*Data collection*

*School recruitment.*

STARS aimed to recruit 2000 pupils from mixed, non-selective secondary schools in South-East England, UK. In October/November 2011, 70 schools were contacted regarding participation in the study. Schools were randomly selected based on suitable location (N=60) or were identified based on previous contact with the researchers or other educational psychologists known to the researchers (N=10). Schools that wished to participate in the study (N=17) were asked to complete a questionnaire asking how many pupils they expected to start in September 2012 and about the demographics of their pupils. Specifically, schools were asked what percentage of pupils received free schools meals (an index of deprivation), did not have English as their first language, had Special Educational Needs (SEN), and what the ethnic composition of pupils was. Based on this demographic information and the schools’ pupil academic achievement at age 16 years (indicated by school GCSE results available online at <http://www.education.gov.uk>), 10 schools were selected to be broadly representative of South-East England, with a predicted intake of around 2000 pupils in September 2012.

*Procedure.*

Questionnaire data was collected at three stages of the study at 6-month intervals. The procedure for collecting questionnaire data is shown in Figure 1. For the first stage of the study, parents of year 6 pupils (age 10-11 years) who were due to attend one of the 10 participating secondary schools were sent postal packs in May 2012, containing questionnaires for pupils and parents. Parents were given the opportunity to opt their children out of the study and informed pupil consent was obtained. Overall pupil response rate was 35% (total 750). For the second and third stages of the study, questionnaire data from pupils was collected via in-school assessments in November 2012 and June 2013. Parents were informed of the data collection by post and were given the opportunity to opt their children out of the study. Pupil completion rates were 87% and 85% for the second and third stage respectively (total 1712 and 1653 respectively). Details of overall participation can be seen in Figure 3.2.

At all stages parents were sent postal questionnaires and at the third stage were additionally given the option to complete the questionnaire at school parents’ evenings. Parental response for the first, second and third stage was 34%, 28% and 48% respectively (total 745, 544 and 939 respectively). One of the ten schools did not participate in the second and third stages of the study due to a change in senior management; pupils and parents from this school who had participated in the first stage of the study to were sent postal questionnaires as per the first stage. At each stage, when parental permission was given, teachers were given questionnaires to complete. For the first stage of the study, primary school teachers were written to if parents gave details of their child’s primary school and teacher. At the second and third stage, this involved teachers from the recruited secondary schools; response rate was 66%, 75% and 85% for the first, second and third stages respectively (total 505, 1372 and 1596 respectively). School records data was also collected when parental permission was given. The study protocol was reviewed and approved by the UCL ethics committee.

**Figure 1**

**STARS questionnaire data collection**

Parents and pupils sent questionnaires by post

Stages 2 and 3

1 withdrawn secondary school

9 participating secondary schools

Parents and pupils sent questionnaires by post

10 secondary schools recruited

Stage 1

1. Parents did not withdrew permission to contact pupil/secondary school teacher
2. Parents withdrew permission to contact pupil/secondary school teacher
3. Parents did not provide contact details for primary school

Primary school teacher sent questionnaire by post

Primary school teacher not contacted

Pupil/secondary school teacher given questionnaire during school visit

Pupil/secondary school teacher not given questionnaire during school visit

Secondary school teacher questionnaire data not collected

1. Parents provided contact details for primary school teachers and permission to contact

Parents sent questionnaire by post

**Figure 2**

**STARS participation**

2161 parent and children asked to participate

Stage 1

505 completed  
256 no response

745 parents   
 completed  
16 gave permission   
 to contact teacher   
 but did not complete 126 parents   
 withdrew  
1274 no response

761 teachers asked to   
 participate

750 pupils   
 completed  
108 pupils withdrew  
1303 no response

Stage 3

1653 pupils completed  
70 pupils withdrew  
156 pupils absent

939 parents completed  
137 parents withdrew  
874 no response

1594 completed  
 285 no response

1879 teachers   
 asked to participate

Stage 2

1950 parents written to

34 pupils left participating schools  
24 pupils joined participating schools

71 pupils withdrawn by parent

1712 pupils completed  
12 pupils withdrew  
111 pupils absent

544 parents completed  
128 parents withdrew  
1288 no response

1372 completed  
463 no response

1835 teachers asked   
 to participate

125 pupils withdrawn by parent

1960 parents written to

96 pupils left study as their school dropped out  
214 pupils left participating schools  
109 pupils joined participating schools

Curriculum (NC) attainment data only (available for 7 of the participating schools).

**Table 1 Overview of available variables**

|  |  |  |
| --- | --- | --- |
| Domain assessed | Measure | Phase and informant |
| Mental health difficulties | Strengths and Difficulties Questionnaire SDQ ([Goodman, 2001](#_ENREF_15)) | Child (1, 2, 3)  Parent (1, 2)  Teacher (1, 2, 3) |
| Impact of mental health difficulties | Impact section of the SDQ | Teacher (1, 2, 3)  Parent (1, 2, 3) |
| Academic attainment | Key Stage 2 test results or teacher assessment scores for English, Maths and Science  Key Stage 3 teacher assessment scores for English, Maths and Science | Teacher/school records (1, 3) |
| Pupil transition concerns | School Concerns Questionnaire (Rice et al., 2011; 2015) | Child (1, 2, 3) |
| Parent transition concerns | Evangelou et al., 2008 | Parent (1) |
| Range of additional questions on transition | E.g. ‘are you looking forward to starting secondary?’ ‘Was this school your first choice?’ adapted from Evangeolu 2008 | Child (1, 2)  Parent (1) |
| Transition interventions (classroom and individual) at primary school | Primary Intervention Strategy Questionnaire Neal et al (2016) | Teacher (1)  Child (1, 2)  Parent (2) |
| Settling into secondary school questionnaire | Secondary Transition Adjustment Research Tool (START) (Rice et al., 2015) | Teacher (1, 2, 3)  Parent (1, 2, 3) |
| School connectedness | Resnik et al (1997) scale | Child (1, 2, 3) |
| School liking | Child Development Project Questionnaire (Solomon et al., 2000). | Child (1, 3) |
| Trust in and respect for teachers | As above | Child (1, 2, 3) |
|  |  |  |
| Learning motivation | Wentzel's ([1998](#_ENREF_36)) learning goal pursuit scale | Child (1, 2, 3)  Parent (1, 2, 3) |
| Demographic factors | Eligibility for free school meals, ethnicity, English as a second language etc | School records |
| Loneliness at school | School-oriented version of the Loneliness in Children scale ([Asher & Wheeler, 1985](#_ENREF_14)). | Child (1, 2, 3) |
| Stressful life events | Life Events Checklist ([Johnson & McCutcheon, 1980](#_ENREF_17)) | Child (1, 3)  Parent (1) |
| Self-control | Brief Self-Control Scale ([BSCS; Tangney et al., 2004](#_ENREF_334)) | Child (1,2 3) |
| Parent warmth and hostility | Iowa Youth and Family scales | Child (1, 2, 3)  Parent (1, 3) |
| Parenting style | Iowa Youth and Family scales Shortened version of CRPBI | Parent (1, 2) |

**Measures**

**Academic attainment**

In STARS academic attainmentat time 1 were scores on the National Tests of English, Maths and Science, which are administered in schools in England at the end of the last year in primary school (age 10-11). At time 3, academic attainment was measured by Teacher Assessment scores for English, Maths and Science. For 7 of the 9 participating schools at stages 2 and 3, these were either National Curriculum levels (N=1362), where each level has three subdivisions (a, b, c, where a is the highest (has reached the top of the level) and c the lowest (has started working at that level). For 2 schools attainment was measured by International Middle Years levels (N=197) which are scored pass/credit/merit/distinction. Levels for each subject were transformed into a continuous score, standardized by school to allow the use of both curriculum scores, and summed to give a total attainment score which showed excellent internal consistency. Further details on the derivation of academic attainment scores are given below:

Attainment at the end of Year 6 (primary school) was measured using the results of formal Key Stage 2 National Curriculum Tests in Maths and English (Reading and Writing). Official grades awarded in these tests range from level 2 (lowest) to level 6 (highest). Pupils who do not reach level 2 are designated as ‘working below level 2’. For analysis these scales were recoded into a continuous scale so that pupils working below level 2 = 1, at level 2 = 2, at level 3 = 3 and so on (range = 1 to 6).

Attainment at the end of Year 7 (secondary school) was measured using children’s grades from teacher assessments in Maths, English and Science. For seven of the participating schools, performance scores for the end of Year 7 were National Curriculum (NC) attainment levels for English, Maths and Science (range = 2c to 8b, where 2c is lowest and 8b is highest). There are 8 NC levels, where level 1 describes average achievements expected of a child at around 5 years old, and level 8 describes the level achieved by the most able pupils at 14 years old. At the end of Year 6 (corresponding to the start of this study) the majority of pupils are expected to achieve level 4. The letters accompanying each level refer to the following: c = the child has started to work at the NC level; b = the child is working well within the NC level; a = the child has reached the top of the NC level and is working towards the next NC level. For analysis, these levels were recoded into a continuous scale so that 2c = 1, 2b = 2… 8b = 20. For the remaining two schools, performance scores for the end of Year 7 were International Middle Years Curriculum attainment levels for English, Maths and Science where there were four levels (pass, merit, credit, distinction). These levels were recoded into an ordinal scale so that: pass = 1, merit = 2, credit = 3, distinction = 4. For the main analyses, in order to account for these differences in measurement, scores for each subject were standardised within schools. Standardised scores for English, Maths and Science showed good internal consistency (*α* = .85). Higher scores indicate higher attainment.

*Learning Motivation*

Learning motivation was measured at all phases using parent and child-reports of Wentzel's ([1998](#_ENREF_36)) learning goal pursuit scale, consisting of 4 items (e.g. How often do you try to learn something new even when you don't have to?) on a 5-point scale from never (1) to always (5), summed to give a total score (possible range 4-20).

*School connectedness*

At all phases, school connectedness was measured using Resnick and colleagues’ ([1997](#_ENREF_23)) 6-item scale, which asked pupils to what extent they agreed with statements about their current school (e.g. ‘You feel close to people at school’). Items are rated on a 5-point scale (1 = ‘Strongly disagree’; 5 = ‘Strongly agree’), summed to give a total score (possible range 6-30).

*Liking school*

At phase 1 and 3, pupils’ perceptions of school were measured with five items (e.g., ‘I like my school’) from the *Liking School*scale developed by the Child Development Project ([Battistich et al., 1995](#_ENREF_24); [Solomon, Battistich, Watson, Schaps, & Lewis, 2000](#_ENREF_316)). Items were rated on a four-point response scale (1 = NO!!, 2 = no, 3 = yes, 4 = YES!!). The internal consistency of the five items (*α* = .80) was consistent with those found in other studies ([e.g., Battistich et al., 1995](#_ENREF_24)). Higher scores indicate liking school more.

*Loneliness at school*

At waves one and three, children’s feelings of loneliness were measured using seven items (e.g., ‘I’m lonely at school’) from the school-oriented version of the Loneliness in Children scale ([Asher & Wheeler, 1985](#_ENREF_14)). Items were rated on a five-point response scale (1 = not true at all, 2 = hardly true at all, 3 = sometimes true, 4 = true most of the time, 5 = always true). The internal consistency of the seven items (wave one *α* = .81, wave three *α* = .80) was similar to those found in other studies ([e.g., Asher & Wheeler, 1985](#_ENREF_14)). This measure has been found to distinguish between rejected, average, and popular children ([Asher & Wheeler, 1985](#_ENREF_14)).

*Symptoms and impact of mental health problems (Strengths and Difficulties Questionnaire)*

Children’s mental health problems were measured using children’s self-reports (all waves), parents’ reports (waves one and two), and teachers’ reports (all waves) to the Strengths and Difficulties Questionnaire ([SDQ; Goodman, 1997](#_ENREF_145)), a 25-item scale measuring adjustment and psychopathology via five subscales (see table 2.4 for *α*’s): emotional symptoms (e.g., ‘I worry a lot’); conduct problems (e.g., ‘I get very angry and lose my temper’); hyperactivity/inattention (e.g., ‘I am restless, I cannot sit still for long’); peer problems (e.g., ‘I am usually on my own. I generally play alone or keep to myself’); prosocial behaviour (e.g., ‘I usually share with others’). A total difficulties score can be computed by combining the emotional symptoms, conduct problems, hyperactivity/inattention, and peer problems subscales. Items were rated on a three-point scale (0 = not true, 1 = sort of true, 2 = certainly true). Higher scores indicate higher levels of emotional problems, conduct problems, hyperactivity/inattention, peer problems, or prosocial behaviour. The SDQ is a well validated measure, showing adequate reliability and validity and performing well compared to other established measures of child psychopathology ([Goodman, 1997](#_ENREF_145), [2001](#_ENREF_146)). The impact section of the SDQ was reported on by parents (waves 1, 2 and 3) and by teachers (waves 1, 2 and 3).

*Pupil transition concerns*

Children’s concerns about the transition to secondary school were measured with the School Concerns Questionnaire ([20 items, α=.92; Rice et al., 2011](#_ENREF_271)) at all assessment waves. Children were asked to indicate how worried they were about each of the 20 areas (e.g., ‘making new friends’). Item responses were made on a ten point scale (1 = not at all worried, 10 = I get extremely worried about it). Higher scores indicate higher levels of concerns about secondary school.

*Parent transition concerns*

At wave one, parents’ transition concerns were measured as the total number of areas that the responding parent reported they were concerned about ([11 items, range = 0 to 11; Evangelou, 2008](#_ENREF_120)). Reponses for each item were coded as 0 = not concerned or 1 = concerned for the following 11 areas: amount of freedom; amount of homework; level of work; adjusting to having lots of teachers; safety; travel to school; keeping old friends; making new friends; bullying; understanding school procedures; understanding school rules. Higher scores indicate higher concerns about the transition to secondary school.

*Expectations about transition*

Parents (phase 1 and 2) and pupils (phase 1) reported on a range of items assessing expectations and choice about transition to secondary school adapted from Evangeolu et al., 2008 including items such as: ‘Are you looking forward to starting secondary school?’ ‘Was this school your first choice?’

*Transition interventions*

Parents, pupils and teachers reported on the sorts of interventions they had received/given as part of the transition induction procedures. For further details on the Primary Intervention Strategy Questionnaire see Neal et al (2016)

*Settling into secondary school questionnaire*

Parents and teachers completed this 4-item questionnaire at each phase. This assesses how well children are expected to settle in academically and socially (Rice et al., 2015).

**Parenting**

At wave one, parenting was assessed with responding parents’ self-reports to four subscales of the Iowa Youth and Families Project (IYFP) Interaction Rating Scales ([Melby et al., 1993](#_ENREF_225)). Item responses were made on a seven-point response scale (1 = always, 2 = almost always, 3 = fairly often, 4 = about half, 5 = not too often, 6 = almost never, 7 = never). Two scales measured parents’ reports of positive and negative behaviour and affect expressed towards their child: Warmth (six items, e.g., ‘How often did you let them know you really care about them?’ *α* = .87) and Hostility (four items, e.g., ‘How often did you get angry at them?’ *α* = .76). Two scales measured the strategies parents use to control their child: Inconsistent Discipline (4 items, e.g., ‘Once a punishment has been decided, how often can they get out of it?’ *α* = .71) and Inductive Reasoning (four items, e.g., ‘How often do you give reasons to this child for your decisions?’ *α* = .79). These scales have been widely used to assess parenting behaviours (e.g., [Brody et al., 2005](#_ENREF_47); [Dogan, Conger, Kee Jeong, & Masyn, 2007](#_ENREF_99)).

At wave two and three, children’s perceptions of parental warmth and hostility were assessed with children’s reports to the same scales ([Melby et al., 1993](#_ENREF_225)): Warmth (six items, e.g., ‘How often did your mum/dad let you know she/he really cares about you?’ *α* = .90 and .92 for mums and dads respectively) and Hostility (four items, e.g., ‘How often did your mum/dad get angry at you?’ *α* = .79 and .82 for mums and dads respectively).

*Sample characteristics*

Data from school records were available on pupil demographics including gender, free schools meals (FSM) eligibility, whether the pupil had a special educational needs (SEN) statement, had English as an additional language (EAL) and was from a Black and Minority Ethnic (BME) group, as well as Maths and English attainment measured by Key Stage 2 level. These sample characteristics, are presented in Table 2, as well as the national averages ([Department for Education, 2012a](#_ENREF_11), [2012b](#_ENREF_12), [2012c](#_ENREF_13)). This information was available for the majority of potential participants (71-99.9% across variables and stages), allowing comparison between participants and non-participants at each stage, also presented in Table 2

At all stages participants included roughly equal numbers of boys and girls (51-53% male). At stages 2 and 3, rates of FSM eligibility and SEN statement were comparable to the National average, although these were somewhat lower at stage 1. Rates of EAL and BME were somewhat higher than the national average, which reflects the inclusion of London schools which is the most ethnically diverse region in England and Wales ([Statistics, 2012](#_ENREF_29)). The proportion of pupils achieving the recommended key stage 2 level 4 in maths and English were similar to the national average (STARS 88-89% compared to 84-85% national average).

Comparing participants to non-participants, at stage 1, where data was collected via a postal mail-out, participants were more likely than those who did not participate to be female and not eligible for FSM (χ2(1)=4.33, p<.05 and 4.54, p<.05 respectively) but did not differ from non-participants in terms of the proportion with SEN, EAL, BME, or achieving the recommended level in Maths or English. At stage 2, where data was collected via in-school assessments, participants did not differ from those who did not participate in any of these measures. Finally, at stage 3, where data was also collected via in-school assessments, participants did not differ from non- participants in gender, FSM eligibility, EAL or BME. However, they were less likely to have SEN and more likely to have achieved the recommended attainment levels in Maths and English. This was due to a higher proportion of pupils with SEN and not achieving key stage 2 level 4 in Maths and English being absent from school at the assessment rather than the parent withdrawing the child from the study or the child withdrawing themselves.

**Table 2 STARS (School Transition & Adjustment Research Study) sample characteristics (%)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2012 | Stage 1 participation (35%) | | | | Stage 2 participation (83%) | | | | Stage 3 participation (81%) | | | |
|  | National average | Yes  (N=750) | No  (N=1411) | Difference (χ2 (*df*=1)) | | Yes  (N=1712) | No  (N=248) | Difference (χ2 (*df*=1)) | | Yes (N=1653) | No  (N=297) | Difference (χ2 (*df*=1)) | |
| Male gender |  | 50.7 | 55.3 | 4.33 | \* | 53.3 | 55.90 | .78 |  | 52.8 | 55.6 | .68 |  |
| Free schools meals (FSM) eligibility | 16 | 13.5 | 17.4 | 4.51 | \* | 15.7 | 22.1 | 2.47 |  | 16.0 | 17.3 | .21 |  |
| Special Educational Needs (SEN) statement | 1.9 | 1.5 | 2.6 | 2.24 |  | 2.2 | 3.5 | .63 |  | 1.8 | 5.8 | 11.66 | \*\* |
| English as an Additional Language (EAL) | 12.9 | 28.3 | 28.5 | .003 |  | 28.6 | 30.2 | .11 |  | 28.3 | 28.3 | .00 |  |
| Black and Minority Ethnic (BME) | 23.2 | 38.0 | 41.3 | 1.75 |  | 40.0 | 44.6 | .68 |  | 40.2 | 36.8 | .82 |  |
| Maths attainment level 4+ | 84 | 89.4 | 87.7 | 1.14 |  | 88.2 | 81.0 | 3.65 |  | 88.9 | 80.1 | 11.71 | \*\* |
| English attainment level 4+ | 85 | 88.5 | 87.2 | .64 |  | 87.5 | 82.3 | 1.85 |  | 88.4 | 79.1 | 12.37 | \*\* |

Maths/English attainment = key stage 2. \**p*<.05 \*\**p*<.01 \*\*\**p*<.001

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