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Education and psychological distress in adolescence and mid-life: Do private schools make a difference?

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This article extends the evidence base on childhood circumstances, education and psychological distress. We examine the link between childhood advantage and disadvantage, the type of school attended during adolescence and psychological distress at ages 16 and 42. The analysis uses a large, population-based birth cohort study, the 1970 British Cohort Study (BCS70) ($n = 17,198$) using a structural equation modelling (SEM) approach. More advantaged young people were more likely to attend private schools, but we find no evidence for an effect of private schooling on psychological distress for men, and for women there was an association between private schooling and raised psychological distress at age 16. Having a university degree was associated with a modest reduction in psychological distress in mid-life. We establish that maternal psychological distress at age 10 was a risk factor for the offspring's psychological distress both in adolescence and in mid-life, and adolescent psychological distress predicts psychological distress in mid-life. We conclude that schools which are academically successful do not necessarily provide wider benefits in terms of mental health.

Keywords: psychological distress; education; private school; longitudinal; BCS70

Introduction

Both psychological distress and educational attainment are areas of vital public policy concern, and the two factors appear to be linked. While the role of private schools varies internationally (Cookson & Persell, 2008; Jerrim *et al.*, 2015; Sakellariou, 2017; Green, 2020) in the UK context, young people who attend private schools tend to come from relatively privileged backgrounds, and private schools are associated with higher levels of educational and occupational attainment than state schools, over and above measured selectivity into these schools (Parsons *et al.*, 2017; Sullivan *et al.*, 2018). This makes the UK an interesting test case for the question of whether private schools are linked to mental health. Differences in school quality outside the UK may be less related to the public/private distinction (Jennings *et al.*, 2015). Mental health has become a pressing policy concern, as evidence shows a secular trend for

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increasing psychological distress over time and across the generations (Sacker & Wiggins, 2002; Twenge, 2017; Patalay & Gage, 2019). During the life course, psychological distress has peaks in both adolescence and mid-life (Ploubidis *et al.*, 2017).

Parents are commonly assumed to be at least as concerned about their children's wellbeing as they are about the academic outcomes of schooling. Strong claims are sometimes made for the social benefits of certain types of schooling (e.g. the claim that private schooling fosters self-confidence and high aspirations, or the concern that behavioural issues are more common at comprehensives) (AQR International, 2017). Some evidence suggests there is no link between school performance measured in terms of academic attainment and school wellbeing measures (Gibbons & Silva, 2011). Despite growing acknowledgement of the importance of non-cognitive skills (Cunha & Heckman, 2008), questions regarding psychological distress and wellbeing have been sorely neglected in the educational research literature relative to questions of educational attainment.

This article examines psychological distress in adolescence and adulthood in a large, nationally representative study, the 1970 British Cohort Study (BCS70). We address the question of whether the type of school attended had any short or long-term influence on psychological distress for men and women. We also examine the pathways from childhood socioeconomic circumstances to adult psychological distress via a range of cognitive, psychological and educational factors. BCS70 is exceptionally rich in data on both psychological and cognitive development. We exploit unique features of the dataset, including the presence of measures of psychological distress in both adolescence and mid-life, as well as maternal psychological distress in childhood.

Psychological distress and education

In the UK context, private secondary schools have traditionally charged very high fees, which have increased over time, rising from 20% of median household income in 1980 to 50% in 2012 (Green *et al.*, 2018). Private secondary day school fees represent over twice the average amount spent on state pupils (Green *et al.*, 2017); in the 1980s, private schools were very well resourced compared to state schools, and the gap has since widened. Parents choosing to pay private school fees clearly believe that the quality of education (however defined) at a private school is sufficiently superior to the free education on offer at a state school to make the outlay worthwhile. A larger proportion of secondary schools are selective on prior cognitive attainment, and children who attend private schools have been shown to gain higher levels of educational qualifications and labour market outcomes compared to state-educated pupils, conditioning on childhood circumstances and prior cognitive scores (Henderson *et al.*, 2019). It has been hypothesised that part of the labour market advantage may be due to the promotion of greater 'soft skills' in the private sector (Green *et al.*, 2017).

We hypothesise that private schooling could influence mental health outcomes both in the short term and in the longer term, and both directly and indirectly. In the short term, we may expect that the greater resources enjoyed by private schools should provide higher 'school quality', which could have psychological as well as educational benefits. Private schools promote the idea that they provide psychological

benefits for individual pupils such as self-confidence and resilience (AQR International, 2017), which should in turn lead to a direct protective effect. Smaller class sizes should allow for more individual attention including pastoral care, but the effects of boarding (still quite common in the 1980s) and peer group pressures specific to the high-socioeconomic status (SES) children attending private schools means that the expected overall direct effect is uncertain. Indirectly, the selection of children with higher cognitive abilities might be expected to lead to private school children being better able to cope with stressful life events.

Such short-term effects on mental health at 16 may then be reflected long term in adulthood; private schooling could also mediate the relationship between privileged childhood circumstances and reduced psychological distress. Indirect effects are likely via high levels of educational attainment and labour market success. Moreover, if education is a protective factor against depression, then high-quality schooling may also be protective.

Evidence on these potential effects of school type or school quality on mental health is scarce and inconclusive. Bann *et al.* (2017) find that attending a private secondary school is associated with favourable health outcomes and health behaviours. Sansani (2011) finds a relationship between school quality and mortality. Remarkably little research considers school quality or type in relation to long-term mental health outcomes, though Sullivan *et al.* (2012) found somewhat raised levels of psychological distress in adulthood for men who had been to single-sex schools in the private and grammar school sectors.

There is, however, a wider, more relevant literature which considers cognitive and educational attainment and mental health. High levels of academic qualifications are associated with a reduced risk of psychological distress (Feinstein & Bynner, 2004; Hatch *et al.*, 2007; Gale *et al.*, 2009), although the claim that there is a causal 'protective effect' of education against depression has been challenged (Viinikainen *et al.*, 2018). Education can be seen as a positional good, operating via improved employment options and social status (Hirsch, 2005) and as an absolute good which improves efficacy and problem-solving (Mirowsky, 2017). Each of these mechanisms may lead to reduced psychological distress (Hatch *et al.*, 2007; Levecque *et al.*, 2011; Bracke *et al.*, 2014; Velten *et al.*, 2014).

Inter-relationships between cognitive scores, educational attainment and depression are complex, and may vary by sex. Rates of depression in the general population are consistently higher for women than for men from adolescence onwards (Kessler, 2003; Drapeau *et al.*, 2014). As children move into adolescence, the prevalence of depression increases substantially among girls, though not among boys (Patalay & Fitzsimons, 2018). The relationship between educational attainment and psychological distress may be reciprocal, and psychological distress in adolescence is associated with reduced school achievement (Rothon *et al.*, 2009).

Childhood cognitive scores are predictive of reduced psychological distress in the 1958 and 1970 British cohorts (Gale *et al.*, 2009). Hatch *et al.* (2007) find that, for women but not for men in the 1946 birth cohort study, childhood cognitive ability has a direct negative association with adult symptoms of anxiety and depression, taking educational attainment into account. In contrast, past work on the British 1958

and 1970 cohorts has shown that receipt of higher education appears to be protective for both women and men (Ploubidis *et al.*, 2017).

Data and sample

To contribute evidence for both direct and indirect effects of private secondary schooling we utilise BCS70, which follows the lives of 17,198 people born in Britain in a single week of 1970 (Elliott & Shepherd, 2006). Since the birth survey, there have been eight surveys, at ages 5, 10, 16, 26, 30, 34, 38 and 42. In 2012 (at age 42) 9,841 study members participated. Despite attrition, the study remains broadly representative of the original sample's characteristics (Mostafa & Wiggins, 2015). The BCS70 datasets are fully documented at www.cls.ioe.ac.uk/bcs70, and are available to download from the UK Data Archive.

Our analytical sample consists of 5,343 women and 5,173 men who had a full set of birth characteristics and information on whether they attended a private or state-funded school at age 16. We use multiple imputation (MI) to handle attrition and item nonresponse, adopting a chained equations approach (White *et al.*, 2011) under the assumption of 'missing at random' (MAR), which implies that the most important predictors of missing data are included in our models. In order to maximise the plausibility of the MAR assumption, we also included a set of auxiliary variables in our imputation model. All reported analyses are averaged across 20 replicates based on Rubin's rule for the efficiency of estimation under a reported degree of missingness across the whole data of around 0.20 (Little & Rubin, 2002).

Analytical strategy

We take a life course approach (Elder, 1994) to the development of psychological distress, using structural equation modelling (SEM) (Kline, 2015) with MPlus (Muthén & Muthén, 1998–2010) to track the pathways from earlier circumstances and characteristics to later outcomes. We examine pathways from childhood circumstances to mid-childhood psychological adjustment, type of secondary school attended, psychological distress at 16, educational attainment and psychological distress at 42.

We use the cohort member's responses on the Malaise Inventory of psychological distress—a self-completion scale of emotional and somatic symptoms (Rodgers *et al.*, 1999). Psychological distress relates to depression as an underlying continuous measure to a binary classification. Psychological distress is measured on a continuous scale, whereas depression refers to a clinically diagnosable condition, typically treated as binary (depressed or not depressed). Scales of psychological distress, including the malaise scale, have conventional cut-offs at which point the individual is deemed to be at high risk of being depressed.

We use cohort member malaise scores captured at the ages of 16 (22 item self-completion) and 42 (9 item self-completion). The mother's score on the malaise inventory was measured in 1980, when the child was age 10 (24 item self-completion). Unfortunately, BCS70 does not include any measure of the father's mental health, unlike more recent cohorts (Fitzsimons *et al.*, 2017). Representative items enquire whether respondents often 'feel miserable and get depressed', 'get worried about

things' and 'get easily upset or irritated'. The malaise inventory has been shown to have good psychometric properties (McGee *et al.*, 1986) and is valid for use in population samples (McGee *et al.*, 1986; Rodgers *et al.*, 1999; Stuart-Smith *et al.*, 2017). The 9-item version of the scale has been shown to have good internal reliability and to correlate highly with longer versions of the instrument (Ploubidis *et al.*, 2017).

Socioeconomic status is conceived as a composite latent variable defined by occupational social class (Registrar General), mother's and father's age on leaving full-time education, highest parental qualification and maternal marital status at the time of the cohort member's birth.

Position in the birth order (parity) is included as an additional birth characteristic. Previous literature has linked the number of older siblings to both reduced cognitive attainment (Sullivan *et al.*, 2013) and depression in childhood (Gates *et al.*, 1988), but also to lower levels of behavioural difficulties (Sullivan *et al.*, 2010).

Maternal depression has been linked to a range of negative cognitive, psychological and health outcomes in youth (Downey & Coyne, 1990; Augustine & Crosnoe, 2010; Goodman *et al.*, 2011; Turney, 2011; Sullivan *et al.*, 2013), but the consequences have rarely if ever been tracked into adulthood. Examining the long-range influence of maternal depression during childhood using large-scale nationally representative population data is a novel feature of the current article.

At age 10, psychological variables relating to the cohort member include the CARALOC locus of control scale (Nowicki & Strickland, 1973; Gammage, 1975) and the LAWSEQ self-esteem scale (Lawrence, 1981), both reported by the child. Items on the CARALOC scale include 'Is a high mark just a matter of luck for you?'. Items on the LAWSEQ scale include 'Do you often feel lonely at school?'. The Rutter behavioural scale (Rutter *et al.*, 1970) captures externalising and internalising problems, and was reported by the mother. Items include 'Is squirmy or fidgety' and 'Often worried, worries about many things'. We use varimax principal components analysis (PCA) to extract a single main component score for cognition from eight cognitive tests administered in 1980. The resulting PCA score is standardised in our analyses. Full information on the BCS70 cognitive scores is provided by Parsons (2014).

The type of secondary school attended (from 11 to 16 years of age) was derived from the 1986 head teacher interview, or from 1986 School Census records or from recall data at age 42, as previously described (Sullivan *et al.*, 2014). Private primary schooling is not included in our models, as only 3% of the sample attended private primary schools, and 75% of these went on to attend private secondary schools. Finally, we include whether the respondent had achieved a university degree by age 42.

Results

First we describe the sample in terms of the variables used in the analysis and show the raw differences in psychological distress at 16 and 42 according to these variables. We then go on to present SEM models of psychological distress for men and women separately, using the WLSMV estimator.

Our SEM models are based on a set of hypothesised pathways. In order to estimate direct and indirect effects we adopt an approach described by MacKinnon *et al.*

(2007) in which each binary or ordinal variable is represented by a continuous under-lying latent propensity score and thus approximates a system of linear equations. To assess 'model fit' we adopt three conventional criteria for assessing model fit: root mean square error of approximation (RMSEA), comparative fit index (CFI) and Tucker–Lewis index (TLI) (Hu & Bentler, 1999; Brown, 2006). Typically, a model would be regarded as 'acceptable' if RMSEA < 0.08, CFI > 0.90 and TLI > 0.90.

Table 1 shows the characteristics of the sample for men and women separately, broken down according to whether the cohort member attended a state or private school at age 16. 6% of both women and men attended private secondary schools. Differences between state and private schools which are statistically significant at the 95% level are indicated in bold. Cohort members with advantaged childhood socioe-conomic circumstances were notably more likely to have attended a private school at age 16. Private school pupils were more likely to have parents in the higher social classes (62–65% professional or managerial compared to 20% in state schools), with higher ages on leaving full-time education and higher qualifications (50–52% with university degrees compared to 13% in state schools). The mothers of privately schooled pupils had lower mean levels of psychological distress when the child was aged 10. Also at age 10, those who were to attend private schools had higher cognitive scores, higher scores for locus of control and self-esteem, and lower scores on the Rut-ter scale of behavioural difficulties. Privately schooled cohort members were substan-tially more likely to gain a university degree by age 42 (62–65% compared to 19–20% of those who had attended state schools).

Table 2 shows mean standardised scores on the malaise scale of psychological dis-tress at age 16 and 42. At age 16, boys had lower psychological distress scores than girls, but there was no substantial difference between those at state or private schools, and this pattern persists in the malaise scores at age 42. In general, more privileged childhood circumstances are associated with lower psychological distress scores at age 16 and 42. Those lower down the birth order and those with mothers with high malaise scores also had higher malaise scores at both age 16 and 42. Favourable child-hood scores on cognitive attainment, locus of control, self-esteem and behavioural adjustment were associated with lower malaise scores in adolescence and mid-life.

Table 3 provides the correlations between our continuous measures separately for men and women. This shows that the pattern of correlations is broadly the same for men and women. The malaise variables (maternal malaise, malaise at 16 and 42) are positively correlated with each other and with the Rutter behavioural difficulties scale at age 10, and negatively correlated with cognitive scores, locus of control and self-es-teem at age 10. The highest correlations for both sexes are between locus of control, self-esteem and cognitive scores (all at age 10), ranging from 0.41 to 0.46. None of the correlations are high enough to indicate collinearity.

Figures 1 and 2 show SEM models of psychological distress at age 42 for women and men, respectively. In the interests of parsimony we only show path coefficients (and standard errors) that are statistically significant. Our model maps the connec-tions or pathways between a range of factors (labels in square brackets): socioe-conomic circumstances at birth [SES] and position in the birth order [Parity]; maternal depression [MMal10]; childhood cognitive scores [Cog 10], locus of control [Locus 10], self-esteem [Esteem 10] and behavioural difficulties at age 10 [Rutter 10];

Table 1. Characteristics by school type (imputed proportions and means)

	Males		Females			
	State	Private	State	Private	N	% Missing
Family characteristics						
RG social class (1970)						
I/II professional/managerial	**0.20**	**0.65**	**0.20**	**0.62**	10,516	0
III skilled non-manual	**0.31**	**0.23**	**0.31**	**0.24**		
III skilled manual	**0.33**	**0.09**	**0.32**	**0.11**		
IV or V partly skilled/unskilled	**0.16**	**0.03**	**0.17**	**0.03**		
Marital status (1970)						
Married/cohabiting	0.95	0.96	**0.94**	**0.98**	10,516	0
Single	0.05	0.04	**0.06**	**0.02**		
Age mother left FT education (1970)						
15	**0.67**	**0.17**	**0.67**	**0.25**	10,516	0
16–18	**0.28**	**0.50**	**0.28**	**0.50**		
19+	**0.05**	**0.32**	**0.05**	**0.25**		
Age father left FT education (1970)						
No father	0.05	0.04	**0.06**	**0.02**	10,373	1.4
15	**0.63**	**0.21**	**0.61**	**0.24**		
16–18	**0.24**	**0.36**	**0.25**	**0.37**		
19+	**0.08**	**0.40**	**0.08**	**0.37**		
Highest qualification (either parent) (1975)						
None	**0.37**	**0.07**	**0.38**	**0.05**	8692	17.3
O Levels	**0.17**	**0.06**	**0.17**	**0.09**		
A Levels	0.22	0.18	0.22	0.19		
Diploma	**0.10**	**0.17**	**0.10**	**0.17**		
Degree+	**0.13**	**0.52**	**0.13**	**0.50**		
Birth order (1970)						
1st born	0.39	0.39	0.41	0.40	10,516	0
2nd born	**0.34**	**0.41**	**0.32**	**0.41**		
3rd born or later	**0.27**	**0.20**	**0.27**	**0.19**		
Cohort member characteristics						
Degree (2012)	**0.19**	**0.62**	**0.20**	**0.65**	8577	18.4
Mean z-scores						
Mother malaise (1980)	**−0.01**	**−0.32**	**−0.01**	**−0.28**	6848	34.9
Rutter behavioural difficulties (1980)	**0.08**	**−0.07**	**−0.17**	**−0.35**	9203	12.5
Locus of control (1980)	**0.50**	**0.62**	**0.47**	**0.60**	8477	19.4
Self-esteem 10 (1980)	**0.64**	**0.71**	**0.57**	**0.66**	8506	19.9
Cognition (1980)	**0.08**	**10.04**	**0.03**	**0.95**	8108	22.9
Malaise (1986)	−0.19	−0.24	0.21	0.20	4458	57.6
Malaise (2012)	−0.09	−0.17	0.12	−0.01	7522	28.5
N (100%)	4862	311	5058	285		

Note: Bold indicates difference between state and private, statistically significant at $p < 0.05$.

whether the secondary school attended at age 16 was state or private [Private]; psychological distress at 16 [Mal 16]; gaining a university degree by age 42 [Degree]; and psychological distress at age 42 [Mal 42]. The models preserve the temporal ordering in our data.

Table 2.   Mean standardised psychological distress (malaise) scores at age 16 and 42 for all covariates

	Males		Females	
	Malaise 16	Malaise 42	Malaise 16	Malaise 42
School type (1986)				
State-funded (ref. cat.)	−0.19	−0.09	0.21	0.12
Private	−0.24	−0.17	0.20	−0.01
Family characteristics				
Social class (1970)				
I or II	−0.27	**−0.17**	**0.12**	**−0.01**
III non-manual	−0.22	**−0.10**	**0.16**	**0.08**
III manual	−0.13	−0.06	0.29	**0.14**
IV or V (ref. cat.)	−0.13	−0.03	0.31	0.28
Marital status (1970)				
Married/cohabiting (ref. cat.)	−0.20	−0.10	0.20	0.10
Single	−0.06	0.05	**0.42**	0.24
Age mother left FT education (1970)				
15 (ref. cat.)	−0.16	−0.06	0.25	0.17
16–18	−0.25	−0.14	0.15	0.03
19+	−0.29	−0.19	0.09	−0.08
Age father left FT education (1970)				
No father	−0.06	0.05	0.42	0.25
15 (ref. cat.)	−0.17	−0.06	0.21	0.15
16–18	−0.24	−0.15	0.18	**0.04**
19+	−0.26	−0.18	0.16	**−0.02**
Highest qualification (1975)				
None (ref. cat.)	−0.12	−0.02	0.28	0.22
O Levels	−0.19	−0.06	0.21	0.13
A Levels	−0.21	**−0.14**	0.16	**0.06**
Diploma	−0.26	−0.14	0.15	**0.02**
Degree+	−0.28	**−0.18**	0.15	**−0.01**
Birth order (1970)				
1st born (ref. cat.)	−0.23	−0.10	0.17	0.11
2nd born	−0.20	−0.12	0.19	0.08
3rd born or later	−0.12	−0.05	0.30*	0.16
Mother malaise (1980)				
Bottom quintile (ref. cat.)	−0.29	−0.22	0.12	−0.04
2nd	−0.23	−0.14	0.14	0.06
3rd	−0.22	−0.15	0.18	0.07
4th	−0.17	**−0.05**	0.24	**0.16**
Highest quintile	**−0.05**	**0.10**	0.38	0.33
Individual characteristics				
Rutter behavioural difficulties (1980)				
Bottom quintile (ref. cat.)	−0.37	−0.22	0.02	−0.07
2nd	−0.32	−0.19	0.13	0.03
3rd	−0.21	−0.10	**0.22**	**0.11**
4th	−0.18	**−0.07**	0.37	0.28
Highest quintile	0.03	**0.06**	**0.40**	**0.29**

Table 2. (Continued)

	Males		Females	
	Malaise 16	Malaise 42	Malaise 16	Malaise 42
Locus of control (1980)				
Bottom quintile (ref. cat.)	−0.03	−0.00	0.36	0.24
2nd	−0.12	−0.01	0.27	0.17
3rd	−0.14	−0.09	0.19	0.10
4th	**−0.24**	−0.11	**0.17**	**0.06**
Highest quintile	**−0.32**	**−0.20**	**0.07**	**−0.00**
Self-esteem (1980)				
Bottom quintile (ref. cat.)	0.07	0.05	0.42	0.27
2nd	−0.06	0.01	0.30	0.16
3rd	**−0.18**	−0.11	**0.17**	**0.09**
4th	**−0.25**	−0.11	**0.13**	**0.06**
Highest quintile	**−0.37**	**−0.20**	**0.02**	**−0.02**
Malaise (1986)				
Bottom quintile (ref cat)		−0.38		−0.25
2nd		**−0.23**		**−0.09**
3rd		**−0.09**		**0.00**
4th		**0.10**		**0.17**
Highest quintile		**0.40**		**0.48**
Degree (2012)				
No (ref cat)	−0.17	−0.05	0.24	0.16
Yes	−0.28	**−0.24**	0.12	**−0.06**
N	5173		5343	

Note: Some *z*-scores do not have a mean of zero as the *z* scores were derived for a larger sample than the analytic sample (*). Bold indicates difference from reference category, statistically significant at $p < 0.05$.

The goodness of fit for both models is regarded as 'satisfactory' (Bollen & Long, 1992). In both instances the CFI and TLI values of fit meet conventional criteria whereas the RMSEA values lie just outside of what is normally regarded as 'good fit'. Taken altogether, the model fit is judged to be acceptable (Lai & Green, 2016).

For both sexes, a higher childhood SES is directly associated with a range of advantageous factors: a lower number of older siblings; lower maternal psychological distress; a lower Rutter behavioural difficulties score; higher scores for cognitive attainment, locus of control and self-esteem at age 10; and a higher chance of attending a private secondary school.

There is a direct path from high SES to an increased chance of getting a university degree. Indirect paths for both sexes are channelled via cognitive scores at age 10, private schooling lower behavioural difficulties scores and higher locus of control and self-esteem.

The path from socioeconomic origins to increased psychological distress at both 16 and 42 is entirely indirect for both sexes. The mediators of this pathway are: maternal psychological distress; behavioural problems at age 10, self-esteem and locus of control at age 10; and cognitive scores and educational attainment.

Maternal psychological distress at age 10 is directly predictive of negative outcomes for children at age 10: lower cognitive scores, locus of control and self-esteem, and

Table 3.   Correlation matrix of continuous variables

	Rutter 10	Locus of control 10	Self-esteem 10	Cognitive 10	Mother malaise 10	Malaise 16	Malaise 42
Women (*n* = 5,343)							
Rutter 10	1						
Locus of control 10	−0.14	1					
Self-esteem 10	−0.17	0.46	1				
Cognitive 10	−0.20	0.46	0.22	1			
Mother malaise 10	0.31	−0.13	−0.11	−0.16	1		
Malaise 16	0.15	−0.11	−0.15	−0.11	0.10	1	
Malaise 42	0.14	−0.09	−0.09	−0.12	0.13	0.27	1
Men (*n* = 5173)							
Rutter 10	1						
Locus of control 10	−0.14	1					
Self-esteem 10	−0.16	0.41	1				
Cognitive 10	−0.20	0.45	0.24	1			
Mother malaise 10	0.30	−0.13	−0.11	−0.19	1		
Malaise 16	0.15	−0.10	−0.15	−0.10	0.08	1	
Malaise 42	0.11	−0.08	−0.08	−0.10	0.11	0.27	1

Note: All correlations statistically significant at $p \leq 0.01$.

higher levels of behavioural difficulties. Over and above this, there is a direct association between maternal psychological distress when the child is aged 10 and psychological distress at age 42.

For both sexes, behavioural difficulties at 10 in turn predict higher psychological distress at 16. Higher cognitive scores, locus of control and self-esteem at 10 predict lower levels of psychological distress at 16.

For women, being at a private secondary school predicts higher levels of psychological distress at age 16, compared to being at a state school, and there is an indirect effect on psychological distress at age 42. No such difference is apparent for men.

At age 42 there are direct paths for both sexes to psychological distress from: having a university degree (which is protective); maternal malaise at age 10; and behavioural problems at age 10. The most substantial single direct predictor of psychological distress at 42 is psychological distress at 16. For both sexes, although high cognitive scores are protective against mid-life depression, this effect operates entirely indirectly, via achieving a degree by age 42 and reduced psychological distress at age 16.

Discussion

We confirmed that going to a private school was both strongly associated with childhood advantage and a strong predictor of getting a university degree. However, we found no protective effect of private schooling on psychological distress—either in adolescence or in mid-life. Indeed, for girls, going to a private school was associated
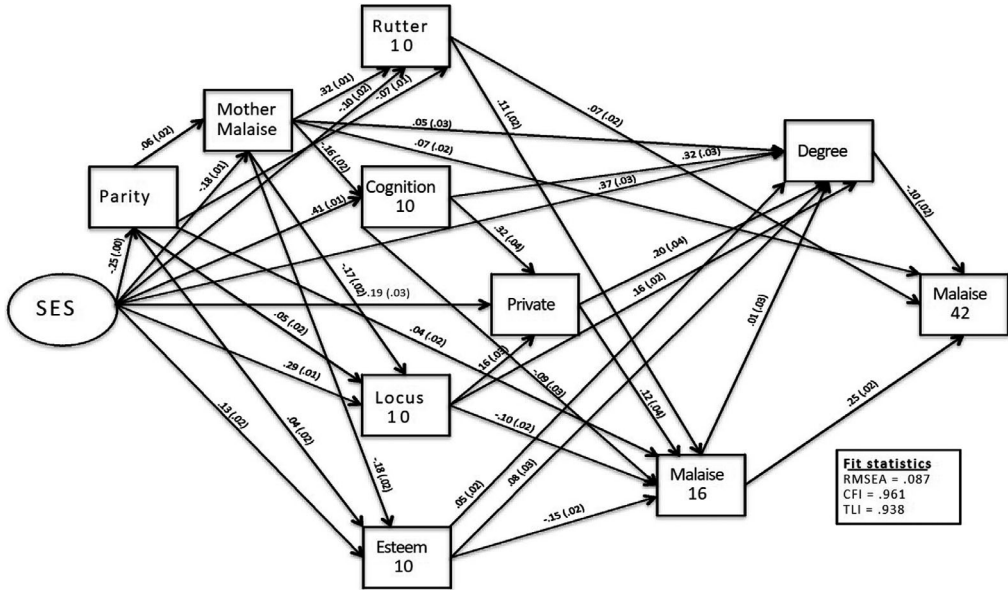
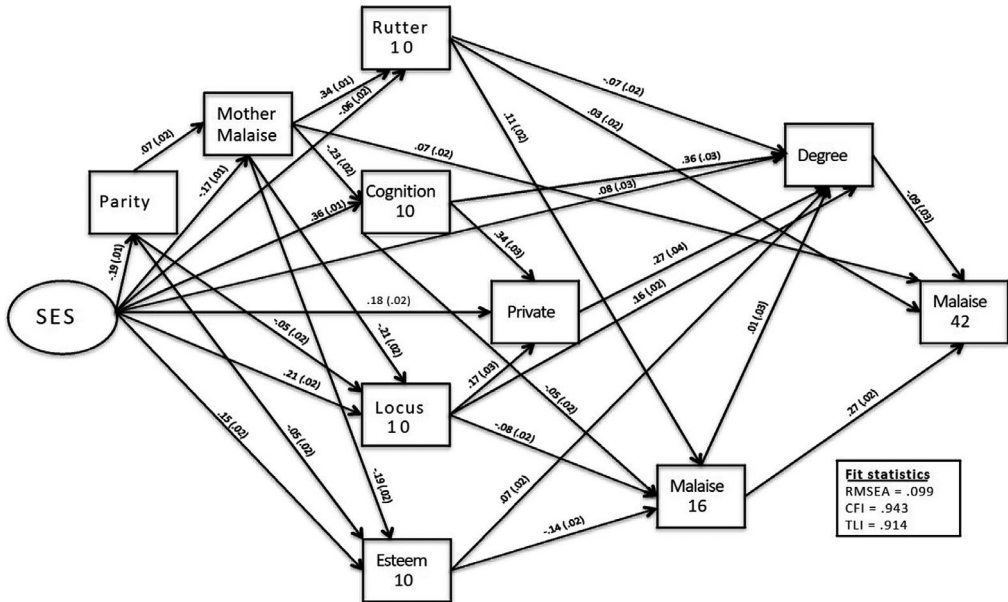Figure 1. Women's pathways to psychological distress.

Figure 2. Men's pathways to psychological distress.

with increased psychological distress at age 16, which in turn is the strongest predictor of psychological distress at age 42. For boys, private schooling was not predictive of psychological distress. These findings are striking given that, as we have shown descriptively, individuals who attended private schools were substantially more likely to have characteristics associated with low psychological distress, such as high socioeconomic status and lower maternal psychological distress.

High socioeconomic status is associated with lower malaise scores at 16 for both sexes. Yet despite the advantages for high-SES females, those at private schools had the same average malaise scores as those at state schools. The explanation is that, for females, private schools at that time were associated with greater malaise, but since the girls more commonly came from high-SES backgrounds, this meant that they started on average with lower malaise. These effects balanced out, so that descriptively private schools were on average neither more nor less unhappy. The effect of private schools on malaise shows up in our model when the protective effects of high SES (and its associated advantages) are controlled for. The link between private schooling and psychological distress is not necessarily counterintuitive. There was little public debate or concern over mental health in the 1980s, and there was little regulation of private schools; it seems entirely possible that, at that time, the environment of girls' schools was conducive to malaise. Of course, we would expect the effect to have been quite heterogeneous, it is a limitation of our analysis that we can only consider average effects.

Why is it that boys at private schools fared no better than those at state schools in terms of psychological distress, and girls at private schools actually fared worse than those at state schools, despite high levels of educational attainment at these schools? We have investigated (in supplementary analysis available on request) the possibility that single-sex schooling, which was more common in the private sector, is implicated, but found no evidence of this. Other differences that could be posited as factors tending to increase psychological distress at private schools range from the potential stressors of high academic demands, a more traditional ethos and a strict disciplinary environment, to the effect of further distances between home and school, which may weaken neighbourhood friendship ties, and the experience of boarding for some pupils. Investigating these potential explanations is beyond the scope of this article given the limitations of our data.

Past studies have provided mixed findings on the relationship between cognitive scores, educational attainment and psychological distress. We find that, for the 1970 British Cohort Study, having a university degree has a negative association with levels of psychological distress in mid-life. Childhood cognitive scores are implicated indirectly, via their positive association with educational attainment and negative association with psychological distress in adolescence. Unlike past research on an earlier cohort (Hatch *et al.*, 2007), we find no direct influence of cognitive scores once educational attainment and earlier psychological distress is taken into account, and no substantial sex differences in the pathways from cognitive scores and educational attainment to psychological distress. This may reflect a generational change, as women's social and educational position relative to men changed substantially between the formative years of the 1946 and 1970 cohorts. It is interesting to note that, despite the link between degree-level qualifications and reduced malaise, this does not lead to an indirect protective effect for private schooling. It is possible that privately educated pupils had a different frame of reference for what constituted educational and social success, with possible implications for their levels of psychological distress at any given level of attainment, compared to state-educated pupils.

Childhood socioeconomic circumstances have a long-range influence, which operates indirectly, via maternal depression and also cognitive development and

psychological adjustment apparent by age 10. Our findings regarding the long shadow cast by maternal malaise also suggest the importance of understanding mental health as a family concern, and recognising that the costs of failing to address mental health issues in a timely way may cascade down the generations. In addition, a major predictor of mid-life psychological distress is earlier psychological distress (in adolescence), which in turn is predicted by psychological adjustment and cognitive attainment in childhood. This confirms the importance of a life-course approach, and of addressing behavioural and psychological issues early in life. While socioeconomic inequalities in childhood are implicated in psychological distress, private schooling did not increase these differences.

The current article has some limitations. In common with all observational studies, there is a possibility of unobserved confounders—in this case, the decision to send a child to private school may be linked in unknown ways to the family situation or the child's characteristics. Our modelling mitigates this by controlling for a rich set of observables, including both family and child characteristics.

The article reports on the experience of one generation in a particular national context. The prevalence of depression among adolescents has increased substantially since the 1980s, leading to calls for improved mental health support for children and young people (Patalay & Fitzsimons, 2018). Performance pressures may have increased in both state and private schools, potentially increasing the risk of psychological distress (West & Sweeting, 2003; Sweeting *et al.*, 2010). Potentially mitigating this, contemporary private schools may have a greater focus on wellbeing than their counterparts in the 1980s. Women's position relative to men has also changed, and male levels of adult psychological distress have started to catch up with women's, while both sexes are experiencing increased distress (Ploubidis *et al.*, 2017). Further work is needed to examine the roles of school sector and educational attainment in pathways to psychological distress for younger generations. Psychological distress is a complex phenomenon, which is likely to have a genetic component—addressing this is beyond the scope of this article (Mullins & Lewis, 2017).

From a policy perspective, our findings suggest that schools which successfully promote educational attainment do not necessarily promote wellbeing. This suggests that more work is needed to understand how all schools can promote wellbeing, both in childhood and for the long term.

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Ethical approval

This project received ethical approval from the Institute of Education. The researchers observed the Centre for Longitudinal Studies code of practice on protecting the

privacy of cohort members, not identifying individual cases and not copying the data to other people who have not signed the appropriate undertaking.

Conflict of interest

There are no conflicts of interest.

Data availability statement

The data that support the findings of this study BCS70 [SN 200001] are openly available in the UK Data Service at https://beta.ukdataservice.ac.uk/datacatalogue/series/series?id=200001. Full documentation is available from the Centre for Longitudinal Studies (https://cls.ucl.ac.uk/cls-studies/1970-british-cohort-study/).

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