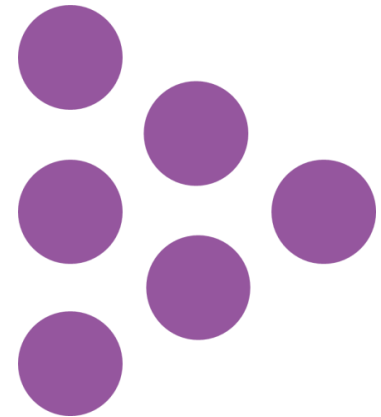


Report

**Understanding the relationship between attendance,
wellbeing and sense of belonging**

National Foundation for Educational Research (NFER)



Exploring the relationship between attendance, wellbeing and sense of belonging

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This work was undertaken in the Office for National Statistics Secure Research Service using data from ONS and other owners and does not imply the endorsement of the ONS or other data owners.

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Executive Summary

Aim

To understand the potential relationships between pupil wellbeing, sense of school belonging, and school absences, to help inform solutions for tackling the attendance crisis.



What did we do?

We analysed linked data from the 2022 Programme of International Student Assessment (PISA) and the National Pupil Database (NPD) using statistical techniques to explore the relationships between:

- life satisfaction and school absence rates
 - sense of school belonging and school absence rates
- for 15-year-old pupils in England.

Our analysis is associational rather than causal so cannot determine if better life satisfaction or school belonging led to better attendance or vice-versa. For example, higher life satisfaction may lead to better school attendance, but better school attendance could also lead to higher life satisfaction.

What did we find?



Pupils' life satisfaction ratings were significantly related to school absence, and the relationship was stronger among pupils with higher levels of school absence. However, improving life satisfaction alone is unlikely to solve the attendance crisis.



Life satisfaction is a much stronger predictor of school absence for females than for males.



Sense of school belonging also predicts school absence, but this effect was not sustained after controlling for life satisfaction. This highlights that improving sense of belonging is unlikely to be a panacea for addressing attendance challenges in schools.

Recommendations

1

To help improve attendance, the Government should expand their focus on school belonging to consider wider factors that influence pupils' life satisfaction such as timely access to wellbeing and mental health support, ensuring a balanced school curriculum, and support for socio-economically disadvantaged pupils and their families.

2

To yield the greatest benefits, Government efforts to improve life satisfaction with the aim of increasing school attendance should focus on females and pupils with the highest absence rates including persistently and severely absent pupils.

3

In addition to school-based actions to improve attendance, the Government must ensure that wider public services including family support and mental health services have sufficient staff capacity and funding to work alongside schools and provide support to children and families, so schools and agencies can work together to help overcome barriers to attendance.

4

Given the focus on improving school belonging among pupils, the Government should consider building the evidence base about the causal impacts of improving school belonging on pupil outcomes including school attendance and attainment. For example, by generating evidence via What Works Centres.

1. Introduction

Improving school attendance rates is currently a top priority for schools and the Government. This project sought to understand the potential relationships between pupil wellbeing, sense of school belonging, and school absences, with a view to informing solutions to help tackle the attendance crisis.

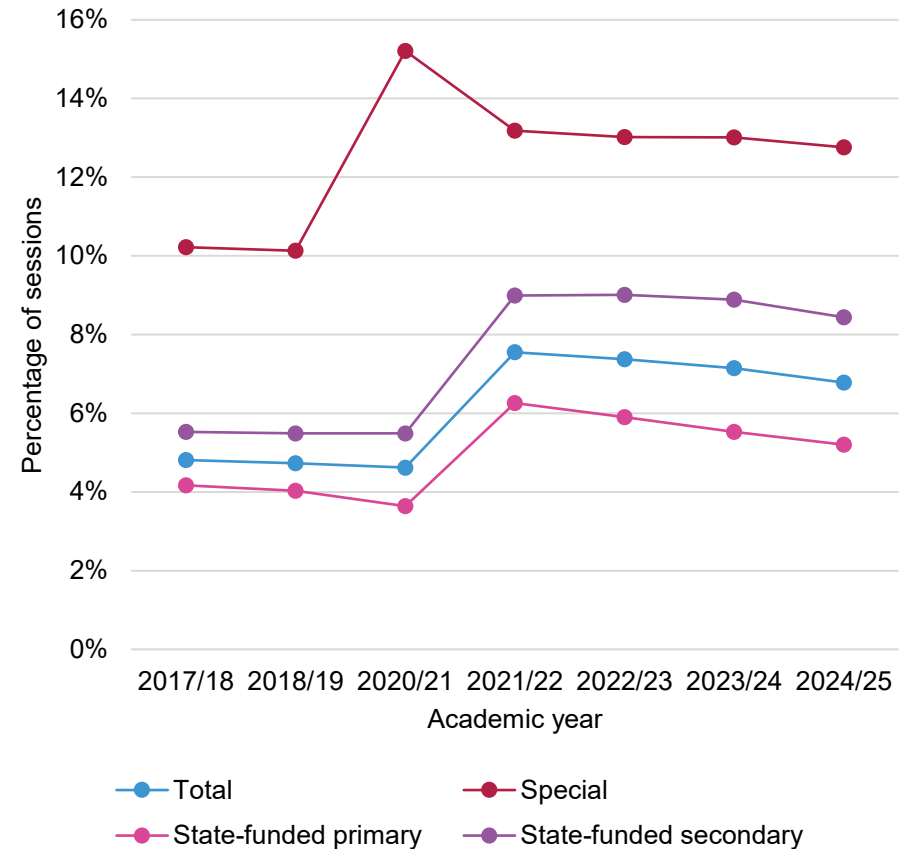
School attendance rates declined following the Covid-19 pandemic

Despite considerable efforts from schools and the Government to get pupils back to school, absence rates remain above pre-pandemic levels. This issue is particularly acute in secondary schools where the average absence rate in the 2024/2025 academic year was 8.4 per cent compared with 5.5 per cent in 2018/2019 (Figure 1).

Declining school attendance has coincided with reported declines in pupil wellbeing, but this relationship is not well understood

Alongside declining school attendance, pupil wellbeing has worsened (Meiksane & Jackson, 2023; Montero-Marin et al., 2023). In addition, survey data from the Programme of International Student Assessment (PISA) 2022 (Ingram et al., 2023) shows that 15-year-old pupils in England reported an average life satisfaction score of 6.01, which is significantly below the OECD average of 6.75, and the lowest score among participating European countries. Consequently, there has been widespread discussion about whether declining pupil wellbeing could be driving increases in school absence. However, this relationship, especially post-pandemic, is not well understood.

Figure 1: School absence rates in England by school type and academic year



Source: Pupil absence in schools in England for academic years 2017/28 to 2024/25 (GOV.UK, 2026)

Improving school belonging has been suggested to help improve attendance, but evidence of impact is lacking

Increasing pupils' sense of school belonging has recently become a key focus of policy efforts to improve school attendance. School belonging is typically defined as *"the extent to which students feel personally accepted, respected, included, and supported by others in the school social environment"* (Goodenow and Grady, 1993).

Previous research suggests that pupils' sense of school belonging is associated with school attendance. For example, a 2019 meta-analysis reported small negative correlations between sense of school belonging and school attendance or drop-out rates (Korpershoek et al., 2020). More recently, pupils with higher attendance rates have been reported to have a higher sense of school belonging than pupils with lower attendance rates, with more pronounced effects observed for severely absent pupils (ImpactEd Evaluation, 2024).

There is also evidence that pupils in England have a lower sense of school belonging compared with their peers in other countries. Data from the 2022 PISA survey showed that just under two-thirds (63 per cent) of pupils in England reported feeling that they belonged at their school, compared with an average of 75 per cent of pupils across countries in the Organisation for Economic Co-operation and Development (OECD) (Ingram et al., 2023).

In light of this evidence, the Schools' White Paper sets out an expectation that all schools will measure pupils' sense of school belonging by 2029 (DfE, 2026). However, despite growing policy interest, evidence linking school belonging with pupil outcomes,

including attendance, is limited (Korpershoek et al., 2020). Further research is needed to understand the extent to which strengthening pupils' sense of school belonging may lead to improved attendance.

Understanding the relationship between pupil wellbeing, school belonging, and absence

This project used linked data for 15-year-olds from PISA 2022 and the National Pupil Database (NPD) to explore the relationships between:

- 1) pupils' life satisfaction scores and absence rates
- 2) pupils' sense of belonging and absence rates

Life satisfaction scores from PISA 2022 were used as our indicator of wellbeing. Scores are rated on a scale from 0 (not at all satisfied) to 10 (completely satisfied).

Sense of school belonging was measured using a composite measure of school belonging from PISA 2022, which comprises six items measured on a 4-point Likert scale (strongly agree, agree, disagree, strongly disagree). The average score is 0. Scores below 0 indicate a below-average sense of belonging, while scores above 0 indicate a higher-than-average sense of belonging.

School absence was measured using the overall absence rate from the NPD in the 2022/2023 academic year. This includes both authorised (reason approved by the school) and unauthorised absence (reason not approved by the school). We focused on overall absences due to recording inconsistencies in absence type between schools, and because physical and/or mental ill health reasons which are related to wellbeing are more likely to be recorded as authorised.

2. Methodology

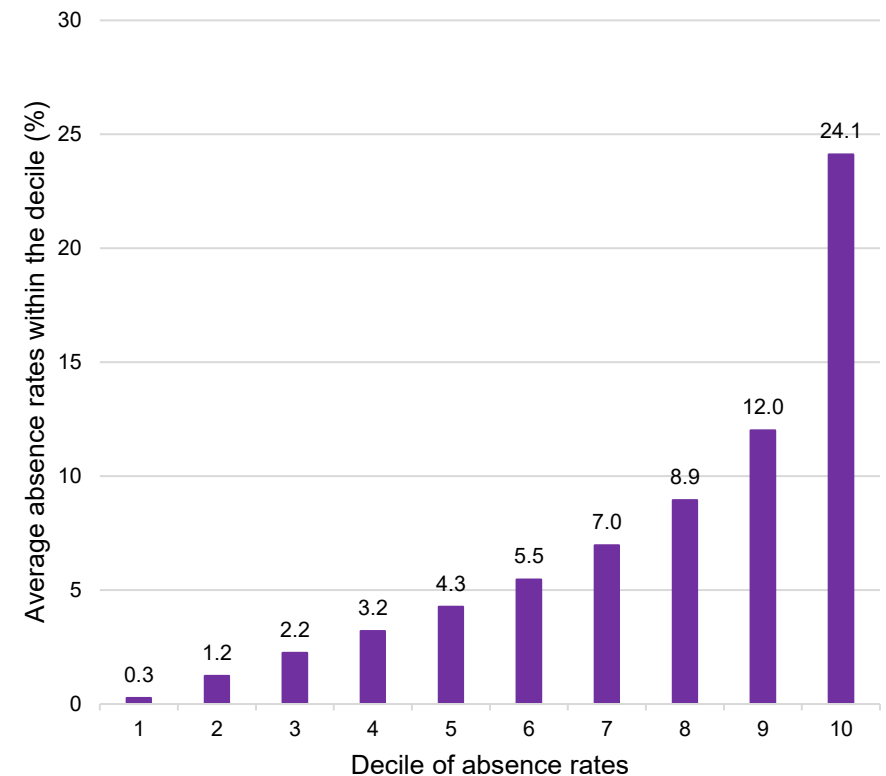
Our analysis estimated the effects of life satisfaction and sense of belonging on absences using two different methods. The first, ordinary least squares (OLS) regression, was used to estimate the association between life satisfaction and sense of belonging on the rate of absences. We included a broad set of pupil characteristics in our regression model drawing on the comprehensive variables in PISA and NPD. These included demographic characteristics and prior attainment scores from the NPD, as well as background characteristics and pupils' subjective perceptions from PISA.

The second method - quantile regression - estimated the effect on students at *specific percentiles* of the absence distribution once key pupil and school characteristics are accounted for (see above). This analysis examines whether students who attend school less often and those who attend regularly respond similarly to improvements in life satisfaction and a sense of belonging at school. Examining only the average effect of absences may mask these differences. This is crucial as absence rates among students are highly variable as shown by Figure 2. The absence rate (at 24.1 per cent) in the top decile is over eighty times greater than the bottom (first) decile (at 0.3 per cent).

Initial regression analyses explored the effects of life satisfaction separately to sense of school belonging. However, life satisfaction and sense of school belonging are correlated, and improvements in both variables may occur simultaneously. To account for this potential simultaneity of the effects of life satisfaction and sense of school

belonging, we undertook further analysis which included both variables, their interaction, and the full set of controls.

Figure 2: Average absence rates within each decile of absences



Source: NFER analysis of linked PISA-NPD

Heterogeneity analysis

To investigate whether the effects of life satisfaction and school belonging differ between males and females, we also conducted our analysis separately by key demographic characteristics: gender, free school meals (FSM) status, English as an additional language (EAL) status, special educational needs and disabilities (SEN) status, and ethnicity (white/not white).

Limitations

Firstly, our analysis is *associational* rather than causal and should be interpreted in that context. Further, relationships between both life satisfaction and sense of school belonging and attendance may be bi-directional. For instance, while low life satisfaction may lead to increased school absence, higher school absence rates may also lead to lower life satisfaction among pupils.

Secondly, the PISA 2022 test was conducted immediately after the COVID-19 pandemic, a period characterised by increased school absences and a deterioration in pupils' life satisfaction and school belonging. It is possible that the relationships between absences and life satisfaction and school belonging have changed in the years following the survey, in which case such a shift is not captured in our results.

Thirdly, our analysis sample may not be fully representative of the wider school population. We do not know whether the characteristics of pupils (for example, special educational needs or motivation) who completed the PISA survey but could not be matched to the NPD differ from those for whom matched data were available. The total number of pupils who

took the England PISA test in 2022 was 4,763, whereas our dataset, the PISA dataset matched to the NPD (PISA-NPD) with non-missing information for life satisfaction and sense of belonging, includes 3,200 pupils. This represents approximately 70 per cent of the initial PISA sample. The sample for our full statistical model is even smaller representing around 50 per cent of the original sample (see Table 1 in the methodological appendix). A large share of this difference is driven by the fact that life satisfaction and sense of belonging questions were only answered by a subset of pupils. Compared with state-funded secondary schools in England, the absence rate in our data is lower by 3.6 percentage points (6.7 per cent in our sample, compared with 10.3 per cent for Year 10s across all state-funded secondary schools). This means that the matched data we have available may not be fully representative. One reason for this is that the most absent pupils are less likely to have been in school when the PISA assessment took place.

Additionally, while both life satisfaction and sense of school belonging are measured at one specific point in the academic year (in either November or December), absences are measured over the entire academic year. Because of this timing difference, and since satisfaction and belonging can change during the year, this means that our analysis may understate the relationship between life satisfaction, sense of school belonging and absences at a point in time.

Finally, our analysis may be impacted on the self-reported measurement of life satisfaction and sense of belonging in PISA. These measures may be impacted by differences in interpretation and only reflect a point in time measurement. See the methodological appendix for more details about our approach.

3. Higher levels of life satisfaction are associated with lower school absences

This section presents the results of our descriptive and regression analyses, which explored the potential relationship between pupils' life satisfaction and school absences.

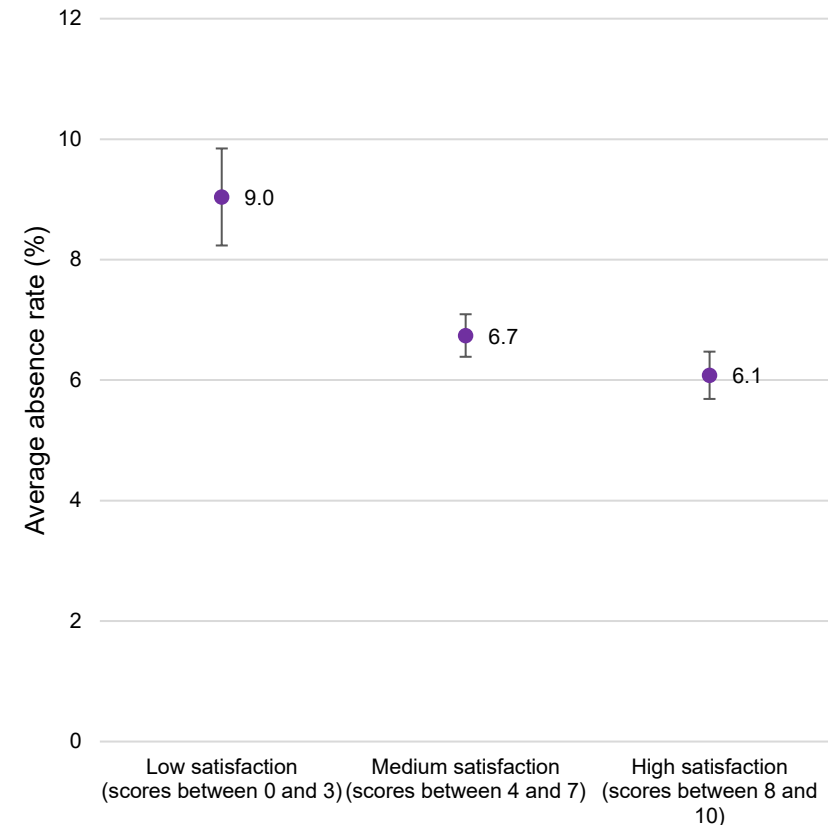
As life satisfaction increases, school absences decrease

Our descriptive analysis indicates that pupils with higher levels of life satisfaction have lower rates of school absence. Pupils who reported high life satisfaction had an average absence rate of 6.1 per cent, compared to 9.0 per cent for pupils with low life satisfaction (see Figure 3).

Increasing pupils' life satisfaction is less closely related to school attendance where pupils already have higher levels of life satisfaction

We also found that average absence rates fall as life satisfaction increases, and the rate of decline slows at higher life satisfaction levels. Average absences fall by 2.3 percentage points between low and medium life satisfaction levels, but by only 0.6 percentage points between medium and high life satisfaction levels (Figure 3). This indicates that improving life satisfaction among the unhappiest pupils may yield the greatest benefits for school attendance.

Figure 3: Observed association between life satisfaction and school absence rates



Source: NFER analysis of linked PISA-NPD

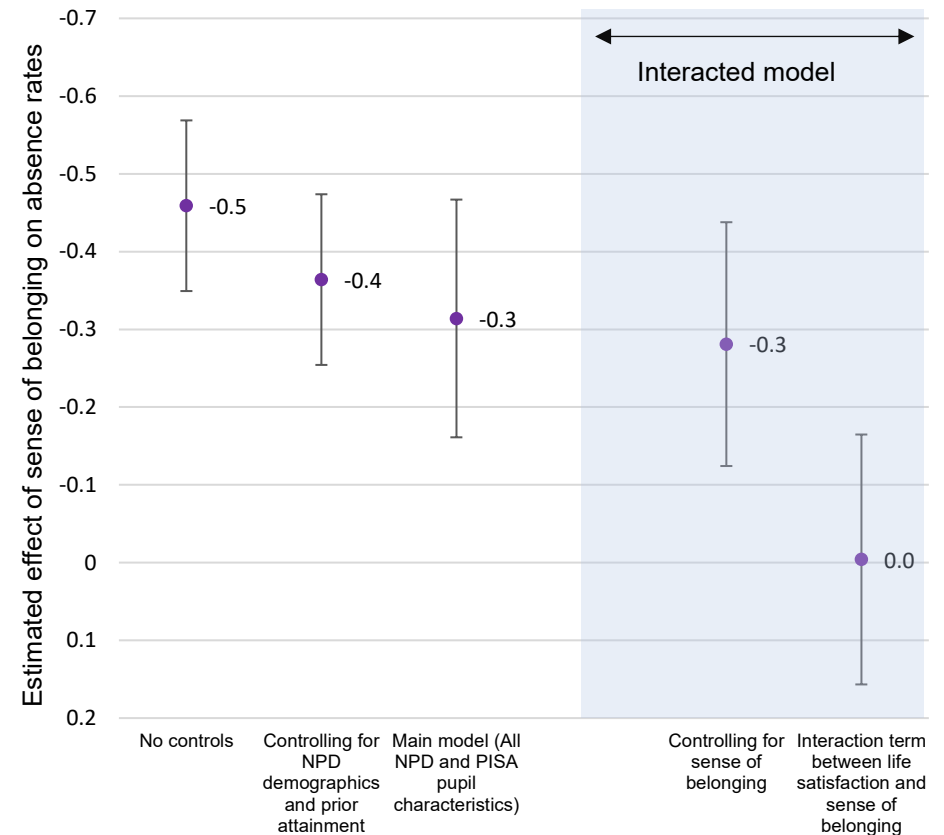
The negative association between life satisfaction and school absence was confirmed when we controlled for relevant characteristics

Our regression analysis confirmed that the negative relationship between life satisfaction and school absences remains when we control for other observed pupil characteristics (Figure 4). Once we included all the controls from NPD and PISA, a one unit increase in pupil’s life satisfaction was associated with a reduction in total absences of 0.3 percentage points. Relative to the average absence rate of 6.8 per cent in our sample, this effect represents a five per cent reduction in the average absence rate.

Furthermore, this effect was sustained once we also controlled for pupils’ sense of school belonging, although we do not observe any interaction between life satisfaction and sense of belonging (see shaded area on figure).

However, as outlined in the Methodology section, while our data demonstrate a negative association between life satisfaction and school absence rates, it is possible that the relationship between life satisfaction and school absences is bi-directional. This means that while low life satisfaction may lead to increased school absence, it is also possible that higher school absence rates may lead to lower life satisfaction among pupils.

Figure 4: Estimated effect of life satisfaction on school absence rates



Source: NFER analysis of linked PISA-NPD

4. Sense of school belonging was also negatively associated with school absences, but this was not sustained after controlling for life satisfaction

We then repeated our descriptive and regression analyses to explore the potential relationship between pupils' sense of school belonging and school absences.

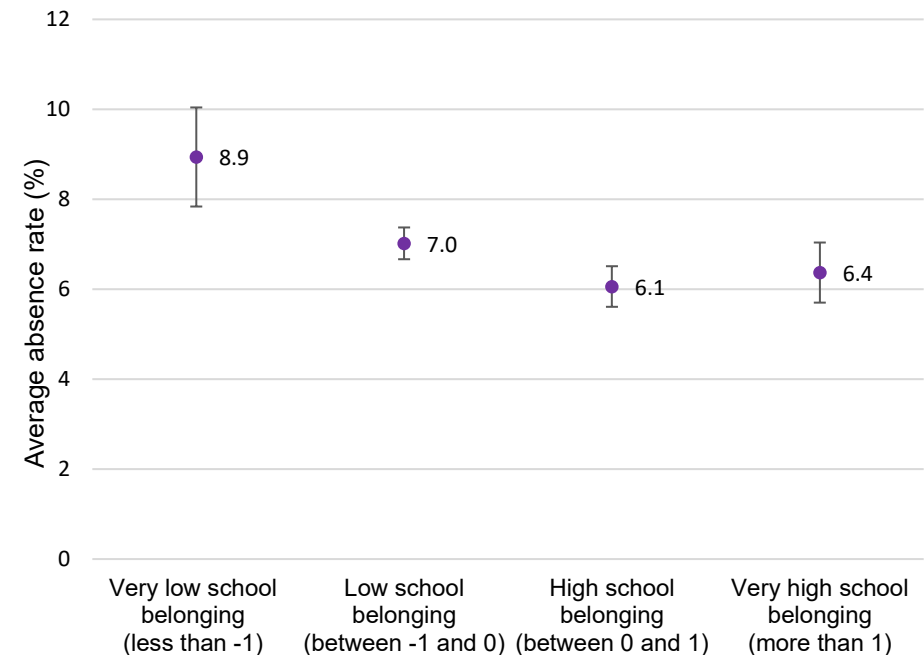
Pupils with a higher sense of school belonging have fewer absences from school

Our descriptive analysis indicated that pupils with a higher sense of school belonging have lower levels of school absence. On average, pupils who reported a very low sense of school belonging had an absence rate of 8.9 per cent, while pupils with a very high sense of school belonging had an absence rate of 6.4 per cent (Figure 5).

The relationship between increasing pupils' sense of school belonging and school attendance is weaker where pupils already have a higher sense of school belonging

This is similar to the pattern observed for life satisfaction. Average absence rates fall by 1.9 percentage points when going from a very low to a low sense of belonging but by 0.9 percentage points when going from a low to a high sense of belonging (Figure 5).

Figure 5: Observed association between school belonging and school absence rates



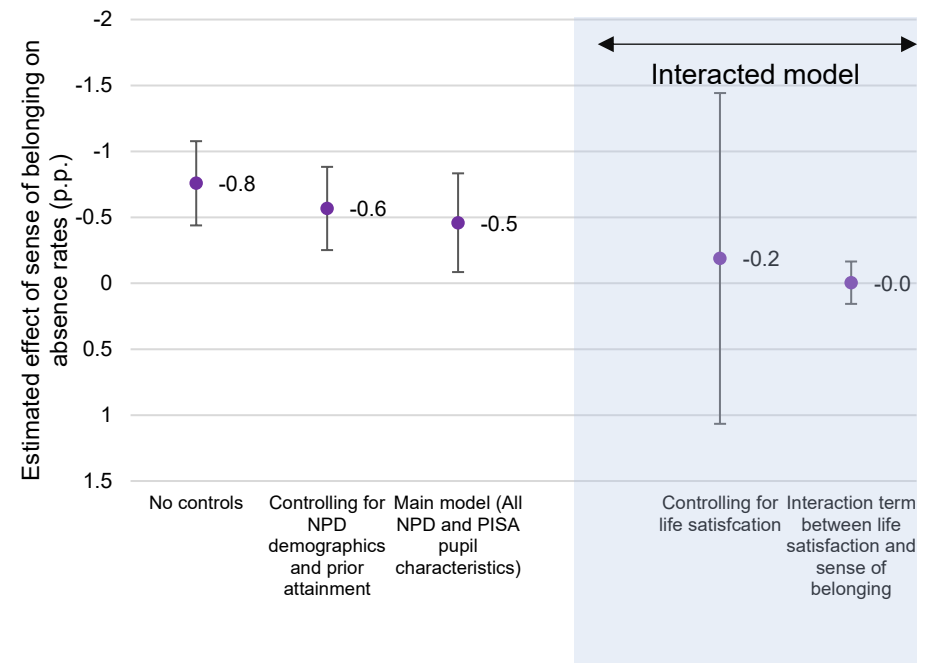
Source: NFER analysis of linked PISA-NPD

Regression analysis also showed a negative association between sense of school belonging and school absences, but this was not sustained after controlling for life satisfaction

Our regression results confirmed a negative association between sense of school belonging and school absence after controlling for relevant characteristics. Our main model, including all our control variables, suggests that increasing a pupil’s sense of belonging by one standard deviation is associated with a reduction in absences of 0.5 percentage points (Figure 6).

However, once we also controlled for life satisfaction, we found that sense of school belonging was no longer significantly related to school absences, suggesting that sense of belonging largely impacts on absences by influencing life satisfaction¹. Moreover, the non-statistical significance of the interaction coefficient suggests that sense of school belonging does not moderate the effect of life satisfaction either. This means the effect of life satisfaction on school absences operates independently of pupils’ sense of school belonging. Our results therefore suggest that pupils’ life satisfaction is more important for school absences than pupils’ sense of school belonging.

Figure 6: Estimated effect of school belonging on absence rates



Source: NFER analysis of linked PISA-NPD

¹ This is not due to a collinearity issue as the correlation between sense of belonging and life satisfaction is 0.4.

5. Life satisfaction is a stronger predictor of school absence for females than for males

Since the significant relationship between life satisfaction and school absences remains after controlling for sense of school belonging, our remaining analyses focus on life satisfaction only².

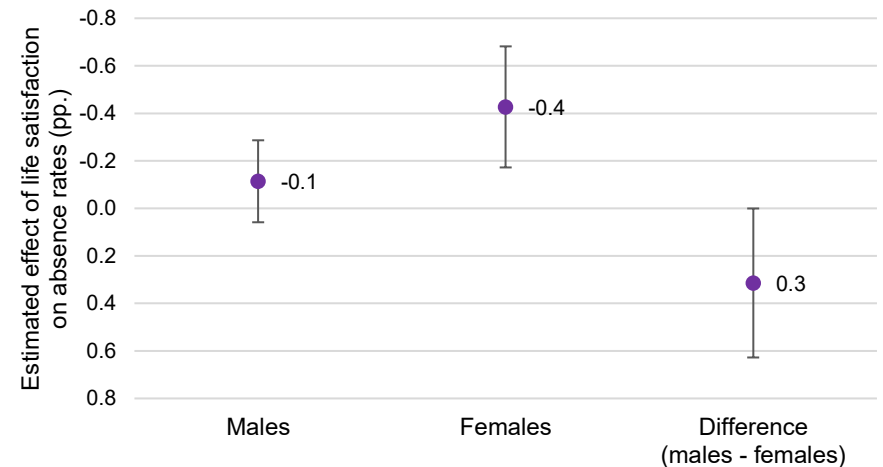
Using our main regression model for life satisfaction (since school belonging had no impact on the relationship between life satisfaction and school absences), we explored whether the overall negative association between life satisfaction and absences differs across different subgroups in the student population.

Our results show that life satisfaction was a stronger predictor of absence for females than males (Figure 7). Life satisfaction reduces absences by 0.3 percentage points more for females than for males. For females, a one-unit increase in life satisfaction lowers absences by 0.4 percentage points, while the effect for males is not statistically significant. For females, this translates into a six per cent reduction in their average absence rate (7.2 per cent), greater than the five per cent reduction seen for all pupils (Figure 4). This suggests that improving life satisfaction is more likely to lead to increased school attendance for female pupils. This is important as it suggests that the drivers of absence among male and female pupils may be different; and may be a contributor to the higher absence rates among females compared to

males during secondary school (at 8.8 per cent for females in 2024/25 compared to 8.1 per cent for males (Explore Education Statistics, 2026).

There were no statistically significant differences in the association of life satisfaction and absences between pupils by FSM, EAL and SEN status, nor between white and non-white pupils. However, these results may potentially be due to the relatively small sample sizes (fewer than 400 observations) for these subsamples in our data.

Figure 7: Estimated effect of life satisfaction on school absence rates for males and females



Source: NFER analysis of linked PISA-NPD

² Results for life satisfaction in the following sections remained consistent once sense of belonging was controlled for.

6. Life satisfaction is more strongly associated with absences among the most absent pupils

Our results also show that the relationship between life satisfaction and absence rates differs between pupils with high and low absence rates.

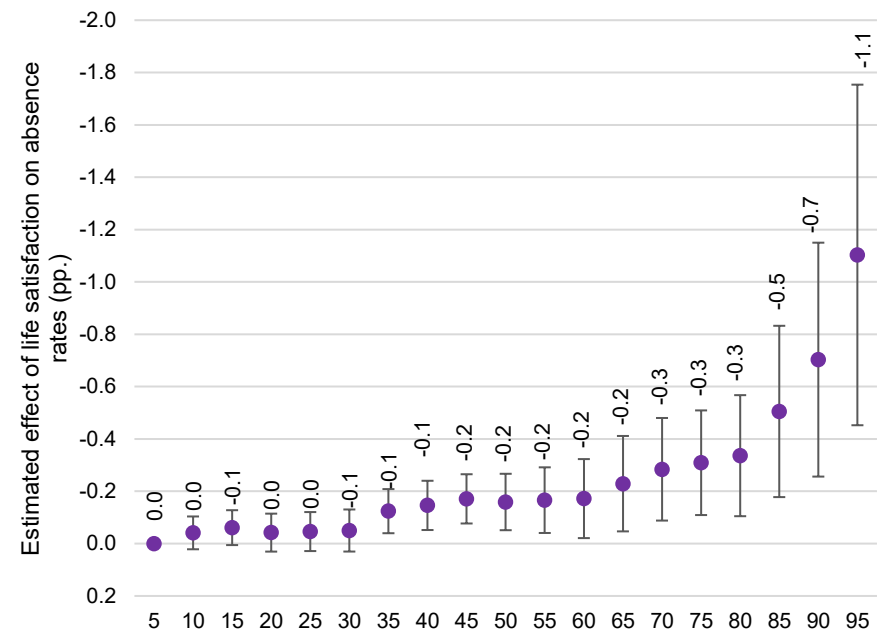
Figure 8 shows that higher life satisfaction leads to a greater reduction in absences among pupils who are most frequently absent (right portion of the figure) but has little effect on those who attend regularly (left portion of the figure). For pupils below the 35th percentile of absences, life satisfaction does not have a significant effect. However, for students who miss school more often, the effect is stronger. For example, pupils in the 90th percentile of absences experience a 0.7 reduction in absences with increased life satisfaction, which is double the effect seen for pupils with average absence rates. These results indicate that steps which lead to improvements in life satisfaction are likely to lead to the largest increases (in absolute terms) in school attendance for pupils with the highest levels of absence.

Across all the analysis presented above, several robustness checks were undertaken which are outlined in the methodological appendix.

³ A notable finding from these checks is that the significant relationship between life satisfaction and absences does not hold if unauthorised rather than overall absences are used for our analysis. This is likely to be for two reasons. First, absences for physical or mental health reasons are likely to be authorised and are the absences most strongly linked to life satisfaction.

This includes testing the robustness of our findings to alternative specifications³.

Figure 8: Estimated percentile-specific effect of life satisfaction on absence rates



Source: NFER analysis of linked PISA-NPD

Second, there is a lot less variation in unauthorised absences compared to overall absences such that our sample may not have been large enough to detect a statistically significant relationship.

7. Conclusions

Pupils' life satisfaction was associated with school absence, but improving life satisfaction is only likely to lead to modest reductions in absence

Our results showed that, once other factors were accounted for, there was a significant relationship between pupils' life satisfaction and school absence rates. Furthermore, this relationship was stronger in absolute terms for pupils with higher levels of absence and for females compared with males.

Overall, the effect sizes were modest, indicating that substantial improvements in pupil life satisfaction would be needed to have a meaningful impact on attendance. This indicates that there are other factors (including factors that may be outside of schools' influence) that are likely to be more important for driving improvements in attendance. It also suggests that ensuring schools can draw upon wider local services for support, as set out in the recent Schools' White Paper, is likely to be key for achieving the 1.3 percentage point increase in overall attendance the Government has targeted (DfE, 2026).

In addition, focusing on improving life satisfaction among pupils with the highest absence rates and among females is likely to yield the greatest benefits to school attendance.

Sense of school belonging was not associated with school absence after controlling for life satisfaction

School belonging has recently become a key area of focus for improving attendance as it is something that schools can nurture and support. Although we found that better sense of school belonging was associated with higher school absence rates, this effect was not sustained after controlling for life satisfaction. This suggests that higher levels of school belonging may contribute to increased attendance via improved life satisfaction. This is consistent with research which has shown that sense of school belonging is linked to pupils' happiness and mental health (National Children's Bureau, 2024).

Taken together, our findings highlight that improving sense of belonging is unlikely to be a panacea for addressing the attendance crisis, and that improving pupils' sense of school belonging needs to be part of a much broader strategy for supporting pupil wellbeing and improving school attendance.

8. Recommendations

Recommendation 1: To help improve attendance, the Government should expand their focus on school belonging to consider wider factors that influence pupils' life satisfaction such as timely access to wellbeing and mental health support, ensuring a balanced school curriculum, and support for socio-economically disadvantaged pupils and their families.

Recommendation 2: To yield the greatest benefits, Government efforts to improve life satisfaction with the aim of increasing school attendance should focus on females and pupils with the highest absence rates including persistently and severely absent pupils.

Recommendation 3: In addition to school-based actions to improve attendance, the Government must ensure that wider public services including family support and mental health services have sufficient staff capacity and funding to work alongside schools and provide support to children and families, so schools and agencies can work together to help overcome barriers to attendance.

Recommendation 4: Given the focus on improving school belonging among pupils, the Government should consider building the evidence base about the causal impacts of improving school belonging on pupil outcomes including school attendance and attainment. For example, by generating evidence via What Works Centres.

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Methodological Appendix

Our baseline results came from the following regression models:

$$\text{absence rate} = \beta_0 + \beta_1 \text{Lifesatisfaction} + \beta_2 \text{controls} + \varepsilon \quad (1)$$

$$\text{absence rate} = \alpha_0 + \alpha_1 \text{Schoolbelonging} + \alpha_2 \text{controls} + \varepsilon \quad (2)$$

where life satisfaction and sense of belonging were our main regressors (described in section 1), and we focused on the *ceteris paribus* effects β_1 and α_1 .

While our models are not causal, our controls included a comprehensive set of confounding variables that determine student satisfaction and school belonging, and that are also related to attendance. This adds credibility to the assumption that the estimated coefficients of our main regressors reflect their true effects. This includes pupil characteristics from NPD (demographics, socioeconomic status and Key Stage 2 scores) and PISA (parental education, migration status, enrolment length, school safety risks, whether the pupil does other work, and effort put into the test). In the report, we focus on the model that includes all these controls.

We used two methods to estimate β_1 and α_1 . OLS estimates the partial effects on the average of the outcome, and unconditional quantile regression (UQR), which estimates the partial effects on each of the unconditional percentiles of the outcome (Firpo et al., 2009). We focused on the 19 percentiles from the 5th to the 95th in steps of five.

The heterogeneity analysis across groups estimated (1) and (2) for different subsamples defined by binary indicators of demographic

characteristics and tested whether the corresponding coefficients β_1 or α_1 were statistically different across pairs of groups.

Additionally, to test whether school belonging had direct effects after controlling for life satisfaction and moderated the effect of life satisfaction, we estimated the following linear model:

$$\text{absence rate} = \delta_0 + \delta_1 \text{Lifesatisfaction} + \delta_2 \text{Schoolbelonging} + \delta_3 (\text{Lifesatisfaction} \times \text{Schoolbelonging}) + \delta_4 \text{controls} + \xi \quad (3)$$

The coefficients of interest are δ_1 , δ_2 and δ_3 .

Our statistical analyses used the PISA sampling design, i.e., employing sampling weights to estimate coefficients and apply balanced repeated replication to estimate standard errors. Test results are reported at the five per cent significance level.

We carried out multiple different robustness checks. Firstly, we used nonlinear regression models (Poisson, Fractional probit, and Tobit) to account for the fact that the outcome is bounded between 0 and 100, has very dissimilar values and has a pile-up at 0. We did not find any relevant differences with the results from the simple linear models (1) and (2).

Secondly, we used unauthorised absences as our outcome. We did not find effects of life satisfaction and school belonging on absences (although the sign of the coefficients is also negative). This may be due to lower variation in unauthorised absences across schools and known issues with how they are recorded.

Thirdly, we additionally included school characteristics from PISA as control variables, which were omitted in our main model due to the large

number of missing values. We did not find relevant differences with the results from the simple linear models.

Finally, we used an alternative transformation of the outcome variable to carry out the quantile regression. Our default method used the Gaussian kernel density estimator, and we compared the resulting coefficients with those from using an alternative Epanechnikov kernel, which is considered an optimal kernel function (Pagan & Ullah, 2004). We did not find statistically significant differences with the results we show in the main body of the text.

Table 9: Match rates by dataset

	% of observations in original PISA dataset
PISA records which could be linked to any NPD records	89%
PISA records which could be linked to complete NPD records required for analysis (including absence data and Key Stage 2 attainment)	85%
PISA records which could be linked to complete NPD records with non-missing data for life satisfaction and sense of belonging	67%
PISA records which could be linked to complete NPD records with non-missing data for life satisfaction and sense of belonging, and other control variables	47%

Source: NFER analysis of linked PISA-NPD

Evidence for excellence in education

Public

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