BRIEF REPORT

Mental health difficulties, attainment and attendance: a cross-sectional study

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Abstract

Evidence for the association between mental health difficulties and academic outcomes is sparse and shows mixed results. The aim of this study was to investigate the association between educational attainment, absenteeism and mental health difficulties while controlling for various child characteristics such as special educational needs and socioeconomic background. 15,301 Year 7 pupils (mean age 11.91; SD = 0.28) from England completed the Strengths and Difficulties Questionnaire. Attainment, persistent absenteeism and child characteristics were derived from the National Pupil Database. Multilevel regression analysis showed that mental health difficulties were negatively associated with attainment and positively associated with persistent absenteeism. When all mental health difficulties were modelled simultaneously, behavioural difficulties, hyperactivity/attention difficulties and difficulties with peers were negatively associated with attainment. Emotional difficulties and hyperactivity/attention difficulties were positively associated with persistent absenteeism. The results of the current study highlight the importance of integration between mental health support and policy creation in relation to mental health difficulties and wellbeing in schools.

Keywords Mental health difficulties · Attainment · Absenteeism

Introduction

Mental health difficulties affect 10–20% of children and adolescents worldwide and have implications for various long-term outcomes such as health, education, employment and wellbeing [1]. Similarly, educational outcomes (such as attainment) in childhood are associated with many later-life social and economic outcomes, including occupation, earnings and health [2].

Previous research has shown a consistent negative association between externalising problems and educational attainment, but evidence for the associations between internalising problems and educational attainment has produced mixed results [3]. Only a few studies have focused on school absenteeism and mental health and have controlled for other associated factors [4, 5]. Moreover, the majority of the research was conducted in the USA, making it harder to interpret the results in Europe due to the differences in welfare systems [3].

There is an increasing focus on schools as a site for prevention and early intervention in mental health problems [6]. However, schools mainly target academic outcomes with performance metrics focused specifically on academic attainment and attendance records. It is important to investigate the relationships between mental health and academic outcomes to highlight the potential benefits of improving mental health on these academic metrics. Thus, the aim of this study was to investigate the association between educational attainment, absenteeism and mental health difficulties while controlling for various child-level characteristics.

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Methods

Sample

Data were collected in 2017 from children involved in the project HeadStart: a 5-year, £56 million National Lottery funded programme set up by the Big Lottery Fund, aiming to explore and test new ways to improve the mental health and wellbeing of young people aged 10–16 and prevent serious mental health issues from developing [7]. Six local authority-led HeadStart partnerships in Blackpool, Cornwall, Hull, Kent, Newham and Wolverhampton are working with local young people, schools, families, charities, community and public services to deliver their local programme. Schools have been selected by these partnerships; in most cases driven by perceived need in these schools, but also by the potential for schools to successfully engage with the programme. Pupils in participating schools complete an annual survey (the Wellbeing Measurement Framework) and the results presented are based on the baseline data. The analyses reported are based on 15,301 (of 15,860) year 7 pupils (46.5% male; mean age = 11.91, SD = 0.28) from 97 mainstream schools (including state, academy and free schools) who completed the survey and had data from the National Pupil Database (NPD). The sample was not drawn to be representative; it was based on local areas that were part of the programme. Overall, 11,768 (78.2%) of the pupils were White (national state funded secondary schools' average 75.1%); 2654 (17.3%) were eligible for free school meals (FSM) (national state funded secondary schools' average 13.8%); 1904 (12.6%) had special educational needs (SEN) with or without statement (not including Education, Health and Care (EHC) plans) (national state funded secondary schools' average 12.4%, including EHC plans). The special educational need follows a graduated approach to helping children in need of special provision. The first stage provides SEN support (without statement) and the second stage involves the local authority, with a statement granted for the most serious cases (with a statement). All statements are currently being changed to EHC plans. 885 (5.8%) had child in need (CIN) status, referring to children's social care, most frequently because of concerns about abuse or neglect, acute family stress or familial dysfunction.

Measures

Emotional, behavioural and hyperactivity/attention difficulties and difficulties with peers were measured with the self-reported Strengths and Difficulties Questionnaire [8]. Total difficulties score was calculated by summing all the subscales. Those scoring above the borderline threshold on a subscale were considered as having high levels of the respective difficulty. In the current study, internal consistency of the subscales ranged from $\alpha = 0.57$ to 0.72, total difficulties $\alpha = 0.78$.

Attainment and persistent absenteeism were derived from the NPD. Attainment was measured with the Key Stage 2 standardised national tests (taken by 11-year-olds in the final year of primary school) for English (reading and writing) and mathematics. 80 is the lowest score that can be awarded and 120 is the highest score. Pupils scoring at least 100 will have met the expected standard. Consistent with UK government's definition, persistent absenteeism was considered present if a pupil missed 10% or more of their possible sessions during the 2015/16 academic year.

SEN, ever being eligible for FSM, ethnicity and CIN status were derived from the NPD. Children with SEN, with or without statement, were considered as having SEN. FSM is frequently used as an indicator of low family income since only families on income support are eligible.

Procedure

Ethical approval was obtained from the University College London Research Ethics Committee (UCL Ethics 8097/003). Questionnaires were completed using a secure online system during a usual school day with parent consent and child assent.

Analyses

To identify the association between mental health difficulties and attainment, five multilevel linear regression models were used (Table 1), and to identify the association between mental health difficulties and persistent absenteeism, five multilevel logistic regression analyses were run (Table 2). Single regression analyses (separate for attainment and absenteeism) were run where all mental health difficulties were entered into the models simultaneously (Tables 1 & 2, model VI). Random effects linear/logistic regression analyses (allowing for different school intercepts) were run using STATA version14; unstandardised betas and standard errors were reported for attainment models and odds ratios with 95% confidence intervals reported for absenteeism models. All analyses were controlled for sex, age, ethnicity, SEN, FSM and CIN.

Results

Overall, 3833 (25.7%) were above the borderline threshold on emotional difficulties; 4338 (29.0%) were above the threshold on behavioural difficulties; 5421 (36.3%) were

Table 1 Multilevel linear regression for mental health difficulties and attainment

	Key Stage 2 overall score[1]	
	Estimate (SE)	P value
Fixed effects		
Intercept (SE)	95.62 (1.98)	
I. High levels of emotional difficulties (n = 13,811)	−0.34 (0.11)	0.002
Variance components		
Residual variance	5.39 (0.03)	
School level	2.38 (0.18)	
Fixed effects		
Intercept (SE)	95.94 (1.97)	
II. High levels of behavioural difficulties (n = 13,820)	−1.13 (0.11)	<0.0001
Variance components		
Residual variance	5.37 (0.03)	
School level	2.36 (0.18)	
Fixed effects		
Intercept (SE)	95.98 (1.97)	
III. High levels of hyperactivity/attention difficulties (n = 13,817)	−0.60 (0.10)	<0.0001
Variance components		
Residual variance	5.39 (0.03)	
School level	2.38 (0.18)	
Fixed effects		
Intercept (SE)	95.81 (1.97)	
IV. High levels of peer difficulties (n = 13,816)	−0.56 (0.11)	<0.0001
Variance components		
Residual variance	5.38 (0.03)	
School level	2.38 (0.18)	
Fixed effects		
Intercept (SE)	96.10 (1.97)	
V. High levels of total difficulties (n = 13,798)	−0.92 (0.10)	<0.0001
Variance components		
Residual variance	5.37 (0.03)	
School level	2.36 (0.18)	
VI. All difficulties entered into the same model (n = 13,798)		
Fixed effects		
Intercept (SE)	96.28 (1.97)	
High levels of emotional difficulties)	0.02 (0.11)	0.866
High levels of behavioural difficulties	−0.98 (0.12)	<0.0001
High levels of hyperactivity/attention difficulties	−0.23 (0.11)	0.029
High levels of peer difficulties	−0.35 (0.11)	0.002
Variance components		
Residual variance	5.37 (0.03)	
School level	2.35 (0.18)	

[1]Key Stage 2 overall score includes: KS2 reading score, KS2 writing score and KS2 mathematics score. The different models have been identified with Roman numerals. All models were controlled for sex, age, ethnicity, special educational need, ever eligible for free school meals and child in need status

above the threshold on hyperactivity/attention difficulties; 3780 (25.3%) were above the threshold on peer difficulties. 5273 (35.4%) were above the threshold on total difficulties score. The mean Key Stage 2 national test score was 103.12 (SD = 6.45) and 961 (6.40%) had an overall absence rate of 10% or higher. There was a significant difference in the Key Stage 2 national test scores for those who were not persistently absent (M = 103.3, SD = 6.40) and those who were persistently absent (M = 100.3, SD = 6.49); $t(14,449) = 13.42$, $p < 0.0001$.

Table 2 Multilevel logistic regression for mental health difficulties and persistent absenteeism

	Persistent absenteeism 10%	
	OR (95% C.I.)	P value
Fixed effects		
Intercept (SE)	− 10.42 (1.82)	
I. High levels of emotional difficulties (n = 14,150)	1.60 (1.38–1.86)	< 0.0001
Variance components		
School level	0.27 (0.05)	
Fixed effects		
Intercept (SE)	− 10.50 (1.82)	
II. High levels of behavioural difficulties (n = 14,158)	1.29 (1.11–1.49)	0.001
Variance components		
School level	0.27 (0.05)	
Fixed effects		
Intercept (SE)	− 10.61 (1.82)	
III. High levels of hyperactivity/attention difficulties (n = 14,157)	1.32 (1.14–1.52)	< 0.0001
Variance components		
School level	0.27 (0.05)	
Fixed effects		
Intercept (SE)	− 10.44 (1.82)	
IV. High levels of peer difficulties (n = 14,156)	1.08 (0.93–1.26)	0.317
Variance components		
School level	0.28 (0.05)	
Fixed effects		
Intercept (SE)	− 10.61 (1.82)	
V. High levels of total difficulties (n = 14,133)	1.41 (1.22–1.63)	< 0.0001
Variance components		
School level	0.27 (0.05)	
VI. All difficulties entered into the same model (n = 14,133)		
Fixed effects		
Intercept (SE)	− 10.48 (1.82)	
High levels of emotional difficulties)	1.55 (1.32–1.82)	< 0.0001
High levels of behavioural difficulties	1.12 (0.95–1.33)	0.165
High levels of hyperactivity/attention difficulties	1.18 (1.01–1.38)	0.038
High levels of peer difficulties	0.90 (0.76–1.06)	0.211
Variance components		
School level	0.27 (0.05)	

The different models have been identified with Roman numerals. All models were controlled for sex, age, ethnicity, special educational need, ever eligible for free school meals and child in need status

OR odds ratio, *C.I.* confidence intervals

All mental health difficulties were negatively associated with attainment and positively associated with persistent absenteeism. When all mental health difficulties were entered into the model simultaneously, behavioural difficulties, hyperactivity/attention difficulties and difficulties with peers were negatively associated with attainment. Emotional difficulties and hyperactivity/attention difficulties were positively associated with persistent absenteeism.

From the covariates, being Asian (compared to being White) and being older were related with higher attainment; on the other hand, having SEN, FSM eligibility and having CIN status were associated with lower attainment across all models. Being older, having SEN, FSM eligibility and having CIN status increased the odds of being persistently absent, whereas being Asian (compared to being White) and being Black (compared to being White) decreased these odds.

Discussion

The current study aimed to investigate the association between mental health difficulties and educational outcomes while controlling for various child characteristics. Results showed mental health difficulties were associated with both academic attainment and persistent absenteeism. Specific mental health problems differentially predicted these two outcomes such that externalising problems (behavioural difficulties and hyperactivity/attention) and peer problems were associated with attainment and emotional difficulties, and hyperactivity/attention difficulties were associated with attendance once all mental health difficulties were added into the model simultaneously.

Findings are consistent with previous literature showing that attainment scores of persistent absentees were lower than attenders. This might be due to absent pupils receiving fewer hours of instructions or feeling a greater sense of alienation from peers and teachers on their return, which may impact on learning [9]. Moreover, persistent absentees were more likely to be older [5]. This might be due to older children being more capable of finding ways to avoid going to school. On the other hand, older children were more likely to have better attainment scores which is in line with literature suggesting that the age position of a pupil within a class has a major impact on their performance [10]. The investigation between mental health difficulties and attainment and attendance suggested that children who show externalising difficulties have a greater risk of 'acting out' and/or being dismissed from class and receiving negative feedback, which might increase the risk of lower educational attainment [11]. In support of the association between peer problems and attainment, children's social experiences at school have previously been shown to affect their academic performance [12]. The fact that emotional difficulties were no longer associated with academic attainment when all mental health difficulties were added into the model simultaneously might be due to the co-occurrence of internalising difficulties with externalising and hyperactivity/attention difficulties [13]. Regarding attendance, similar to previous literature [14], emotional and hyperactivity/attention difficulties were associated with persistent absenteeism. This relationship remained significant even when all mental health difficulties were added into the model which might be due to those with internalising problems being more likely to display social anxiety, depression or somatic complaints, which in return may result in more absences [14].

It is important to note the methodological limitations of the study. Firstly, the study sample was not representative of all school children in England. Secondly, due to the cross-sectional nature of this study, we cannot disentangle temporal precedence between educational outcomes and mental health difficulties. Future studies should apply longitudinal methods.

Notwithstanding these limitations, this study highlighted the negative association between mental health difficulties and educational outcomes, supporting the importance of policy and practice initiatives to support better links between schools and mental health services and mental health providers to consider educational outcomes as potential indicators of mental health difficulties.

Compliance with ethical standards

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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