

The role of aspirations in young children's emotional and behavioural problems

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Using data from a large UK cohort ($n = 11,656$), we investigated the determinants of 7-year-old children's aspirations, and the role of these aspirations in emotional and behavioural problems, as reported by both parents and teachers. Aspirations were classified to reflect their occupational status, masculinity/femininity and intrinsic/extrinsic motivation. Children's aspirations had significant antecedents in social disadvantage, parental involvement in learning, parental values and cognitive ability. Children with low occupational aspirations had more emotional problems as reported by both parents and teachers, and more teacher-reported peer problems. In the teacher report, masculine aspirations were also related to hyperactivity. Gender differences in the association between aspirations and emotional and behavioural problems were few and weak. Intrinsic aspirations were related to peer problems, especially in boys. The inverse relation between feminine aspirations and hyperactivity and peer problems was relatively stronger in girls, as was the association between low aspirations and emotional problems.

Introduction

There is much literature on adolescents' educational and occupational aspirations (Schoon & Parsons, 2002; Mello, 2008; Beal & Crockett, 2010). Adolescence is seen as a key stage in the development of aspirations, as teenagers become more focused on their desires for the future and show increased selectivity in goal-directed behaviour (Cantor, 1990). However, younger children also have dreams or ambitions for the future (Looft, 1971). These dreams may be less constrained by societal norms, realistic opportunities and ability than those of adolescents (Eccles, 2009). There is little empirical evidence relating aspirations to emotional and behavioural problems, particularly in primary school children. This paper explores the pathways of influence from parents' social standing, well-being, values and involvement in learning to young children's cognitive ability and aspirations. It then models the role of young children's aspirations in four types of emotional and behavioural problems as reported by both parents and teachers.

Aspirations

The Oxford English Dictionary defines aspiration as 'hope or ambition of achieving something'. Aspirations have been described as 'personal goals' (Nurmi, 2004) and

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'possible selves' (Markus & Nurius, 1986). Distinct from expectations, they reflect what someone would like to achieve rather than what they think they will achieve. Aspirations have been linked to self-efficacy (Bandura, 2001), locus of control (Rotter, 1966), value-expectancy beliefs (Eccles *et al.*, 1983), and helplessness (Seligman, 1980). Research with adolescents has focussed on educational or career aspirations (Bandura *et al.*, 2001; Hill *et al.*, 2004; Schoon *et al.*, 2007), but there is evidence that occupational aspirations may be salient for younger children, too. For example, in surveys asking general open-ended questions about aspirations, most children, like adolescents, respond by stating the type of occupation they would like to have rather than general future life states they would hope to achieve (Croll *et al.*, 2010). Even for most primary school children, therefore, occupational aspirations seem to be key (Looft, 1971). However, in such young children, they tend to be fantastical. Croll *et al.* (2010) noted that a substantial proportion (one in six) of 11–12 year-olds in Britain had 'fantasy' or 'quasi-fantasy' aspirations such as 'professional footballer', 'singer', 'actor' or 'model'. Only one in 10 children had these types of occupational aspirations by the age of 15 years in the British Household Panel Survey (Croll, 2008), suggesting that, as they get older, children tend to discard these types of aspirations for more realistic alternatives (Cook *et al.*, 1996; Croll *et al.*, 2010). But even these later, more realistic, aspirations tend to be high. Most large-scale studies of adolescent aspirations in the UK have identified aspirations as generally higher than parental achievements or than what the labour market might allow (Croll, 2008; Kintrea *et al.*, 2011), and many maintain that high aspirations result in positive outcomes (Cook *et al.*, 1996; Schoon & Parsons, 2002). However, there is some debate regarding the difficulties of misalignment. In particular, children from less advantaged backgrounds may have high occupational and educational aspirations but not the resources to achieve them (St Clair & Benjamin, 2011; Gorard *et al.*, 2012).

Factors associated with children's aspirations

According to Gottfredson's (1981) theory of circumscription and compromise, children develop career aspirations in four stages. During the process of circumscription children rule out unacceptable aspirations based on the age-specific themes of size and power (ages 3–5 years), gender roles (ages 6–8), social valuation (ages 9–13), and unique personal characteristics (ages 14 and older). For example, by around age 5, children have moved from magical to intuitive thinking and no longer classify people as tall or short, or report that they would like to be animals or fantasy characters. As well as age, gender is a major factor in differentiating children's aspirations. In expressing career aspirations, females tend to endorse altruistic values, such as helping others, more than males who tend to favour power and money (Weisgram *et al.*, 2010). These gender differences emerge in childhood (Blakemore *et al.*, 2009). By age 7, children not only know and endorse gender stereotypes but also view gender-atypical behaviour negatively, and tend to avoid gender-atypical types of play (Stoddart & Turiel, 1985). These behaviours are reflected in children's later aspirations, as well. For example, in the UK, the most popular occupational choices for girls in secondary education tend to be 'hairdresser', 'beautician', 'doctor', 'veterinarian' or 'teacher', while for boys the most popular choices are 'entertainer', 'sportsman' and the

skilled trades (Croll *et al.*, 2010). Girls tend to have consistently higher educational and occupational aspirations than boys (Schoon *et al.*, 2007; Mello, 2008). However, they also tend to have lower levels of self-confidence in their abilities, particularly in traditional male-dominated areas such as mathematics and science (Eccles, 1987; Sullivan, 2009). Children's abilities also play an important role in the development of their aspirations. More masculine aspirations such as for manual and physical occupations tend to be associated with lower ability (Creed *et al.*, 2007), and children's aspirations are raised when they are doing well academically (Bond & Saunders, 1999).

Parents are another major influence on children's aspirations. Those from higher social classes foster familiarity with higher status occupations via their own jobs and their social milieu. It has long been established, for example, that children aspire to the careers of their parents at rates significantly above chance (Holland, 1962; Werts & Watley, 1972), particularly at primary school ages (Trice *et al.*, 1995). Parental education (Mau & Bikos, 2000), social class and income strongly influence young people's career aspirations. Children from lower-class backgrounds tend to have lower educational aspirations (Schoon & Parsons, 2002), and to aspire to less prestigious occupations than their more advantaged peers (Croll, 2008). In Britain, parental social class significantly predicted parents' aspirations for adolescents' education in both the 1958 National Child Development Study and 1970 British Cohort Study (Schoon & Parsons, 2002, Schoon *et al.*, 2007).

Parental investment in the child's human capital also influences aspirations directly. Parents' involvement with children's academic achievement, including verbal interaction, book reading, helping with homework and school involvement, helps raise aspirations (Stevenson & Baker, 1987; Muller & Kerbow, 1993). Parental involvement also has a significant impact on child's achievement, independently of cognitive ability (Topor *et al.*, 2010) and the setting of high aspirations (Desforges & Abouchaar, 2003). These findings are in line with the family investment model which explains how relative income levels result in the purchase of goods and services made by the parent that can be used to invest in the human capital of the child. This investment, which includes time spent with the child, results in positive child outcomes, but is compromised under conditions of adversity, including mental ill-health of a parent (Kiernan & Huerta, 2008). Parental values, related to social background, is another determinant of children's aspirations. People who hold advantaged positions in the social structure value self-direction in themselves and their children more than do the less advantaged (Kohn, 1969; Lareau, 2002). Socially disadvantaged individuals tend to give more emphasis to obedience and conformity than to self-direction (Alwin, 1989). Finally, aspirations can also be influenced by the context outside the immediate family, for example at school (Casey *et al.*, 2006).

Aspirations and emotional and behavioural problems

Previous work on the role of aspirations has focused on children's educational and occupational outcomes but not their emotional and behavioural difficulties. Mental health problems in children are common. In the UK, one in 10 children and adolescents aged 5–16 years suffer from a clinically diagnosed mental disorder (Green *et al.*,

2005). The long-term outcome for children with emotional and behavioural problems is also concerning in view of some continuity of child psychopathology into adulthood (Kim-Cohen *et al.*, 2003). There are good reasons to expect aspirations and emotional and behavioural problems to be related in children. Children's aspirations are strongly influenced by parental input and background, and family background factors have consistently emerged as one area strongly associated with the likelihood that a child will have behaviour problems. For example, low parental qualifications, poverty, family disruption, mother's mental health difficulties and uninvolved parenting, all related to children's (low) aspirations, are risk factors for children's emotional and behavioural problems (Costello *et al.*, 2003; Kiernan & Huerta, 2008; Shanahan *et al.*, 2008). Child-level variables that are strongly associated with children's aspirations, such as age, gender and cognitive ability, also play a role in their emotional and behavioural adjustment (Green *et al.*, 2005; Huisman *et al.*, 2010).

Although limited, the evidence on the association between aspirations and emotional and behavioural problems in (predominantly older) children is promising. Previous research has associated high academic aspirations for the future with less antisocial behaviour in the present (Boxer *et al.*, 2010), and high occupational aspirations with behavioural resilience to family poverty (Flouri & Panourgia, 2012). Constructs allied to aspirations, such as goal motivation and self-esteem (Nurmi & Pullianien, 1991; Sowislo & Orth, 2013), have also been related to emotional and behavioural problems. For example, among adolescents depression is related to fewer approach goals (i.e. movement towards achieving a desired state or promoting engagement with the environment), and both depression and anxiety are related to avoidance goals (i.e. prevention of an unwanted event or withdrawal from the environment) (Dickson & Macleod, 2004, 2006). By contrast, an emphasis on intrinsic relative to extrinsic goals is associated with better mental health and well-being in both young people and adults (Ryan & Deci, 2000; Kasser, 2005).

The present study

The existing evidence on the relation between aspirations and psychological adjustment in young children is limited. Furthermore, no previous study has explored this relationship in different settings. A child's behaviour may differ between the home and the school. This study attempted to fill this gap, using data from a large cohort of UK children followed at ages 9 months, and 3, 5 and 7 years. Seven-year-olds' responses to a question on what they wanted to be when they grew up were used to measure the social prestige, masculinity and extrinsic motivation of their aspirations. Children's behaviour at age 7 years was reported by both teachers and parents.

The first of this paper's three aims was to investigate the pathways to and from children's aspirations at age 7. In particular, we expected social disadvantage to be directly associated with less parental involvement in learning, parent's traditional values (e.g. obedience), and, in the child, lower cognitive ability, lower aspirations and more emotional and behavioural problems. Low parental involvement in learning would be related to low prestige aspirations and low cognitive ability. In turn, low cognitive ability would be associated with low prestige and masculine aspirations. In

addition, we assumed that maternal psychological distress would be directly related to children's emotional and behavioural problems, and negatively associated with parental involvement in learning. Finally, we expected that both low prestige and extrinsic aspirations would be related to emotional and behavioural problems, and masculine aspirations would be related to behavioural problems.

Our second aim was to explore whether these pathways differed when children's emotional and behavioural difficulties were reported by the teacher or the parent. The inter-informant agreement for parents and teachers in various studies investigating emotional and behavioural problems is moderate, ranging from $r = 0.27$ to $r = 0.50$ (Collishaw *et al.*, 2009). Although there is now strong evidence that parental ill mental health can bias parental ratings of child psychopathology (Birmaher *et al.*, 1996), teachers' and parents' reports of child behaviour may also disagree because teachers may be more sensitive to disruptive behaviour, and parents to depression or anxiety (Abikoff *et al.*, 1993). Teachers also tend to rate boys higher than girls on emotional and, particularly, behavioural problems (Collishaw *et al.*, 2009).

Our third aim was to explore differences between boys and girls in the 'effects' of aspirations. Children, particularly boys (Young & Sweeting, 2004), with gender-atypical aspirations were expected to have peer problems, and perhaps other emotional problems, as a result of social repercussions at an age where gender roles are a major focus for the child (Gottfredson, 1981). Gender typicality in aspirations is associated with better peer relationships (Egan & Perry, 2001). Children who are considered gender-atypical also tend to have lower feelings of self-worth, more depression and anxiety, and greater risk of suicide (Carver *et al.*, 2003; Yunger *et al.*, 2004).

Method

Participants

We used data from the first four sweeps of the Millennium Cohort Study (MCS), a birth cohort study of some 19,000 children born in the UK in 2000–2002. At these surveys, the MCS children were aged 9 months, 3 years, 5 years and 7 years, respectively. MCS was designed to over-represent areas with high proportions of ethnic minorities in England, areas of high child poverty and the three smaller UK countries (Plewis, 2007). We used information from the main respondents (usually the child's mother), teachers and the children themselves. In total, 18,552 families took part at MCS1, 15,590 at MCS2, 15,246 at MCS3, and 13,857 at MCS4 (Hansen, 2012). We used records for only one child per family (singletons and the first-born twin or triplet) to avoid having to account for the clustering of children within families. Aspirations were assessed using the children's written responses at age 7 to the open-ended question 'When you grow up, what would you like to be?' This was in the Self-Completion Module completed by 13,244 cohort children at Sweep 4. Our sample ($n = 11,656$) comprised all children whose first aspiration could be coded into at least one of the three aspiration categories we explored (prestige, masculinity and extrinsic motivation).

Measures

Children's emotional and behavioural problems at age 7 were measured using the main respondent's and teacher's report of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). The SDQ measures four types of difficulty: hyperactivity, and conduct, emotional and peer problems (www.sdqinfo.org). Each sub-scale is measured with five items on 3-point scales (ranging 0–2). The reliability of the scales was adequate, with alphas ranging from 0.60 to 0.87 [hyperactivity, $\alpha = 0.78$ (main), $\alpha = 0.87$ (teacher); conduct problems, $\alpha = 0.60$ (main), $\alpha = 0.78$ (teacher); emotional symptoms, $\alpha = 0.65$ (main), $\alpha = 0.77$ (teacher); peer problems, $\alpha = 0.57$ (main), $\alpha = 0.66$ (teacher)].

Children's aspirations were measured with their responses to the aforementioned 'aspiration' question at Sweep 4. Responses were coded into broad occupational categories; the masculinity/femininity of the detailed occupation or future state; and extrinsic and intrinsic goals (Flouri *et al.*, 2012). *Occupational aspirations* were classified, using the one-digit SOC2000 code from the Standard Occupational Classification 2000 (ONS; www.ons.gov.uk), into nine major groups, with 1 indicating the highest occupation status (Managers and Senior Officials) and 9 the lowest (Elementary Occupations). *Masculine and feminine aspirations* were coded using the proportion female among UK workers (age 16–74) in that occupation (SOC2000) using the Quarter 2 (April–June) 2008 Labour Force Survey (LFS; Office for National Statistics), around the time of MCS4 fieldwork. The following bandings were applied: 'masculine' (<25% women), 'integrated' (25–49.9% women), 'feminine' (50–74.9% women), and 'ultra-feminine' ($\geq 75\%$ women). These a-symmetrical categories are as proposed by Hakim (1998) to reflect a situation where women are overall in a minority. Thus, occupations where women are in the majority are classed as feminine, but only those with 75% or more men are classified as 'masculine'. Those where they represent between one quarter and a half of the workforce are treated as 'integrated', rather than male dominated. Non-occupational future states were also allocated an appropriate gender category where possible. *Extrinsic and intrinsic aspirations* were coded following self-determination theory (Deci & Ryan, 1985), according to which intrinsic aspirations include such life goals as affiliation, community and personal development, whereas extrinsic aspirations include such goals as wealth, fame and attractiveness. Aspirations were coded into four categories: 'extrinsic', 'extrinsic-intermediate', 'neutral' or 'intrinsic-intermediate'. Extrinsic reflected materialistic goals or concerns about image, power or popularity (for example, 'billionaire', 'famous' or 'supermodel'), while extrinsic-intermediate aspirations were goals that could reflect interests in financial success, image, praise or popularity (for example, 'actor', 'singer' or 'beautician'). As very few children gave intrinsic responses, we merged these aspirations with 'intrinsic-intermediate' aspirations which included aspirations involving caring or helping people and animals such as 'nurse', 'doctor', 'teacher' and 'vet'. Aspirations that could not be identified as intrinsic or extrinsic were coded as 'neutral'.

Children's cognitive ability was measured at age 5 using the Naming Vocabulary, Pattern Construction and Picture Similarities tests from the second edition of the

British Ability Scales (Elliott, 1996). The Naming Vocabulary scale measures expressive language ability and knowledge of nouns. The Pattern Construction and Picture Similarities scales measure non-verbal ability, specifically spatial realisation and problem solving, respectively.

Parental involvement in learning was measured at age 3 (the earliest opportunity) with four items measuring how frequently anyone at home engaged in the following activities with the child: learning the ABC or the alphabet; teaching numbers or counting; teaching songs, poems or nursery rhymes; and painting or drawing ($\alpha = 0.59$). All items were measured on a five-point scale (1 = 'never' to 5 = 'every day').

Parental values were measured at age 3 by asking the parent to choose the most important quality for the child to learn in order to prepare him/her for life, from the following: 'well-liked or popular', 'think for themselves', 'work hard', 'help others', 'obey their parents' and 'learn religious values' (Alwin, 1990).

Social disadvantage at age 9 months was measured as a latent factor comprising four continuous variables. The measures were the highest academic qualification (seven categories ranging from 1 'higher degree' to 7 'no qualifications') and occupation (nine categories using the one-digit SOC2000 code, with 1 indicating the highest occupation status (Managers and Senior Officials) and 9 the lowest (Elementary Occupations) for both mother and partner.

Maternal psychological distress at age 9 months was measured in MCS with nine items of the 24-item Malaise Inventory (Rutter *et al.*, 1970). The Malaise Inventory symptoms are agreement to items such as 'feel miserable and depressed' and 'become scared for no reason' ($\alpha = 0.73$).

Control factors were the child-level variables of age, gender, birth order and ethnicity. Children's ethnicity was grouped into six categories: white, Indian, Pakistani or Bangladeshi, black, mixed and other ethnicity as per the UK-wide government census classification. Family structure, intact or not, was accounted for only at 9 months, like other background factors, to contain the models' complexity.

Analytic approach and hypothesised model

After testing whether families in the analytic sample ($n = 11,656$) differed from families not in it ($n = 2,201$) on our covariates, we examined correlations among the primary variables. Structural equation modelling (SEM) was then used to test the hypothesised model (Figure 1). SEM permits consideration of multiple outcomes and allows the measurement of latent variables that may better depict underlying constructs compared with single observed variables (Kline, 2011). Two models were fitted, the first using the parent's (usually mother's) responses to the SDQ, and the second the teacher's. Maternal psychological distress, social disadvantage, parental involvement in learning, child's cognitive ability and the SDQ sub-scales (hyperactivity, conduct, emotional and peer problems) were latent constructs loading on their scale items. Covariances were specified among all variables within each sweep with the exception of aspirations at age 7 which were hypothesised to predict age 7 emotional and behavioural problems. Social disadvantage was adjusted for family

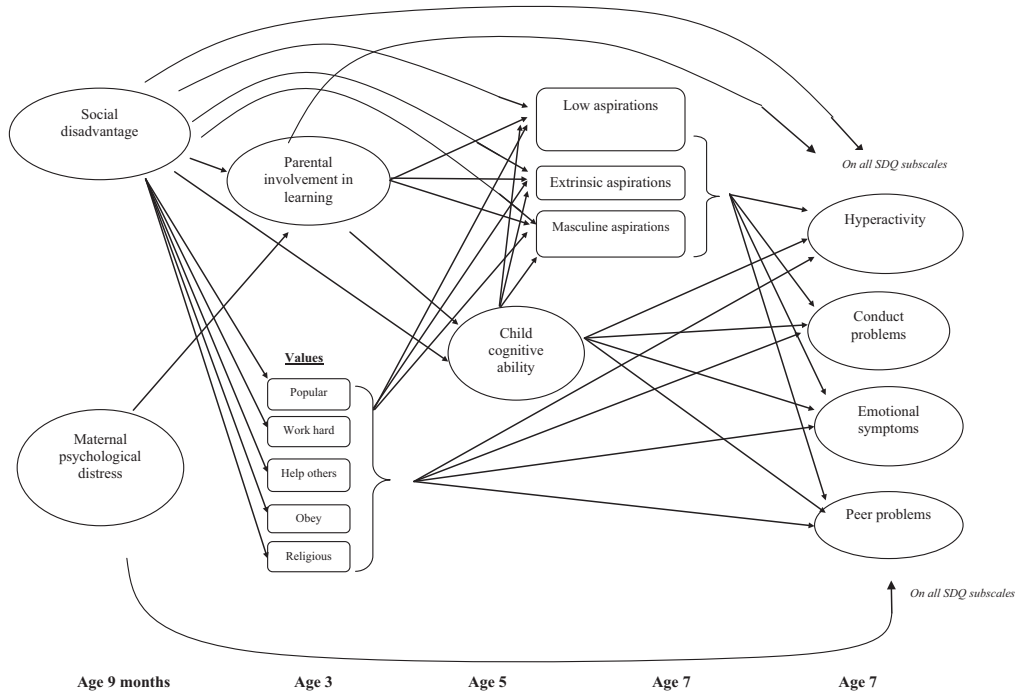


Figure 1. Hypothesized pathway model predicting emotional and behavioural problems

structure and ethnicity, in light of the evidence that social disadvantage is related to both (Goodman *et al.*, 2008). Also in view of the extant evidence, we made the following adjustments. First, maternal psychological distress was adjusted for family structure. Second, parental values, child cognitive ability and parental involvement in learning were controlled for birth order, gender and ethnicity. Finally, aspirations and emotional and behavioural problems were controlled for gender and ethnicity, with added controls for birth order and age on emotional and behavioural problems.

To fit our model, we used Mplus 7.11 (Muthen & Muthen, 1998–2012). As maternal psychological distress was a latent categorical outcome, we used the weighted least squares estimator (WLSMV). The WLSMV estimator gives accurate test statistics, parameter estimates and standard errors across a number of different distributions and sample sizes (Flora & Curran, 2004; Beauducet & Herzberg, 2006), and allows missing data to be a function of the observed covariates (Asparouhov & Muthén, 2010). In line with current practice, we used several measures to assess the goodness of fit of the model to the data [i.e. the χ^2 statistic, the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the Tucker–Lewis index (TLI)]. To take account of disproportionate, stratified clustering in the MCS sample selection, we used the TYPE=COMPLEX command, along with the stratification, cluster and weight options. To test for gender differences in the ‘effects’ of aspirations on child outcomes, we evaluated the interaction terms between child’s sex and each of the three variables measuring aspirations on both parent and teacher-reported emotional and behavioural problems.

Results

Descriptives and correlations

Table 1 compares the 2,201 excluded families with the analytic sample ($n = 11,656$). The latter had more girls and children with higher cognitive ability and lower scores on all problem behaviours as reported by both parent and teacher. The analytic sample were also more likely to be intact families and have mothers with higher qualifications and social class.

Table 2 shows the pairwise correlations between the main variables in the analytic sample. As expected, social disadvantage, maternal psychological distress and lower cognitive ability were correlated with emotional and behavioural problems. Although the parent and teacher reports of problem behaviour were correlated, their association, particularly in emotional symptoms, was not strong. However, both reports of problem behaviours correlated weakly with aspirations. Having lower prestige, more extrinsic and, particularly, more masculine aspirations was associated with more hyperactivity and conduct problems. Lower and more intrinsic aspirations were also associated with more emotional symptoms and peer problems. Masculine aspirations were associated with peer problems in the parent report only. Low prestige and masculine aspirations, but not extrinsic aspirations, were associated with social disadvantage. Masculine aspirations were also associated with parents valuing popularity and obedience. Parents who valued popularity for their children also had children with more extrinsic aspirations, while those valuing religion had children with more intrinsic aspirations. Aspirations were not related to maternal psychological distress, but high prestige, intrinsic and feminine aspirations were correlated positively to cognitive ability and parental involvement in learning.

SEM paths

Figure 2 shows the path diagram of the SEM of parent ratings of child problem behaviour, while Figure 3 shows the model for the teacher ratings. Below we present the statistically significant findings of these models, as well as gender differences in the 'effects' of aspirations on child problem behaviour. The overall fit for the model using the parent report was good ($\chi^2(1,324) = 4,256.64, p < 0.001$; RMSEA = 0.014; CFI = 0.912; TLI = 0.896). A similar goodness of fit was obtained for the model using the teacher report ($\chi^2(1,324) = 4,237.72, p < 0.001$; RMSEA = 0.014; CFI = 0.898; TLI = 0.879).

From social disadvantage and maternal psychological distress at age 9 months to problem behaviour at age 7 years

In the model of parent-reported behaviour (Figure 2), social disadvantage at age 9 months was directly positively related to all emotional and behavioural problems at age 7. Teacher-reported hyperactivity, conduct and peer problems at age 7 were directly positively related, though more weakly than in the parent report,

Table 1. Descriptive statistics (unweighted data) of study variables in the analytic and non-analytic samples

Variable	Range	Analytic sample (n = 11,656)			Non-analytic sample (n = 2,201)		
		n	M(SE)	95% CI	n	M (SE)	95% CI
<i>Aspirations</i>							
Lower	1-9	11,220	3.29 (0.02)	[3.25, 3.33]			
More extrinsic	1-4	11,501	2.78 (0.01)	[2.76, 2.81]			
More masculine	1-4	11,656	2.05 (0.01)	[2.03, 2.07]			
<i>Parent-reported SDQ at age 7:</i>							
Hyperactivity	0-10	11,356	3.23 (0.04)	[3.15, 3.30]	2066	3.68 (0.07)	[3.55, 3.82]
Conduct problems	0-10	11,397	1.31 (0.02)	[1.26, 1.35]	2075	1.56 (0.05)	[1.47, 1.65]
Emotional symptoms	0-10	11,374	1.46 (0.02)	[1.41, 1.50]	2069	1.65 (0.05)	[1.56, 1.75]
Peer problems	0-10	11,381	1.13 (0.02)	[1.09, 1.17]	2071	1.37 (0.05)	[1.28, 1.46]
<i>Teacher-reported SDQ at age 7:</i>							
Hyperactivity	0-10	7459	2.71 (0.04)	[2.63, 2.79]	1267	3.40 (0.11)	[3.17, 3.62]
Conduct problems	0-10	7459	0.70 (0.02)	[0.66, 0.74]	1269	0.91 (0.05)	[0.81, 1.00]
Emotional symptoms	0-10	7458	1.40 (0.03)	[1.35, 1.45]	1267	1.62 (0.07)	[1.49, 1.75]
Peer problems	0-10	7456	1.09 (0.03)	[1.04, 1.14]	1269	1.36 (0.06)	[1.25, 1.47]
<i>Cognitive ability at age 5:</i>							
Naming vocabulary	20-80	11,074	55.82 (0.21)	[55.40, 56.24]	1956	53.90 (0.38)	[53.16, 54.64]
Pattern construction	20-80	11,052	51.39 (0.20)	[51.01, 51.77]	1937	49.96 (0.34)	[49.29, 50.64]
Picture similarities	20-80	11,062	55.99 (0.20)	[55.60, 56.38]	1958	54.93 (0.33)	[54.29, 55.57]
<i>Parental involvement in learning, at age 3:</i>							
Learning the ABC or the alphabet	1-5	10,604	3.20 (0.02)	[3.15, 3.24]	1963	3.10 (0.04)	[3.02, 3.19]
Teaching numbers or counting	1-5	10,604	4.23 (0.02)	[4.19, 4.27]	1963	4.18 (0.03)	[4.11, 4.24]
Teaching songs, poems or nursery rhymes	1-5	10,604	4.32 (0.02)	[4.28, 4.35]	1963	4.22 (0.03)	[4.15, 4.28]
Painting or drawing	1-5	10,604	4.22 (0.02)	[4.19, 4.26]	1963	4.14 (0.03)	[4.09, 4.20]
<i>Values at age 3:</i>							
Popular		10,256	0.04 (0.00)	[0.04, 0.05]	1873	0.05 (0.01)	[0.03, 0.06]
Work hard		10,256	0.12 (0.01)	[0.11, 0.13]	1873	0.13 (0.01)	[0.11, 0.15]
Help others		10,256	0.19 (0.01)	[0.18, 0.20]	1873	0.16 (0.01)	[0.14, 0.18]
Obey		10,256	0.10 (0.00)	[0.10, 0.11]	1873	0.13 (0.01)	[0.11, 0.14]

Table 1. (Continued)

Variable	Range	Analytic sample (n = 11,656)			Non-analytic sample (n = 2,201)		
		n	M(SE)	95% CI	n	M (SE)	95% CI
Religious		10,256	0.03 (0.00)	[0.03, 0.03]	1873	0.03 (0.00)	[0.02, 0.04]
Think for themselves		10,256	0.51 (0.01)	[0.50, 0.53]	1873	0.51 (0.01)	[0.48, 0.53]
Maternal psychological distress at 9 months	0-9	10,943	1.59 (0.02)	[1.55, 1.63]	2039	1.61 (0.04)	[1.53, 1.70]
Maternal qualifications at 9 months	1-7	11,220	4.51 (0.05)	[4.41, 4.61]	2114	4.71 (0.07)	[4.57, 4.84]
Paternal qualifications at 9 months	1-7	11,246	3.45 (0.06)	[3.34, 3.56]	2117	3.40 (0.09)	[3.21, 3.58]
Maternal Standard Occupational Classification (SOC) at 9 months	1-9	10,242	4.79 (0.65)	[4.67, 4.92]	1849	5.01 (0.08)	[4.85, 5.18]
Paternal Standard Occupational Classification (SOC) at 9 months	1-9	8464	4.23 (0.07)	[4.10, 4.37]	1523	4.47 (0.10)	[4.27, 4.67]
Age (years) at sweep 4		11,656	7.23 (0.01)	[7.22, 7.24]	2201	7.24 (0.01)	[7.23, 7.26]
Girl		11,656	0.51 (0.01)	[0.49, 0.52]	2201	0.43 (0.01)	[0.40, 0.45]
<i>Ethnicity:</i>							
White		11,650	0.89 (0.01)	[0.87, 0.91]	2201	0.87 (0.02)	[0.83, 0.90]
Mixed		11,650	0.03 (0.00)	[0.02, 0.03]	2201	0.03 (0.01)	[0.02, 0.05]
Indian		11,650	0.02 (0.00)	[0.01, 0.02]	2201	0.02 (0.00)	[0.01, 0.02]
Pakistani/Bangladeshi		11,650	0.03 (0.01)	[0.02, 0.05]	2201	0.05 (0.01)	[0.03, 0.07]
Black		11,650	0.02 (0.00)	[0.01, 0.03]	2201	0.03 (0.01)	[0.01, 0.05]
Other		11,650	0.01 (0.00)	[0.01, 0.01]	2201	0.01 (0.00)	[0.01, 0.02]
Birth order	1-11	11,656	1.89 (0.01)	[1.86, 1.91]	2201	1.92 (0.02)	[1.87, 1.97]
Intact family at 9 months		11,246	0.89 (0.00)	[0.88, 0.90]	2117	0.85 (0.01)	[0.83, 0.87]

Table 2. Pairwise correlations of key observed study variables

	1	2	3	4a	4b	4c	4d	5	6a	6b	6c	6d	7a	7b	7c	7d	7e
1 Low aspiration	-																
2 Extrinsic aspiration	0.18**	-															
3 Masculine aspiration	0.11**	0.52**	-														
4 Social disadvantage	0.05**	-0.00	0.04**	-													
a Maternal qualifications	0.05**	0.01	0.02	0.49**	-												
b Paternal qualifications	0.05**	0.02	0.03**	0.53**	0.39**	-											
c Maternal SOC	0.05**	-0.02	0.02*	0.39**	0.51**	0.38**	-										
d Paternal SOC	-0.01	0.01	0.00	0.14**	0.10**	0.12**	0.14**	-									
5 Maternal psychological distress																	
6 Parental involvement in learning:																	
a Learning the ABC	-0.03**	-0.03**	-0.04**	-0.00	-0.01	-0.02	-0.01	-0.01	-								
b Teaching numbers	-0.01	0.02	0.00	-0.05**	-0.03*	-0.02*	-0.02*	0.39**	-								
c Teaching songs, etc.	0.01	-0.01	-0.06**	-0.11**	-0.07**	-0.06**	-0.06**	0.24**	0.39**	-							
d Painting or drawing	-0.03**	-0.05**	-0.13**	-0.02	0.01	0.03**	0.00	-0.02	0.19**	0.23**	-						
7 Values																	
a Popular	0.01	0.03*	0.02*	0.01	0.01	-0.02*	-0.00	0.01	-0.04**	-0.03**	-0.04**	-0.01	-				
b Work hard	-0.01	0.01	0.01	0.09**	0.07**	0.07**	0.06**	0.02*	-0.00	-0.01	-0.01	0.00	-0.08**	-			
c Help others	0.01	0.02	0.01	0.03**	-0.00	0.02*	0.01	-0.02	-0.01	0.00	-0.01	0.00	-0.10**	-0.18**	-		
d Obey	0.02	0.02	0.03*	0.15**	0.11**	0.12**	0.09**	0.02*	-0.01	-0.03**	-0.02*	-0.01	-0.07**	-0.13**	-0.16**	-	
e Religious	-0.01	-0.03*	-0.02	0.02	-0.04**	-0.04*	-0.02	0.01	0.01	-0.02	-0.02	0.01	-0.04**	-0.07**	-0.08**	-0.06**	-
8 Child cognitive ability:																	
a Naming vocabulary	-0.02*	-0.01	-0.05**	-0.33**	-0.27**	-0.27**	-0.24**	-0.08**	0.07*	0.07**	0.15**	0.03**	-0.02	-0.06**	-0.03**	-0.09**	-0.07**
b Pattern construction	-0.04**	-0.03**	-0.08**	-0.20**	-0.17**	-0.16**	-0.16**	-0.03**	0.05**	0.04**	0.06**	0.04**	0.00	-0.02*	0.00	-0.06**	-0.02
c Pattern similarities	-0.03**	-0.03**	-0.06**	-0.16**	-0.15**	-0.13**	-0.11**	-0.04**	0.04**	0.01	0.05**	0.03**	0.01	-0.04**	-0.02*	-0.02*	-0.01

Table 2. (Continued)

	1	2	3	4a	4b	4c	4d	5	6a	6b	6c	6d	7a	7b	7c	7d	7e
Parent-reported SDQ subscales:																	
9 Hyperactivity	0.05**	0.05**	0.12**	0.21**	0.17**	0.18**	0.15**	0.17**	-0.04**	-0.04**	-0.06**	-0.10**	-0.00	0.03**	0.00	0.05**	-0.02
10 Conduct problems	0.04**	0.05**	0.08**	0.23**	0.16**	0.20**	0.15**	0.21**	-0.04**	-0.03**	-0.05**	-0.05**	0.00	0.04**	0.01	0.06**	-0.02
11 Emotional symptoms	0.04**	-0.04**	-0.01	0.15**	0.12**	0.13**	0.11**	0.19**	-0.00	0.01	-0.02*	-0.01	-0.01	0.01	0.01	0.05**	0.01
12 Peer problems	0.02*	-0.04**	0.04**	0.18**	0.15**	0.17**	0.15**	0.17**	-0.03**	0.01	-0.05**	-0.05**	-0.02	0.02*	-0.00	0.06**	0.01
Teacher-reported SDQ subscales:																	
13 Hyperactivity	0.07**	0.08**	0.21**	0.16**	0.14**	0.13**	0.11**	0.08**	-0.05**	-0.05**	-0.06**	-0.12**	-0.00	0.03*	0.00	0.05**	-0.02
14 Conduct problems	0.03**	0.04**	0.10**	0.14**	0.11**	0.11**	0.10**	0.09**	-0.02*	-0.04**	-0.05**	-0.06**	-0.00	0.02	-0.00	0.03**	-0.01
15 Emotional symptoms	0.04**	-0.04**	-0.02	0.07**	0.06**	0.08**	0.05**	0.09**	-0.01	-0.01	0.02*	-0.01	0.02	0.02	-0.01	0.01	0.01
16 Peer problems	0.03**	-0.04**	0.01	0.08**	0.07**	0.08**	0.08**	0.08**	0.01	-0.02	-0.03*	-0.03**	-0.01	0.01	-0.03**	0.00	0.00
N	11,220	11,656	11,501	11,220	8,570	10,242	8,464	10,881	10,604	10,604	10,604	10,604	10,257	10,257	10,257	10,257	10,257
Mean	3.29	2.05	2.78	3.82	3.82	4.79	4.23	159	3.20	4.23	4.32	4.22	0.04	0.12	0.19	0.10	0.03
SD	1.59	0.86	1.19	1.57	1.69	2.50	2.72	1.70	1.40	1.03	1.02	0.94	0.21	0.33	0.39	0.30	0.17

	8a	8b	8c	9	10	11	12	13	14	15	16
8 Child cognitive ability:											
a Naming vocabulary	-										
b Pattern construction	0.31**	-									
c Pattern similarities	0.29**	0.31**									
Parent-reported SDQ subscales:											
9 Hyperactivity problems	-0.16**	-0.20**	-0.13**	-							
10 Conduct problems	-0.14**	-0.14**	-0.10**	0.53**	-						
11 Emotional symptoms	-0.10**	-0.10**	-0.08**	0.28**	0.35**	-					
12 Peer problems	-0.13**	-0.12**	-0.10**	0.32**	0.34**	0.42**	-				
Teacher-reported SDQ subscales:											
13 Hyperactivity problems	-0.17**	-0.23**	-0.12**	0.47**	0.31**	0.08**	0.23**	-			
14 Conduct problems	-0.10**	-0.10**	-0.07**	0.30**	0.33**	0.07**	0.23**	0.58**	-		
15 Emotional symptoms	-0.08**	-0.10**	-0.08**	0.12**	0.10**	0.23**	0.18**	0.19**	0.17**	-	
16 Peer problems	-0.06**	-0.11**	-0.06**	0.22**	0.20**	0.16**	0.32**	0.36**	0.40**	0.39**	-
N	11,074	11,052	11,062	11,356	11,397	11,374	11,381	7,459	7,459	7,458	7,456
Mean	55.82	51.39	55.99	3.23	1.31	1.46	1.13	2.71	0.70	1.40	1.09
SD	10.49	9.63	9.89	2.46	1.48	1.70	1.51	2.72	1.41	1.89	1.89

Notes: statistically significant * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

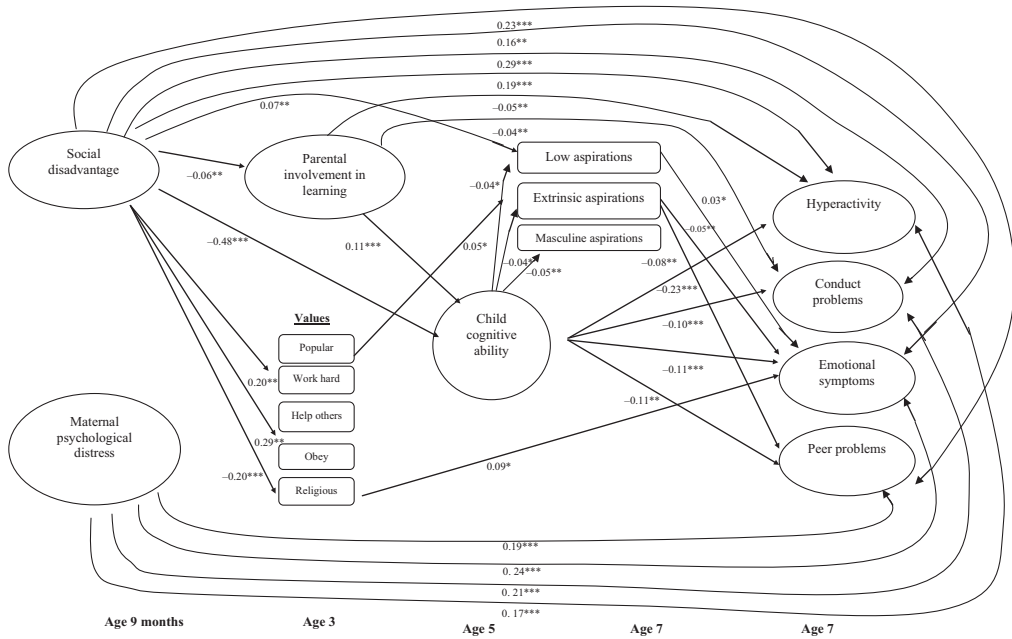


Figure 2. Pathway model predicting parent-reported emotional and behavioural problems. N = 11,656; $\chi^2(1324) = 4256.64$, $p < 0.001$; RMSEA = 0.014; CFI = 0.912; TLI = 0.896. Note: Diagram shows standardised regression coefficients. Only statistically significant (* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$) results are shown. Controls for family structure and child's ethnicity were included in each regression path from social disadvantage. Maternal psychological distress was adjusted for family structure. Each regression path at age 3 and 5 was adjusted for the child's gender, ethnicity and birth order. Aspirations were controlled for the child's gender and ethnicity. Problem behaviour was adjusted for the child's age, gender, ethnicity and birth order.

to social disadvantage at age 9 months, while there was no relationship between social disadvantage and teacher-reported emotional problems (Figure 3). Maternal psychological distress at 9 months was directly related to all types of problem behaviour at age 7 in both models. However, the relationship was weaker when problem behaviour was reported by the teacher rather than the parent.

From social disadvantage and maternal psychological distress at age 9 months to age 3 parental involvement in learning and parental values, age 5 cognitive ability and age 7 aspirations

Social disadvantage was negatively related to parental involvement in learning and child cognitive ability, and positively related to low aspirations. As expected, social disadvantage was also related to valuing 'obeying parents' and 'working hard' compared to 'thinking for themselves'. Unexpectedly, it was negatively related to 'learning religious values', advocated by a small number of parents (3%) in preference to the children 'thinking for themselves'. There was no relationship between social disadvantage and children's masculine or extrinsic aspirations.

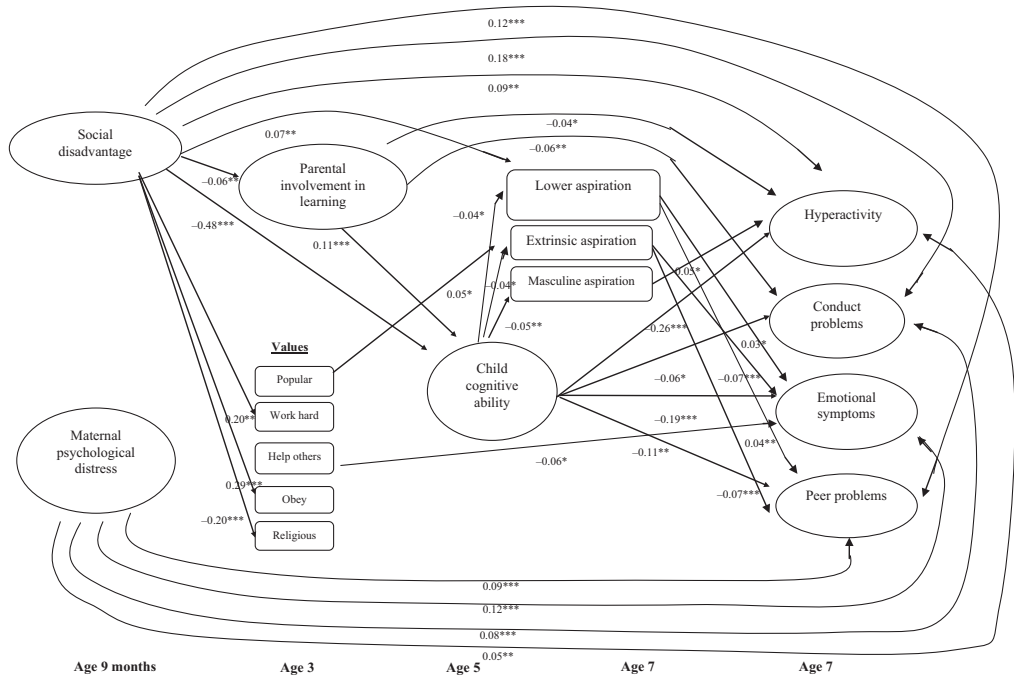


Figure 3. Pathway model predicting teacher-reported emotional and behavioural problems. $N = 11,656$; $\chi^2(1324) = 4237.72$, $p < 0.001$; $RMSEA = 0.014$; $CFI = 0.898$; $TLI = 0.879$. Note: Diagram shows standardised regression coefficients. Only statistically significant (* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$) results are shown. Controls for family structure and child’s ethnicity were included in each regression path from social disadvantage. Maternal psychological distress was adjusted for family structure. Each regression path at age 3 and 5 was adjusted for the child’s gender, ethnicity and birth order. Aspirations were controlled for the child’s gender and ethnicity. Problem behaviour was adjusted for the child’s age, gender, ethnicity and birth order.

From age 3 parental involvement in learning and parental values to age 5 cognitive ability and age 7 aspirations and problem behaviour

There was no relationship between parental involvement in learning at age 3 and aspirations at age 7. However, parental involvement in learning at age 3 was positively associated with cognitive ability at age 5. Parents wanting their children to be ‘well-liked or popular’ compared with ‘thinking for themselves’ had children with more extrinsic aspirations. Parental involvement in learning was related to lower hyperactivity and fewer conduct problems. There were few differences in the models using the parent and the teacher reports of problem behaviour. Parents who wanted to impart religious values at age 3 were more likely to report emotional problems in their children at age 7. In the teacher report, not valuing ‘helping others’ compared with ‘thinking for themselves’ was also related to emotional problems.

From age 5 cognitive ability to age 7 aspirations and problem behaviour

Cognitive ability at age 5 was related to more feminine, intrinsic and higher aspirations, and was directly negatively related to all four problem behaviour types as reported by both parents and teachers.

From aspirations to problem behaviour

In both the teacher and parent report, extrinsic aspirations were associated with fewer emotional and peer problems. Also for both reports, lower aspirations were related to emotional problems, and in the teacher report to peer problems, too. In the teacher report, there was also a significant relationship between masculine aspirations and hyperactivity.

Gender differences in the 'effects' of aspirations

The strength of the association between aspirations and problem behaviour differed somewhat by gender. Although effect sizes were small, intrinsic aspirations were more strongly related to peer problems in boys. The inverse relation between feminine aspirations and hyperactivity and peer problems was stronger in girls, as was the association between low aspirations and emotional problems.

Discussion

Until the creation of the large-scale evidence in this study, little was known about the aspirations of primary school children or how they relate to emotional and behavioural problems. Using data from a UK cohort study of children at age 9 months, and 3, 5 and 7 years, we classified 7-year-old children's aspirations on occupational prestige, the gender of current incumbents, and extrinsic-intrinsic motivation. We examined a variety of pathways to children's aspirations, and from them to problem behaviours as perceived by both parents and teachers.

Social disadvantage was directly related to low aspirations, as found in studies with older children (Croll, 2008). As hypothesised by the family investment model, it was also related to lower levels of parental involvement in learning. It would appear that future hopes and dreams for some children may be restricted at a young age by social background. Social disadvantage was also related to other family and child characteristics, such as parental values and child cognitive ability, which in turn predicted aspirations. The offspring of parents who valued popularity for their children aspired to wealth, fame and attractiveness (e.g. 'famous footballer', 'super model' or 'popstar'), and children with lower cognitive ability tended to have more masculine aspirations ('fire-fighter', 'footballer' or 'soldier'). Importantly, aspirations were related, albeit modestly, to emotional and behavioural problems. As expected, masculine aspirations were related to hyperactivity, in the teacher reports, and low prestige aspirations were more common in children with peer and emotional problems. But contrary to our expectations based on research with adolescents and adults, it was intrinsic, not extrinsic, aspirations that were related to peer problems, especially in boys. One reason could be that boys may be, in general, less encouraged to have gender-atypical (including intrinsic) aspirations than girls, which may result in peer rejection of those with less sex-typical dispositions. In our sample, the majority of boys with extrinsic aspirations (89%) wanted to be sports players. In contrast, of the boys with intrinsic-intermediate aspirations, 25% wanted to be doctors, 27% teachers, 20% animal carers and 16% veterinarians. It may be that boys who want to be sports players might

be more popular at school and less likely to be bullied than those aspiring to be teachers or animal carers. Of course, the fact that they may be good at sports may be driving both the aspirations and the popularity, rather than the aspirations playing a causal role.

These new findings notwithstanding, our study also supported previous research findings about some well-established pathways to child problem behaviour, while adding confidence in them by measuring both teacher and parent perceptions of child behaviour. For example, our study showed that maternal psychological distress was positively associated with all child problem behaviours, whether reported by parent or teacher, although the relationship was weaker in the teacher's perceptions. Social disadvantage was related to emotional problems but only in the parent report. These differences may be explained either by child behaviour differences across the home and school settings, or teachers' greater sensitivity to disruptive compared to anxious and withdrawn behaviour in children (Abikoff *et al.*, 1993). Differential biases in reporting may also play a role. Teachers may compare classmates, while parents juxtapose siblings (Collishaw *et al.*, 2009). Depressed mothers tend to over-report children's emotional and behavioural problems (Birmaher *et al.*, 1996) but this is unlikely to be a factor in our study because we controlled for maternal psychological distress (albeit at an earlier measurement point).

The use of a large cohort and an early developmental stage to investigate the development and 'effects' of aspirations are important strengths of this study, but we must acknowledge some limitations. Although the MCS children were offered the opportunity to give their own responses in as much depth as they wished, they were not asked to clarify the motives or meaning behind their responses. In addition, the aspirations question has only been asked in one sweep of the study so far. Further, aspirations and emotional and behavioural problems were both recorded at age 7, and therefore causal inferences are difficult to defend. As far as we are aware, however, this is the first study to model pathways to young children's aspirations and emotional and behavioural problems in a large longitudinal dataset. We found that aspirations at 7 are by no means the strongest factor predicting behaviour difficulties at that age. It remains to be seen how childhood aspirations will contribute to later attainments and difficulties as the cohort grows older.

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