting financial strain, or temporary, such as periods of involuntarily unemployment.

Marmot (2004) has put a similar explanation forward. He proposes that material factors (financial resources) and psychosocial factors (perceived control over one's own life and satisfaction with personal social position) vary with socioeconomic status and may lead to different levels of stress. The theory was originally proposed to account for the association between socioeconomic status and physical health, suggesting that stress is detrimental to physical health (Marmot 2004). However, the focus on stress also makes the theory relevant for understanding variations in mental health.

Most empirical studies on mechanism in the relationship between socioeconomic status and mental health have focused on economic aspects, and studies have found that financial strain explains some of the association (Dalgard 2008, Butterworth *et al.* 2009). Other studies indicate that psychosocial work attributes (Zimmerman *et al.* 2004) and sense of powerlessness (Dalgard 2008) may be important in this context.

To date, studies have primarily used symptoms of depression and psychological distress as indicators of mental health. However, it is possible that other mental health indicators are also related to socioeconomic status. Studies using indicators such as symptoms of anxiety (Fryers *et al.* 2003) and insomnia (Talala *et al.* 2008) report that low socioeconomic status is related to reduced mental health. In a Norwegian study, Bjelland and colleagues (2008) found that symptoms of depression and anxiety were significantly related to socioeconomic status, and that the relationship was stronger for depressive symptoms.

### ***Aspiration achievement and mental health***

Although little research has investigated whether aspiration achievement predicts mental health, both theory and empirical findings support the possibility of such a relationship. In his Multiple Discrepancy Theory, Michalos (1985) suggested that life satisfaction is a function of perceived gaps between one's actual situation and comparison standards such as aspirations, desires and the possessions of others. Empirical findings suggest that aspirations are particularly important as comparison standards; the discrepancy between previous aspirations and present situation has

been found to be the best predictor of life satisfaction and the piece of information most commonly used by people to evaluate their situation (Campbell 1976, Michalos 1985, Ross *et al.* 1986).

While life satisfaction, which the Multiple Discrepancy Theory intends to explain, is not the same as mental health, it is reasonable to view the two terms as related. Therefore, the theory may be relevant for understanding mental health and the importance of achieving occupational aspirations.

Carr (1997) examined the direct relationship between aspiration achievement and mental health by comparing a group of women's occupational aspirations at age 35 with their occupational status at 52. She found that women who had achieved their occupational aspirations had lower levels of depressive symptoms and had a greater sense of purpose in life than those who had not achieved their aspirations. The magnitude of the discrepancies between aspirations and actual situation was of importance, but only for those who had not realized their aspirations; surpassing their aspirations did not create a greater level of satisfaction than fulfilling them. Carr also found that the negative consequences of not achieving aspirations were reduced by being married and having children. Moreover, the study showed that occupational status was related to both depression and purpose in life. However, this relationship was no longer significant once aspiration achievement was controlled for.

In contrast to these findings, theories on status inconsistency and social mobility view both negative and positive discrepancies as reducing health. Lenski (1954, 1956) and Blau (1956) have suggested that differences between social positions, such as a mismatch between educational and occupational status, or a rise or fall in occupational status, lead to frustration and mental stress. Empirical research on the association between status inconsistency and mental health confirm the effect of negative inconsistency (e.g. a lower occupational position than one's education warrants) (Hornung 1977, Lundberg *et al.* 2009). Regarding positive inconsistency (e.g. a higher occupational position than one's education warrants) and mental health, the findings are mixed. Lundberg and colleagues (2009) found that positive incongruence was related to increased mental well-being, whereas Hornung (1977) found that positive inconsistency was related to low levels of economic stress and high levels of occupational stress.

### ***Occupational aspirations***

One particularly important task young people must solve is to decide on future occupation. In his influential model of social reproduction, Goldthorpe (2000) suggested that the occupational level to which young people aspire is determined by rational considerations of the probability of success in combination with the desire to achieve at least the same socioeconomic status as their parents. Goldthorpe views socioeconomic background as fundamental for the choices young people make. Young people with low socioeconomic background will, because of the family's limited financial resources, choose strategies for educational and occupational achievement with low probability of failure. Young people from families with high socioeconomic status do not experience the same financial limitations, and tend to choose less safe options. Several studies suggest that academic performance and socioeconomic background are particularly important predictors of one's level of aspirations, which accords with Goldthorpe's model (Sewell and Shah 1968, Jacobs

*et al.* 1991, Hanson 1994, Creed *et al.* 2007). The importance of academic performance suggests that realistic considerations of existing possibilities influence aspiration levels. That aspirations are based on realistic considerations is further supported by studies showing that occupational aspirations held in adolescence are one of the best predictors of later occupational achievement (Schoon and Parsons 2002, Schoon *et al.* 2007).

In addition to socioeconomic background and academic performance, societal norms may influence young people's occupational aspirations. According to Merton (1957), culturally defined goals are particularly important elements of the social structure. The goals describe what the members of a society should aspire to and achieve. Furlong and Cartmel (2007) have a similar view, and note that contemporary western societies are characterized both by beliefs about the importance of achieving high-status occupations and by unrealistic expectations towards occupational achievement. Young people are expected to have high goals and to bear the responsibility for achieving them. This dual expectation could pressure young people into setting overly ambitious aspirations that result in negative self-evaluations if not achieved. Furlong and Cartmel's argument is supported by empirical findings showing young people having higher and more unrealistic aspirations in 2000 than 20–25 years earlier (Reynolds *et al.* 2006, Goyette 2008).

### ***Aspiration achievement in Norway***

Access to education and to the labor market may be important for aspiration achievement. In Norway, where the data in this article were collected, education is seen as a means of reducing social inequality (Esping-Andersen 1999). The educational system is universalistic, there are relatively few private educational institutions, and public institutions have only symbolic tuition fees. In addition, offerings of loans and economic support from the Norwegian State Educational Loan Fund to those pursuing higher education is used as a means to reduce the effects of differences in financial resources. However, educational achievement is related to parental class also in Norway (Hansen 2005, 2010), suggesting that aspiration achievement could be related to socioeconomic background. Aspiration achievement was assessed in 2005, a time of economic growth and relatively low unemployment. The average proportion of young adults aged 25–29 unemployed in 2005 was 5.4% (Norwegian Labour and Welfare Service 2005), suggesting that the chances of finding suitable work were relatively high.

### ***Research questions***

Empirical findings and theoretical considerations suggest that aspiration achievement may be related to both socioeconomic status and mental health. The current study examines whether aspiration achievement is a mechanism that operates in the association between socioeconomic status and depressive and anxiety symptoms. For this purpose, the framework described in the seminal article by Baron and Kenny (1986) for testing mediation is followed, because it is designed to obtain information about mechanisms that associate two variables. More specifically, the study examines the following research questions, which, according to Baron and Kenny, must be investigated to test for mediation:

- (1) Is socioeconomic status significantly related to mental health?
- (2) Is socioeconomic status related to aspiration achievement?
- (3) Is aspiration achievement related to mental health?
- (4) Is the relationship between socioeconomic status and mental health reduced when aspiration achievement is included as a predictor in addition to socioeconomic status?

Because prior research has shown that several variables influence mental health (Carr 1997, Dalgard 2008, Butterworth *et al.* 2009), we controlled for socio-demographic variables such as gender, socioeconomic background, having children and cohabitation/marriage. Women have been found to have a higher risk of depression and anxiety than men (Kessler *et al.* 2005), and it is possible that there are gender differences in the relationship between aspiration achievement and mental health. Therefore, in addition to including gender as a covariate, we tested the interaction between gender and aspiration achievement.

Moreover, analyses examining how socioeconomic status and aspiration achievement relate to changes in mental health were conducted, to provide more information about how these variables relate temporally. In addition, whether the relationship between aspiration achievement and mental health is non-linear will be examined, because theories on status inconsistency and social mobility imply that both negative and positive status discrepancy may lead to lower levels of mental health.

## Method

### *Participants*

This article is based on the longitudinal study *Young in Norway*, as presented in detail by Pedersen (2007). In short, a population-based sample of Norwegian adolescents was followed over a 13-year time span. The first survey was conducted in 1992 (T1) and followed by three more: 1994 (T2), 1999 (T3), and 2005 (T4). At T1, the questionnaire was completed at school by all participants; those who attended the same school at T1 and T2 were followed up at T3 and T4 ( $N = 3507$ ). At T4, the respondents were asked to consent to the survey data being linked to register data from Statistics Norway's nationwide Historical Event Databases. In all, 2606 respondents (90%) agreed to this, setting the overall response rate at 60%.

An additional 962 respondents could not be included in the analyses because of missing information on variables used in the analyses. The most important variable in this respect was occupational status, because 588 respondents had not stated their occupations at T4. A clear majority of these respondents reported undergoing education ( $N = 259$ ), being unemployed ( $N = 113$ ), being on parental leave ( $N = 93$ ) or staying at home ( $N = 47$ ). The sample used in the analyses consists of the 1644 respondents with no missing data on predictor variables and covariates.

Multiple logistic regression analyses were conducted to investigate selective attrition from T2. Having higher aspirations (odds ratio (OR) = 1.14, standard error (SE) = 0.03,  $p < 0.001$ ) increased the probability of being included in the sample. None of the other variables measured at T2 (depressive symptoms, anxiety symptoms and gender) were related to inclusion in the analyses (all  $p > 0.05$ ).

The current article draws on information from T2 and T4. At T2, the respondents were in lower or upper secondary education, with a mean age of 16.7 years. At T4, the mean age was 28.6 years.

### ***Predictors***

#### *Occupational aspirations*

At T2, respondents answered open-ended questions about their expected future occupation: 'Which job or occupation do you think it is most likely that you will have when you are 40?' Studies have shown that questions concerning occupational expectations, as in this study, lead to more realistic considerations and lower aspirations than questions concerning preferences (Slocum 1974, Johnson 1995, Patton and Creed 2007). The measurement of aspirations from T2 was chosen to ensure that the aspirations were relatively realistic and expressed goals rather than positions already achieved.

Each response was converted into a four-digit ISCO code (International Labour Office 1988) and then assigned to one of five groups according to the effort required to achieve the aspiration. The groups were defined in the following way:

- (1) Little or no education beyond lower secondary (cleaning staff, operators).
- (2) Upper secondary education (craftsmen, farmers).
- (3) Shorter tertiary education (nurses, teachers, low-level managers).
- (4) Master degrees (engineers, assistant directors, mid-level managers).
- (5) Prestigious education and/or success at work (directors, ambassadors, lawyers, judges, physicians, university professors).

#### *Occupational status*

At T4, the respondents stated their current occupation. Again, the open-ended answers were converted to four-digit ISCO codes and assigned to one of five different groups according to socioeconomic status. The variable ranges from 1 to 5, with 5 indicating the highest socioeconomic status.

#### *Aspiration achievement*

This variable captures the discrepancy between occupational aspirations at T2 and occupational status at T4 and was calculated by subtracting the score assigned to occupational aspirations from the score assigned to occupational status. This variable thus has a range from  $-4$  to  $+4$ , with  $-4$  indicating an occupational status four levels lower than the corresponding aspirations, 0 indicating a match between occupational status and aspirations, and  $+4$  indicating an occupational status that is four levels higher than the stated aspirations. Aspiration achievement was constructed as a continuous variable because the distance between the aspirations and the actual status could be relevant, not simply the achievement of the aspirations.

The questions regarding aspirations at T2 asked about expectations for occupational achievement at age 40. Unfortunately, there are no survey data for

the respondents beyond this age, so occupational expectations for the age of 40 were compared with actual achievement before the age of 30.

#### *Socio-economic status*

Achieved education in 2005, when the T4 survey was conducted, was used as indicator of socioeconomic status. Based on data from Statistics Norway's Historical Event Databases, a variable where higher scores indicated higher achieved education was constructed. The variable consisted of six categories: (1) lower secondary education; (2) started upper secondary education, 1–2 years; (3) completed upper secondary education; (4) tertiary education, 2–5 years; (5) tertiary education, 6–7 years; (6) completed Ph.D.

#### ***Dependent variables***

##### *Depressive symptoms*

A modified version of Kandel and Davies' Depressive Mood Inventory (Kandel and Davies 1982) was used to measure depressive symptoms. The respondents rated how various symptoms of depression (e.g. tiredness, sadness or hopelessness) had affected them in the previous 14 days. Responses were given on a four-point scale, with higher scores indicating stronger symptoms. Cronbach's alpha for the scale was 0.81 at T2 and 0.84 at T4, indicating that internal consistency was acceptable.

##### *Anxiety symptoms*

Six items from the Hopkins Symptom Checklist (Derogatis *et al.* 1974, Derogatis 1982) were used to measure anxiety symptoms. The respondents rated how various symptoms of anxiety (e.g. fear, worries and uneasiness) had affected them in the previous 14 days. A four-point scale was applied, again with higher scores indicating stronger symptoms. Cronbach's alpha for the scale was 0.76 at T2 and 0.77 at T4, again indicating acceptable internal consistency.

#### ***Covariates***

##### *Marriage and cohabitation*

Information collected at T4 was used to construct a variable was 1 indicates being married or cohabitating and 0 indicates not being married/cohabitating.

##### *Children*

At T4, the respondents stated whether they had children. 1 denotes having children and 0 not having children

##### *Socio-economic background*

The educational level of the parent with the highest educational achievement when the respondents were 16 was included as a covariate. This variable, based on data from



Statistics Norway's Historical Event Databases, ranges from 1 to 4, where 1 indicates education at lower secondary level and 4 indicates a master's degree or higher.

### **Analyses**

Mediation analyses were conducted by following Baron and Kenny's (1986) procedure to provide indications of how aspiration achievement may act as a mechanism in the relationship between socioeconomic status and mental health. In all mediation analyses, linear regressions were used. First, mental health at T4 (depression symptoms and anxiety symptoms) was regressed on socioeconomic status. Second, aspiration achievement was regressed on the independent variable, socioeconomic status. Third, mental health was regressed on both socioeconomic status and aspiration achievement. In addition, the Sobel's test was used to examine the effects of including aspiration achievement in the models (Sobel 1982).

Moreover, a second set of mediation analyses was conducted where mental health measured at T2 was controlled for. Regressing the dependent variable on the same variable measured at a prior time point provides information about the variable's change, an approach often referred to as the regressor variable method (Allison 1990).

In the mediation analyses, aspiration achievement and socioeconomic status were included simultaneously in multiple regression analyses. This can be problematic when the measure of socioeconomic status which is used as predictor in the analyses is as well used to construct the aspiration achievement variable. In this case, these two variables will necessarily be mathematically related, which will influence the interpretation of the results of such analyses. Even though several solutions to this problem have been put forward (Blalock 1966, 1967, Hope 1975), all of them show severe limitations (Jackson and Curtis 1972, Whitt 1983, Brown *et al.* 1988). The solution applied in this article was to use educational achievement as indicator of socioeconomic status, whereas another operationalization of socioeconomic status (i.e. occupational status) is used to construct aspiration achievement, thereby ensuring that none of the predictors are mathematically associated.

To test for the possibility of a non-linear relationship between aspiration achievement and mental health, polynomial regressions were conducted, applying equations with quadratic terms. The polynomial models were compared with the linear models by examining differences in Bayesian information criterion (BIC). To evaluate aspiration achievement as a predictor of mental health, regression models with this variable were compared to models in which occupational status was used as the predictor variable. Possible multicollinearity was examined by variance inflation factor.

### **Results**

Mean scores and standard deviations for variables included in the analyses are presented in Table 1.

The mean score for occupational aspirations was 2.88, indicating that, on average, the respondents aspired to jobs that did not require extensive tertiary education. The average occupational level at T4 suggests that the respondents' achievements on average were close to their aspirations. Further examination revealed that 41.2% of the respondents had an occupation at the same level as their

Table 1. Descriptive statistics for dependent variables, predictors and covariates ( $N = 1644$ ).

	Mean	Standard deviation
Socio-economic status 2005	3.54	0.90
Occupational aspirations T2	2.88	1.12
Occupational status T4	2.79	0.98
Aspiration achievement T4	-0.09	1.23
Depressive symptoms T2	1.74	0.57
Depressive symptoms T4	1.56	0.53
Anxiety symptoms T2	1.45	0.45
Anxiety symptoms T4	1.33	0.40
Socio-economic background	2.49	0.82
Age T4	28.59	1.92
	Per cent	
Female	55.1	
Married/cohabitating T4	68.7	
Children T4	34.6	

aspirations, 31.3% were in an occupation at a lower level, and 27.6% had reached a higher occupational level than they previously expected. The table further shows small decreases in symptoms of depression and anxiety from T2 to T4.

The correlation matrix, presented in Table 2, shows that socioeconomic background correlated significantly with both aspirations and aspiration achievement. Table 2 further shows that aspiration achievement was significantly related to socioeconomic status, occupational aspirations, occupational status and both indicators of mental health at T4.

### *Mediation testing*

In a first step to examine how aspiration achievement is involved in the relationship between socioeconomic status and mental health, linear regression analyses were conducted to investigate whether socioeconomic status was related to mental health. As shown in Table 3, Models 1, the results revealed a significant relationship between socioeconomic status and mental health for both depressive symptoms and anxiety symptoms when controlling for covariates.

In the next step, linear regression analyses were conducted showing that socioeconomic status was significantly and positively related to aspiration achievement ( $B = 0.30$ ,  $\text{Beta} = 0.22$ ,  $\text{SE} = 0.03$ ,  $t = 8.99$ ,  $p < 0.001$ ), implying that higher socioeconomic status was related to higher levels of aspiration achievement. In a third step, aspiration achievement was additionally included in the regression model, showing that aspiration achievement was related to both depressive symptoms and anxiety symptoms (Table 3, Model 2). The table shows that including aspiration achievement reduced the strength of the relationship between socioeconomic status and both depression and anxiety symptoms. Sobel's test indicated that the relationship between socioeconomic status and both depression symptoms ( $t = 3.71$ ,  $p < 0.001$ ) and anxiety symptoms ( $t = 2.87$ ,  $p < 0.01$ ) was mediated by aspiration achievement, thereby showing that aspiration achievement could explain some of the relationship between socioeconomic status and mental health.

Table 2. Correlation matrix for predictors, dependent variables and covariates.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Socio-economic status 2005	1												
2 Aspirations T2	0.28***	1											
3 Occupational status T4	0.59***	0.32***	1										
4 Aspiration achievement T4	0.22***	−0.65***	0.50***	1									
5 Depressive symptoms T2	−0.04	0.00	−0.06*	−0.05	1								
6 Depressive symptoms T4	−0.12***	0.03	−0.12***	−0.12***	0.29***	1							
7 Anxiety symptoms T2	−0.06*	−0.01	−0.08**	−0.06*	0.72***	0.26***	1						
8 Anxiety symptoms T4	−0.08***	0.03	−0.10***	−0.10***	0.33***	0.72***	0.33***	1					
9 Socio-economic background	0.28***	0.22***	0.33***	0.06*	−0.03	−0.05*	−0.05*	−0.01	1				
10 Age T4	0.13***	0.05	0.09***	0.03	0.10***	0.01	0.01	−0.02	0.01	1			
11 Female	0.08***	0.01	−0.02	−0.02	0.26***	0.10***	0.36***	0.21***	−0.05*	−0.01	1		
12 Married/cohabitating T4	0.04	−0.01	0.04	0.04	−0.01	−0.12***	0.01	−0.07**	−0.03	0.11***	0.10***	1	
13 Children T4	−0.12***	−0.08***	−0.13***	−0.02	0.09***	−0.02	0.07**	−0.02	−0.17***	0.25***	0.09***	0.34***	1

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

Table 3. Linear regressions with mental health as dependent variable. Models 1 include predictors and covariates as independent variables. Models 2 in addition include aspiration achievement.

	Depressive symptoms			Anxiety symptoms		
	<i>B</i>	Beta	SE	<i>B</i>	Beta	SE
Model 1						
Socio-economic status	−0.08***	−0.13	0.02	−0.05***	−0.11	0.01
<i>Female</i>	<i>0.13***</i>	<i>0.12</i>	<i>0.03</i>	<i>0.18***</i>	<i>0.23</i>	<i>0.02</i>
<i>Socio-economic background</i>	<i>−0.01</i>	<i>−0.02</i>	<i>0.02</i>	<i>0.01</i>	<i>0.02</i>	<i>0.01</i>
<i>Age</i>	<i>0.01</i>	<i>0.05</i>	<i>0.01</i>	<i>0.00</i>	<i>0.01</i>	<i>0.01</i>
<i>Children</i>	<i>−0.02</i>	<i>−0.02</i>	<i>0.03</i>	<i>−0.02</i>	<i>−0.02</i>	<i>0.02</i>
<i>Married/cohabitating</i>	<i>−0.14***</i>	<i>−0.12</i>	<i>0.03</i>	<i>−0.07***</i>	<i>−0.09</i>	<i>0.02</i>
	$r^2 = 0.04$			$r^2 = 0.06$		
Model 2						
Socio-economic status	−0.07***	−0.11	0.02	−0.04***	−0.09	0.01
Aspiration achievement T2-T4	−0.04***	−0.09	0.01	−0.03**	−0.08	0.01
<i>Female</i>	<i>0.12***</i>	<i>0.12</i>	<i>0.03</i>	<i>0.18***</i>	<i>0.22</i>	<i>0.02</i>
<i>Socioeconomic background</i>	<i>−0.01</i>	<i>−0.02</i>	<i>0.02</i>	<i>0.01</i>	<i>0.02</i>	<i>0.01</i>
<i>Age</i>	<i>0.01</i>	<i>0.05</i>	<i>0.01</i>	<i>0.00</i>	<i>0.01</i>	<i>0.01</i>
<i>Children</i>	<i>−0.02</i>	<i>−0.02</i>	<i>0.03</i>	<i>−0.02</i>	<i>−0.02</i>	<i>0.02</i>
<i>Married/cohabitating</i>	<i>−0.13***</i>	<i>−0.12</i>	<i>0.03</i>	<i>−0.07**</i>	<i>−0.08</i>	<i>0.02</i>
	$r^2 = 0.05$			$r^2 = 0.07$		

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . Variables in italics are covariates.

An additional set of mediation analyses similar to those presents in Table 3 was conducted to provide information about processes that may be in play when focusing on the relationship between socioeconomic status and *changes* in mental health. For this purpose, analyses were conducted controlling for mental health at T4 for the same measures at T2, as according to the regressor variable method of change. The results of these analyses, presented in Table 4, showed fairly similar results compared to analyses without control for prior mental health: even though the regression coefficients between socioeconomic status and mental health in Step 1 were somewhat lower than in Table 3, they still remained significant. Moreover, aspiration achievement was – as in the previous mediation analyses – significantly related to both depression and anxiety symptoms (Step 3). Likewise, the regression coefficients for the relationship between socioeconomic status and mental health were reduced when aspiration achievement was included in the analyses. The Sobel's test indicated that part of the relationship between socioeconomic status and change in depressive symptoms ( $t = 2.87$ ,  $p < 0.01$ ) was mediated by aspiration achievement. However, for anxiety symptoms, the mediation test was only marginally significant ( $t = 1.96$ ,  $p = 0.05$ ).

#### *Additional analyses*

To examine the possibility of non-linear relationships between aspiration achievement and the dependent variables, equations with quadratic terms were applied. The

Table 4. Linear regressions with mental health as dependent variable. Models 1 include predictors, mental health at T2 and covariates as independent variables. Models 2 in addition include aspiration achievement.

	Depressive symptoms			Anxiety symptoms		
	<i>B</i>	Beta	SE	<i>B</i>	Beta	SE
Model 1						
Socio-economic status	−0.06***	−0.11	0.02	−0.04**	−0.08	0.01
<i>Mental health at T2</i>	0.26***	0.27	0.02	0.25***	0.29	0.02
<i>Female</i>	0.06*	0.05	0.03	0.10***	0.13	0.02
<i>Socio-economic background</i>	−0.02	−0.02	0.02	0.01	0.03	0.01
<i>Age</i>	0.00	0.01	0.01	0.00	0.01	0.01
<i>Children</i>	−0.04	−0.03	0.03	−0.02	−0.02	0.02
<i>Married/cohabitating</i>	−0.12***	−0.10	0.03	−0.06**	−0.07	0.02
	$r^2 = 0.11$			$r^2 = 0.13$		
Model 2						
Socio-economic status	−0.05***	−0.09	0.02	−0.03**	−0.07	0.01
Aspiration achievement T2-T4	−0.03**	−0.08	0.01	−0.02**	−0.07	0.01
<i>Mental health at T2</i>	0.25***	0.27	0.02	0.25***	0.28	0.02
<i>Female</i>	0.05*	0.05	0.03	0.10***	0.13	0.02
<i>Socio-economic background</i>	−0.01	−0.02	0.02	0.01	0.03	0.01
<i>Age</i>	0.00	0.01	0.01	0.00	0.01	0.01
<i>Children</i>	−0.04	−0.03	0.03	−0.02	−0.03	0.02
<i>Married/cohabitating</i>	−0.12***	−0.10	0.03	−0.06**	−0.07	0.02
	$r^2 = 0.12$			$r^2 = 0.14$		

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . Variables in italics are covariates.

quadratic term was statistically significant for anxiety symptoms both when not controlling for anxiety symptoms at T2 ( $B = 0.01$ , Beta = 0.08, SE = 0.00,  $t = 3.44$ ,  $p < 0.001$ ) and when controlling for it ( $B = 0.01$ , Beta = 0.08, SE = 0.00,  $t = 3.24$ ,  $p < 0.01$ ). Hence, the results indicate a u-shaped curvilinear relationship between aspiration achievement and anxiety symptoms, where those with the highest and lowest levels of aspiration achievement had higher levels of anxiety symptoms than those with average levels of aspiration achievement. Comparisons of the model fits revealed positive support for the models with the quadratic terms over the linear models in both the model without (difference in BIC = 4.43) and with control for anxiety symptoms at T2 (difference in BIC = 3.15).

Regarding depressive symptoms, a significant quadratic relationship was found when depressive symptoms at T2 was not controlled for ( $B = 0.01$ , Beta = 0.06, SE = 0.01,  $t = 2.33$ ,  $p < 0.05$ ). Comparisons of the models revealed weak support for the linear model over that with the quadratic term, with a somewhat higher BIC for the linear model (difference in BIC = 1.95). The quadratic term was not significant in the model with control for depressive symptoms at T2 ( $p > 0.05$ ), and comparisons of the models showed positive support for the linear model (difference in BIC = 4.24).

None of the scores on the variance inflation factor exceeded 10, which has been suggested as the level at which multicollinearity threatens the validity of regression

models (Myers 1990). No interaction effects between gender and aspiration achievement were found (all  $ps > 0.05$ ), thereby indicating that the relationships between aspiration achievement and mental health were similar for men and women.

Moreover, BIC values indicated that models including aspiration achievement as independent variable had better fit than models where occupational status was included instead (difference in BIC = 6.78 for depressive symptoms and difference in BIC = 3.91 for anxiety symptoms).

## Discussion

In this population-based longitudinal study, we investigated whether aspiration achievement was a factor in the relationship between socioeconomic status and mental health. The analyses showed that aspiration achievement was significantly related to socioeconomic status and to the indicators of mental health, both when symptoms of depression and anxiety in young adulthood were the dependent variables, and when changes in symptoms of depression and anxiety from adolescence to adulthood were the dependent variables. A curvilinear relationship between aspirations achievement and anxiety symptoms was found, suggesting that both high and low levels of aspiration achievement are associated with increased levels of anxiety symptoms. We also found support for aspiration achievement as a mediator in the relationship between socioeconomic status and mental health. However, aspiration achievement explained only some of this relationship, thereby indicating that other factors are also of importance.

### *Aspiration achievement and socioeconomic status*

Socio-economic status was significantly related to symptoms of depression and anxiety. The strength of the relationships in the current study was in accordance with findings from a previous Norwegian study (Bjelland *et al.* 2008). Existing theories on the relationship between socioeconomic status and mental health propose that different socioeconomic positions involve different exposure to stressors, such as material factors, self-regard, and perceived opportunities (Pearlin 1989, Marmot 2004). This view may be too simplistic when it comes to factors such as self-regard and the evaluation of one's personal position. The findings in this study suggest that the evaluation of a position not only depends on its location in the social hierarchy, but also on its relation to the individual's previous aspirations. In theory, a relatively low position can be satisfactory if it corresponds with aspirations, and a relatively high position can be unsatisfactory if it is lower than previous expectations.

However, this study also shows that aspiration achievement and socioeconomic status are related, suggesting that aspiration achievement varies according to socioeconomic status. Thus, a low position not only means lower income and status than others, as previous studies have found, but also an increased probability of not living up to personal standards for occupational achievement. A high social position, however, increases the probability of having achieved aspirations and realized other positive outcomes such as high income and status.

### ***Occupational aspirations and achievement***

A relatively high percentage of the respondents in the present study achieved an occupation that matched their aspirations. This suggests that occupational aspirations can be realistic, and supports theories on the importance of rational considerations of existing possibilities for occupational aspirations. Approximately one third of the respondents failed to achieve their occupational aspirations. This finding adds weight to Furlong and Cartmel's (2007) concern about aspiration levels among young people, and their description of contemporary western societies as characterized by high expectations for young people's occupational achievement. The present study cannot, however, determine whether young people's aspirations stem from beliefs about their prospects of occupational attainment, nor can it ascertain whether these beliefs have become more common, as Furlong and Cartmel claim. To examine these questions, population-based data on levels of aspirations over past decades would have been necessary.

The present study confirms that socioeconomic background and academic performance are related to aspirations. This result accords with previous findings (Hanson 1994, Creed *et al.* 2007) and with theoretical propositions by Goldthorpe (2000). Whereas the importance of academic performance points to aspirations being based on realistic considerations, socioeconomic background as a predictor of aspirations may reflect both realistic considerations and unrealistic beliefs. A high socioeconomic background does not guarantee strong academic performance, which is vital for educational attainment and thus occupational achievement. Hence, for youths with high socioeconomic background and poor school grades, aspiring to the same occupational level as their parents may be unrealistic.

However, the present study also found that socioeconomic background correlated with aspiration achievement, suggesting that those from higher socioeconomic backgrounds not only have higher aspirations, but reach them to a somewhat greater degree than those from lower socioeconomic backgrounds. This may imply that socioeconomic background influences occupational achievement through differences in financial resources, as Goldthorpe (2000) suggests.

### ***Aspiration achievement and mental health***

The observed relationship between aspiration achievement and mental health suggests that achieving occupational aspirations is beneficial for mental health. This is in accordance with the Multiple Discrepancy Theory of Michalos (1985). The theory proposes that comparisons between an actual situation and standards, such as aspirations and desires influence well-being. Comparisons between achieved occupation and previous aspirations may be vital for mental health, both because research has found that aspirations are particularly important as comparison standards (Campbell 1976, Ross *et al.* 1986), and because failing to achieve occupational aspirations could have wide-ranging consequences and influence areas such as economic situation, status and working conditions.

The formation of occupational aspirations in adolescence may also aid in explaining the importance of achieving occupational aspirations. The level of occupational aspirations is related to socioeconomic background and academic performance (Jacobs *et al.* 1991, Hanson 1994, Creed *et al.* 2007), and probably also

to culturally and socially defined goals (Merton 1957, Furlong and Cartmel 2007). This means that failing to achieve occupational aspirations involves an inability to meet personal standards, or those set by family and society, which could induce feelings of failure.

The respondents in this study have only recently started their careers, and we do not know whether the relationship between aspiration achievement and mental health will change when the respondents grow older. The relationship could weaken as people become accustomed to their achieved socioeconomic status, or could remain the same. The financial and occupational consequences of socioeconomic status may be a reminder of either failure or success in aspiration achievement, constantly influencing mental health. Indeed, the connection could strengthen with age as beliefs about achieving unfulfilled aspirations, which may have provided protection from the negative effects of not realizing aspirations, become increasingly difficult to retain.

The finding of a curvilinear relationship between aspiration achievement and anxiety symptoms is in line with theoretical propositions regarding status inconsistency and social mobility (Lenski 1954, 1956, Blau 1956). These theories concern divergence between positions in various status hierarchies, and do not explicitly address aspiration achievement. However, the theories imply that inconsistency between aspirations and achievement, regardless of direction, is negative for mental health.

Regarding depressive symptoms, a linear rather than a curvilinear relationship was found, indicating that depression symptoms decrease as aspiration achievement increases. This means that the findings regarding anxiety symptoms suggest negative consequences of high levels of aspiration achievement, whereas the findings for depressive symptoms do not. The reason for this divergence may be differences between the dependent variables. Anxiety symptoms, as measured in this paper, involve fear, worry and uneasiness (Derogatis *et al.* 1974), whereas depression symptoms involve tiredness, sadness and hopelessness (Kandel and Davies 1982). A higher occupational position than expected probably involves greater demands and responsibility, which could more strongly affect feelings such as fear, worry and uneasiness than those such as tiredness, sadness and hopelessness. Therefore, some may react with anxiety when surpassing their occupational aspirations.

### ***Limitations of the study***

Although the current study has several strengths, including a relatively large sized population based sample, a long-term longitudinal design and inclusion of male as well as female participants, several limitations have to be noted. First, a relatively large number of respondents could not be included in the analyses. For instance, several respondents were excluded because they had not finished their education. Examination of the data showed selective attrition in some areas, which may have affected the representativeness of the results.

Second, because of the nonexperimental nature of the study, the causal relationship between socioeconomic status, aspiration achievement, and mental health could not be definitely delineated. By including several relevant covariates and measures of mental health at a prior time, the effect of some potentially confounding variables was accounted for. However, other variables could still be alternative



explanations for the relationship between socioeconomic status and mental health. For instance, physical health problems may function in this way, explaining socioeconomic status, aspiration achievement and mental health. Unfortunately, the available data do not include measures of somatic health problems. Moreover, the temporal order between aspiration achievement and mental health is not clearly determined, since aspiration achievement is partly constructed by variables measured at T4, the same time as mental health is assessed. Thus, the possibility of reversed causation, where mental health causes aspiration achievement, cannot be excluded.

Third, it has been shown that the regressor variable method used in this article to model change in mental health in some cases does not adjust properly for differences between groups at the first time of measurement (Allison 1990, Johnson 2005). If differences in mental health at T2 between respondents with high or low levels of aspiration achievement are not properly controlled for, the differences in change in mental health from T2 to T4 could be exaggerated, possibly leading to a Type I error. The change score method, where the change in the dependent variables is regressed on change in time-inconsistent independent variables, has been suggested as an alternative method to measure change (Allison 1990, Johnson 2005). However, also this approach has weaknesses, such as the low reliability of change scores (e.g. Linn and Slinde 1977).

The lack of data on respondents beyond their early adulthood is another limitation. The number of respondents who reach their aspirations later in life is unknown. This could be important because the occupational aspirations were based on, and measured in terms of, expectations for the age of 40, but actual occupational achievements were assessed when the respondents were in their late 20s. Using this 'pre-mature' measure of what the respondents have accomplished occupationally could produce a result showing a lower average level of aspiration achievement than might actually prove to be the case. To examine the relationship between aspiration achievement and mental health through adulthood and to investigate whether more people reach their aspirations when they are older, longitudinal studies that include adults are needed.

## **Conclusion**

Drawing on longitudinal data from a survey linked to register data, this study finds that aspiration achievement was related to both mental health and socioeconomic status. Moreover, the results supported aspiration achievement being a mediator in the relationship between socioeconomic status and mental health, even though aspiration only explained part of the relationship. The study's strengths are the use of longitudinal data and the introduction of aspiration achievement as a factor associated with socioeconomic status and mental health.

Research on the relationship between aspiration achievement and mental health is needed to confirm the findings in this article. Furthermore, Michalos' (1985) notion of the importance of aspirations as comparison standards may well apply to a range of variables. This article has dealt with aspirations for paid employment, and other kinds of aspirations have not been investigated. Future studies examining how aspiration achievement in various aspects of life might relate to both socioeconomic status and mental health could prove beneficial.

## References

- Adkins, D.E., *et al.*, 2009. Structure and stress: trajectories of depressive symptoms across adolescence and young adulthood. *Social forces*, 88, 31–60.
- Allison, P.D., 1990. Change scores as dependent variables in regression analysis. *Sociological methodology*, 20, 93–114.
- Andersen, I., *et al.*, 2009. Social inequality in the prevalence of depressive disorders. *Journal of epidemiology and community health*, 63, 575–581.
- Baron, R.M. and Kenny, D.A., 1986. The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 51, 1173–1182.
- Bjelland, I., *et al.*, 2008. Does a higher educational level protect against anxiety and depression? The HUNT study. *Social science and medicine*, 66, 1334–1345.
- Blalock, H.M., Jr., 1966. The identification problem and theory building: the case of status inconsistency. *American sociological review*, 31, 52–61.
- Blalock, H.M., Jr., 1967. Status inconsistency and interaction: some alternative models. *The American journal of sociology*, 73, 305–315.
- Blau, P.M., 1956. Social mobility and interpersonal relations. *American sociological review*, 21, 290–295.
- Brown, W.C., Cretser, G.A., and Lasswell, T.E., 1988. Measuring status inconsistency: more trouble than it's worth? *Sociological perspectives*, 31, 213–237.
- Butterworth, P., Rodgers, B., and Windsor, T.D., 2009. Financial hardship, socio-economic position and depression: results from the PATH through life survey. *Social science and medicine*, 69, 229–237.
- Campbell, A., Converse, P.E., and Rodgers, W.L., 1976. *The quality of American life: perceptions, evaluations, and satisfactions*. New York: Russell Sage Foundation.
- Carr, D., 1997. The fulfillment of career dreams at midlife: does it matter for women's mental health? *Journal of health and social behavior*, 38, 331–344.
- Creed, P.A., Patton, W., and Prideaux, L.A., 2007. Predicting change over time in career planning and career exploration for high school students. *Journal of adolescence*, 30, 377–392.
- Dalgard, O.S., 2008. Social inequalities in mental health in Norway: possible explanatory factors. *International journal for equity in health*, 7, 8.
- Derogatis, L.R., 1982. *SCL-90 administration, scoring and procedures manual-I*. Baltimore, MD: Procedures Psychometric Research.
- Derogatis, L.R., *et al.*, 1974. The Hopkins Symptom Checklist (HSCL). *Behavioral science*, 19, 1–15.
- Esping-Andersen, G., 1999. *Social foundations of postindustrial economies*. Oxford: Oxford University Press.
- Fryers, T., Melzer, D., and Jenkins, R., 2003. Social inequalities and the common mental disorders-a systematic review of the evidence. *Social psychiatry and psychiatric epidemiology*, 38, 229–237.
- Furlong, A. and Cartmel, F., 2007. *Young people and social change: new perspectives*. Maidenhead: McGraw-Hill/Open University Press.
- Goldthorpe, J.H., 2000. *On sociology: numbers, narratives, and the integration of research and theory*. Oxford: Oxford University Press.
- Goyette, K.A., 2008. College for some to college for all: social background, occupational expectations, and educational expectations over time. *Social science research*, 37, 461–484.
- Hansen, M.N., 2005. Inequality in educational attainment-choice, academic performance and social settings. *Tidsskrift for Samfunnsforskning*, 46, 133–157.
- Hansen, M.N., 2010. Educational policy and inequality. Recruitment to higher education 1985–1996. *Tidsskrift for Samfunnsforskning*, 51, 101–133.
- Hanson, S.L., 1994. Lost talent: unrealized educational aspirations and expectations among US youths. *Sociology of education*, 67, 159–183.
- Hope, K., 1975. Models of status inconsistency and social-mobility effects. *American sociological review*, 40, 322–343.
- Hornung, C.A., 1977. Social status, status inconsistency and psychological stress. *American sociological review*, 42, 623–638.

- International Labour Office, 1988. *ISCO-88-international standard classification of occupations* [online]. International Labour Office. Available from: <http://www.ilo.org/public/english/bureau/stat/isco/index.htm> [Accessed 2 April 2008].
- Jackson, E.F. and Curtis, R.F., 1972. Effects of vertical mobility and status inconsistency: a body of negative evidence. *American sociological review*, 37, 701–713.
- Jacobs, J.A., Karen, D., and McClelland, K., 1991. The dynamics of young men's career aspirations. *Sociological forum*, 6, 609–639.
- Johnson, L., 1995. A multidimensional-analysis of the vocational aspirations of college-students. *Measurement and evaluation in counseling and development*, 28, 25–44.
- Johnson, D., 2005. Two-wave panel analysis: comparing statistical methods for studying the effects of transitions. *Journal of marriage and family*, 67, 1061–1075.
- Kandel, D.B. and Davies, M., 1982. Epidemiology of depressed mood in adolescents: an empirical study. *Archives of general psychiatry*, 39, 1205–1212.
- Kessler, R.C., et al., 2005. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey replication. *Archives of general psychiatry*, 62, 593–602.
- Lenski, G.E., 1954. Status crystallization: a non-vertical dimension of social status. *American sociological review*, 19, 405–413.
- Lenski, G.E., 1956. Social participation and status crystallization. *American sociological review*, 21, 458–464.
- Linn, R.L. and Slinde, J.A., 1977. The determination of the significance of change between pre- and posttesting periods. *Review of educational research*, 47, 121–150.
- Lorant, V., et al., 2003. Socioeconomic inequalities in depression: a meta-analysis. *American journal of epidemiology*, 157, 98–112.
- Lundberg, J., Kristenson, M., and Starrin, B., 2009. Status incongruence revisited: associations with shame and mental wellbeing. *Sociology of health and illness*, 31, 478–493.
- Marmot, M.G., 2004. *Status syndrome: how your social standing directly affects your health and life expectancy*. London: Bloomsbury.
- Merton, R.K., 1957. *Social theory and social structure*. Glencoe, IL: Free Press.
- Michalos, A.C., 1985. Multiple discrepancies theory (MDT). *Social indicators research*, 16, 347–413.
- Myers, R., 1990. *Classical and modern regression with applications*. 2nd ed. Boston, MA: Duxbury.
- Patton, W. and Creed, P., 2007. The relationship between career variables and occupational aspirations and expectations for Australian high school adolescents. *Journal of career development*, 34, 127–148.
- Pearlin, L.I., 1989. The sociological study of stress. *Journal of health and social behavior*, 30, 241–256.
- Pearlin, L.I., et al., 1981. The stress process. *Journal of health and social behavior*, 22, 337–356.
- Pedersen, W., 2007. Childbirth, abortion and subsequent substance use in young women: a population-based longitudinal study. *Addiction*, 102, 1971–1978.
- Reynolds, J., et al., 2006. Have adolescents become too ambitious? High school seniors' educational and occupational plans, 1976 to 2000. *Social problems*, 53, 186–206.
- Ross, M., Eyman, A., and Kishchuck, M., 1986. Determinants of subjective well-being. In: J.M. Olson, C.P. Herman, and M.P. Zanna, eds. *Relative deprivation and social comparison: the Ontario symposium*. Hillsdale, NJ: Lawrence Erlbaum, 79–94.
- Schoon, I., Martin, P., and Ross, A., 2007. Career transitions in times of social change. His and her story. *Journal of vocational behavior*, 70, 78–96.
- Schoon, I. and Parsons, S., 2002. Teenage aspirations for future careers and occupational outcomes. *Journal of vocational behavior*, 60, 262–288.
- Sewell, W.H. and Shah, V.P., 1968. Parents' education and children's educational aspirations and achievements. *American sociological review*, 33, 191–209.
- Slocum, W.L. 1974. *Occupational careers: a sociological perspective*. Chicago, IL: Aldine.
- Sobel, M.E., 1982. Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological methodology*, 13, 290–312.
- Talala, K., et al., 2008. Socio-demographic differences in self-reported psychological distress among 25- to 64-year-old Finns. *Social indicators research*, 86, 323–335.

- The Norwegian Labour and Welfare Service, 2005. *Report on unemployment in 2005: monthly statistics number 12/December 2005* [Rapport fra Nav om arbeidsledighet i 2005: Månedstatistikk om arbeidsmarkedet Nr 12/desember 2005][online]. Available at: [http://www.nav.no/Om + NAV/Tall + og + analyse/Arbeidsmarked/Arbeidsmarkedet/\\_attachment/805377492?&ts=1181c430488](http://www.nav.no/Om+NAV/Tall+og+analyse/Arbeidsmarked/Arbeidsmarkedet/_attachment/805377492?&ts=1181c430488) [Accessed 1 October 2011].
- Whitt, H.P., 1983. Status inconsistency: a body of negative evidence or a statistical artifact? *Social forces*, 62, 201–233.
- Zimmerman, F.J. and Bell, J.F., 2006. Income inequality and physical and mental health: testing associations consistent with proposed causal pathways. *Journal of epidemiology and community health*, 60, 513–521.
- Zimmerman, F.J., Christakis, D.A., and Vander Stoep, A., 2004. Tinker, tailor, soldier, patient: work attributes and depression disparities among young adults. *Social science and medicine*, 58, 1889–1901.