Making medical education great again: analysing trainee feedback to identify key drivers of trainee satisfaction and improve experience

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ABSTRACT

Objectives The London School of Paediatrics (LSP) surveys trainees annually regarding their training placements. There is a wide variation in satisfaction. We explored the last 5 years of data to identify trends and determine predictors of overall trainee satisfaction.

Methods The survey is distributed annually to all London paediatric trainees with response rates of 86–90%. It explores overall placement satisfaction, followed by key questions covering staffing, supervision, teaching, facilities and other facets. The survey blends both quantitative and qualitative feedback.

Satisfaction levels were analysed using time series trend analysis. Overall levels were compared using t-tests. Associations between satisfaction and components of the survey were identified using a convergence of multiple regression and other multivariate analyses.

Results Overall trainee satisfaction increased steadily until 2020. There was a considerable variation across sites, some having consistently higher or lower scores than the median, while others showed an upward or downward trend, or very variable pattern.

By training levels, ST3 trainees consistently rated their placement below average and ST7 trainees above average. There was also a considerable variation in responses by training level with regard to perceived staffing levels and teaching.

To understand the influences on overall satisfaction, regression coefficients were derived between specific metrics and overall satisfaction using multiple regression and then normalised to 100%. The explanatory power of this list to explain satisfaction overall is high at 82% R^2.

Trainee satisfaction was most strongly correlated with workplace atmosphere and consultant support. Staffing, educational supervision, facilities and wider MDT (Multidisciplinary Team) support are associated with overall satisfaction, but to a lesser degree.

Conclusions Trainee satisfaction is crucial, affecting patient safety, retention and trainee mental health. Our analysis identified significant associations with satisfaction including modifiable elements such as consultant engagement and team morale. Staffing levels were less related to satisfaction than expected. Experimental data exploring the components of clinical training in real-world situations are lacking. These data use the natural experiment of placing trainees in different training locations to explore the factors that relate to their overall experience.

BACKGROUND

Trainees spend many years working in supervised clinical environments, which is essential for their development as clinicians. That same clinical environment is important to patient experience and outcomes. Understanding what makes a good training environment is therefore vital.

The London School of Paediatrics (LSP) carries out an annual survey collecting data from trainees about their perceptions of the training environment. We wanted to explore these data to help identify what makes a good placement, so trusts could focus efforts on factors that are important to trainees.

INTRODUCTION

Training is long. Following foundation placements, doctors apply for training in specialty schools (general practice, surgery, medicine, paediatrics, etc) and spend many years rotating between clinical departments. In the UK, training partly follows an apprentice model[1] where doctors learn by doing. 'Doing' involves being part of teams treating patients. As trainees progress, tasks become more

complex until they are functioning near the level of their consultant supervisors. This practical learning is supplemented by mentoring, teaching sessions and private study.

Being a trainee in this model is not easy. Regular workplace change requires recurrent reintegration within new teams, learning of new processes and needing to develop relationships with new consultant supervisors. The workplace itself also brings challenges. Most departments in the National Health Service (NHS) declare issues with staffing, workload and waiting lists.[2] Trainees are particularly affected by the physical demands of shift work[3–5] and erosion of the support structure provided by the traditional firm structure.[6] Trainees may also have challenges from life outside their careers.

Unsurprisingly, there are many signals of distress coming from trainees. The 2023 GMC Survey[7] identified that 23% of trainees were at 'high risk' of burnout, and a quarter felt 'rota gaps' were affecting their training. High proportions reported frustration at work, exhaustion and lack of energy outside of work. These proportions have all steadily increased since 2020. The 2021 survey of doctors leaving UK practice[8] found 'Dissatisfaction with role/place of work/NHS culture' was their strongest motivator. Recent industrial action, although focused around pay, also highlights frustration among this group. Trainee conditions are also important for health systems. Charlie Massey, CEO for the GMC, highlights how trainee conditions impact productivity,[8] and Barton *et al*[9 10] demonstrates the association between their experiences and hospital mortality.

Improving trainee experiences is essential, not just to having a skilled workforce in the future, but to having a workforce at all. Key to this is listening to trainee experiences and responding so that the doctors of the future are skilled, motivated and fulfilled both inside and outside the workplace.

The LSP is the largest paediatric training school in the UK, curating and delivering training placements for approximately 1200 paediatricians working towards consultant certification. The school has been developing training facilities and practices at the 32 hospital trusts across London. For the last 10 years, the LSP has carried out an annual survey of its trainees. This is trainee-led and aims to identify the areas of concern and excellence most important to trainees. Findings are shared across the London hospitals and discussed at trainee-led 'Excellence Exchanges', where hospitals host visits, review their own data and identify how they can improve their trainee experience.

Since 2017, the questions in the LSP survey have not changed. There have been over 4000 responses over a time of considerable challenge and change in the NHS. Although set in Paediatrics and in London, the issues facing trainees in the UK and worldwide are likely to be similar—learning how to become an excellent doctor, yet at the same time managing the patient workload, in the context of resource challenges and still maintaining a life beyond medicine.

This large, trainee-centred dataset was explored to better understand what makes an excellent placement. We aimed to identify the key areas that most impacted overall trainee satisfaction, and if particular areas of excellence could overcome other areas of shortcoming. For trusts that were consistently strong or weak in their overall satisfaction, could we see why this was, and if a trust improved or declined in its satisfaction, what components of the training experience might be driving this?

Box 1 Reasonable trainee expectations

There was good morale in the department and an enjoyable place to work
I gained satisfactory clinical experience
I learnt a great deal on this placement
Staffing levels were generally sufficient
The consultants were sufficiently present and engaged
The nursing team and other members of the multidisciplinary team were supportive
There was a good, structured teaching programme
I had opportunities to lead clinical practice
I was able to attend enough clinics
There were opportunities to learn management and leadership skills
I was satisfied with my educational supervision
The workplace based assessments/supervised learning events were of a good educational standard
The trust provides adequate facilities for rest, food and drink for those working out of hours

METHODS

Survey design

The survey was developed by paediatric trainees based on the list of reasonable expectations (box 1) covered in the Royal College of Paediatrics and Child Health (RCPCH) training charter.[11] Potential questions were condensed into 16 items. These explored the overall placement rating in comparison to previous placements, with eight core questions (agree/disagree) focused on the placement and five questions on how expectations were met. Finally, free text comments identified good training practice and suggestions for improvement.

The survey was distributed electronically at the end of a placement block by Health Education England (now NHS-E) with follow-up reminders where needed. NHS-E funded the data analysis.

Patient and public involvement

No patients and members of the public were involved in the research. Trainees have led the design and analysis of the survey since its inception.

Box 2 Response rate to survey over the study period

2017: 862 completes out of 959 emails (**90% completion**)
2019: 729 completes out of 865 emails (**86% completion**)
2021: 835 completes out of 952 emails (**88% completion**)
2022: 822 completes out of 961 emails (**86% completion**)

Ethics considerations

Data were collected anonymously and voluntarily in each year of the survey, and this analysis did not require new data. No new ethical considerations were therefore raised. The Medical Research Council decision tool[12] deemed the work not to need Research Ethics Committee approval.

Analysis of results

A survey was distributed in 2017, 2018, 2019, 2021 and 2022. Completion rates over the five surveys were between 86% and 90% of all trainees in the programme (box 2). A truncated 2020 survey used during the COVID-19 pandemic was not included in the analysis as different questions were used. These results have already been published.[13] Data from 2012 to 2016 were used to explore overall satisfaction.

Data were processed and analysed with MS Excel (V.16.83, Microsoft) and R project software sitting within R-studio (V.3.3.0, Posit). Satisfaction levels were analysed using time series trend analysis. Groups were compared using two-tailed t-tests. Statistical significance is reported at a confidence level of 95%. Multiple regression and other multivariate analyses were used to identify associations between satisfaction and the identified metrics (box 1).

RESULTS

Overall satisfaction and components of training

Overall trainee satisfaction increased steadily until 2020 (figures 1 and 2). Since then, it has remained static with just under 80% of trainees rating their current placement as 'good' or 'excellent' (figures 1 and 2).

There was considerable variation across sites, training years and subspecialties. Some training sites had consistently higher or lower scores than the median. Others showed upward or downward trends and some were more variable.

Some training levels showed consistent differences when compared with other training years (table 1). ST3 trainees consistently rated their placement overall below other training levels, but ST7 trainees rated it above average (table 1). Satisfaction levels have been consistent across the years of this study except for ST1 and ST5 trainees in 2021 and 2022.

ST1 and ST4 trainees most often found staffing levels not sufficient, while ST6 and 7 would rate this metric significantly above the rest of the cohort (table 1).

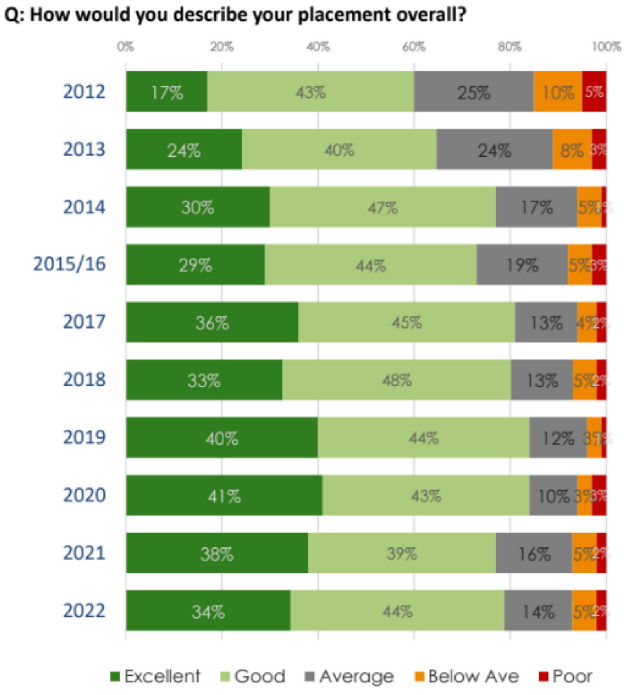

Figure 1 Trainee satisfaction across 10 years, using data from 2012 onwards.

Regarding satisfaction with teaching, ST5 trainees rated this lowest, while ST7 and 8 trainees were most likely to rate this highly (table 1).

Trainees are distributed between specialist and district general hospitals (DGHs) for general/neonatal placements. The rotations in London typically see ST1, ST4 and ST5 trainees working in DGHs. Perceived staffing levels were significantly lower in DGHs (figure 3, table 2), both in north and south London. There has been a fall in perceived staffing in DGH hospitals since 2019. It should be emphasised that these data reflect perceived staffing levels, not actual staffing levels.

Significant differences were seen in ratings for staffing and teaching when comparing DGHs to tertiary centres but not other domains (table 2). The reasons behind this cannot be drawn from the data.

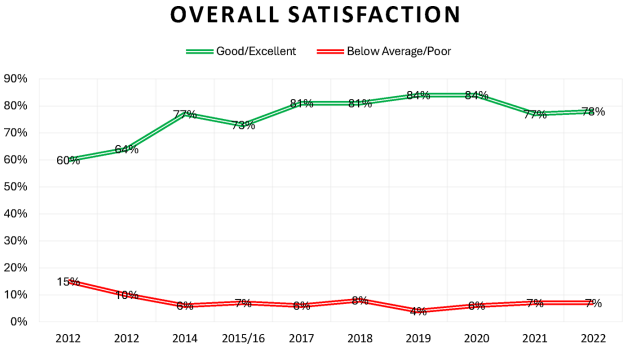

Figure 2 Run chart showing changes over time in those reporting 'good/excellent' placements versus 'below average/poor'.

Table 1 Variations over time and by training level

		Percentage in agreement						
	Trainee year	2017	2018	2019	2021	2022	Mean	t-Test vs rest of sample
Overall rating (% good/excellent)	ST1	86	81	89	76	68	**80**	ns
	ST2	83	77	77	86	76	**80**	ns
	ST3	77	78	81	75	76	**77**	0.005
	ST4	75	85	81	74	75	**78**	ns
	ST5	83	69	88	56	67	**71**	ns
	ST6	84	90	80	80	94	**86**	ns
	ST7	83	89	89	87	86	**87**	0.05
	ST8	81	82	88	87	86	**85**	ns
STAFFING levels generally sufficient (% agree)	ST1	51	39	67	53	26	**47**	0.05
	ST2	57	64	57	68	63	**62**	ns
	ST3	71	72	57	66	67	**67**	ns
	ST4	45	46	63	51	35	**48**	0.05
	ST5	53	48	71	65	54	**58**	ns
	ST6	67	66	77	76	67	**70**	0.05
	ST7	65	75	77	69	61	**70**	0.05
	ST8	63	54	61	70	54	**61**	ns
Good structured TEACHING programme	ST1	71	76	73	78	57	**71**	ns
	ST2	74	75	68	78	77	**74**	ns
	ST3	71	82	73	84	78	**78**	ns
	ST4	76	76	68	74	75	**74**	ns
	ST5	67	68	75	67	60	**67**	0.05
	ST6	78	85	65	85	78	**78**	ns
	ST7	77	86	86	82	81	**83**	0.05
	ST8	85	78	82	88	81	**83**	0.05

t-Test was used to compare percentages of year groups with the rest of the sample. Statistically significant variations are shown in responses to overall satisfaction, staffing and teaching depending on training level.

Red boxes highlight scores consistently below the cohort bar. Green boxes highlight scores consistently above the cohort.

ns, not significant.

Understanding the contributors to overall satisfaction

Regression coefficients were derived between the training metrics (box 2) and overall satisfaction using multiple regression. The explanatory power of these factors to explain overall satisfaction is high at 82% R^2. Figure 4 demonstrates the relative importance of these factors, normalised to 100%. Trainee satisfaction was most strongly correlated with workplace atmosphere and consultant support. Staffing, educational supervision, facilities and wider MDT support are associated with overall satisfaction, but to a lesser degree.

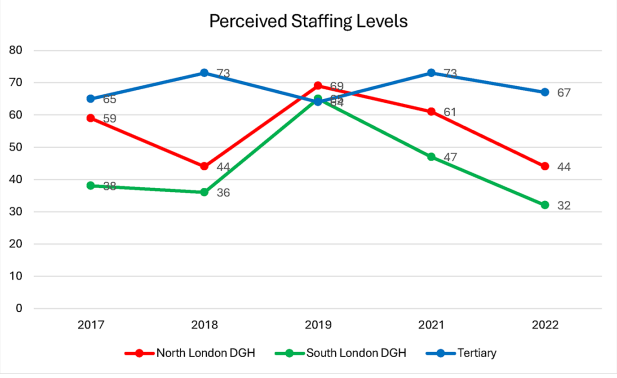

Figure 3 Variation in percentage perceiving 'staffing levels generally sufficient' over the study period by hospital type and location.

Individual hospital analysis

Data from individual hospitals revealed some areas of poor performance that could be 'forgiven' if others scored highly. This is demonstrated in the following case studies. One describing a trust that consistently score well overall, and the second a trust showing dramatic improvement in its overall satisfaction. Both have consistent challenges in the staffing domain.

DISCUSSION

Training the next generation of doctors effectively is vital to the long-term health of the medical profession. In roles so dependent on skills and experience, the central component needs to be practical and workplace based. The effectiveness of workplace placements is therefore key to training those doctors. Since this is also their source of income, the largest use of their

Table 2 Responses over time by hospital type

		Percentage in agreement						
	Trainee year	2017	2018	2019	2021	2022	**Mean**	t-Test
Overall rating (% good/excellent)	DGH	83	78	87	73	73	**79**	
								ns
	Tertiary	82	85	81	82	84	**83**	
Good MORALE, enjoyable place	DGH	81	77	86	78	74	**77**	
								ns
	Tertiary	79	90	82	84	84	**77**	
STAFFING levels generally sufficient	DGH	52	41	68	56	39	**51**	
								0.05
	Tertiary	65	73	64	73	67	**68**	
CONSULTANTS present and engaged	DGH	93	92	92	88	88	**91**	
								ns
	Tertiary	92	97	92	92	94	**93**	
Good structured TEACHING programme	DGH	74	75	73	75	67	**73**	
								0.05
	Tertiary	76	82	74	85	79	**79**	

Statistically significant variation is shown in the rating for staffing levels and teaching when comparing DGH and tertiary hospitals (red boxes).
DGH, district general hospital; ns, not significant.

time and often their vocation, getting these placements right is essential. Yet, this is challenging in the context of healthcare systems with many competing demands, and where training and trainee well-being is some way down the priority list.

This survey explores over 6 years, for a large number of trainees, what is important in their placements. We highlight and rank features most related to overall satisfaction. Morale, engaged consultants and learning opportunities are all seen as very important, with leadership training, the teaching programme and adequate staffing less so. This challenges the view of many working in postgraduate medical education—that significant rota gaps make effective training and trainee satisfaction all but impossible. While staffing clearly has an impact, our findings indicate it is just one of several factors. Locations with poor staffing can still deliver excellent placements.

Workplace culture and morale are recognised as drivers for clinical quality and safety,[14] but not seen as priorities regarding trainee satisfaction. These data show how important culture and morale are to trainees. In workshops, the authors learnt how a sense of belonging, team connections and feeling more than

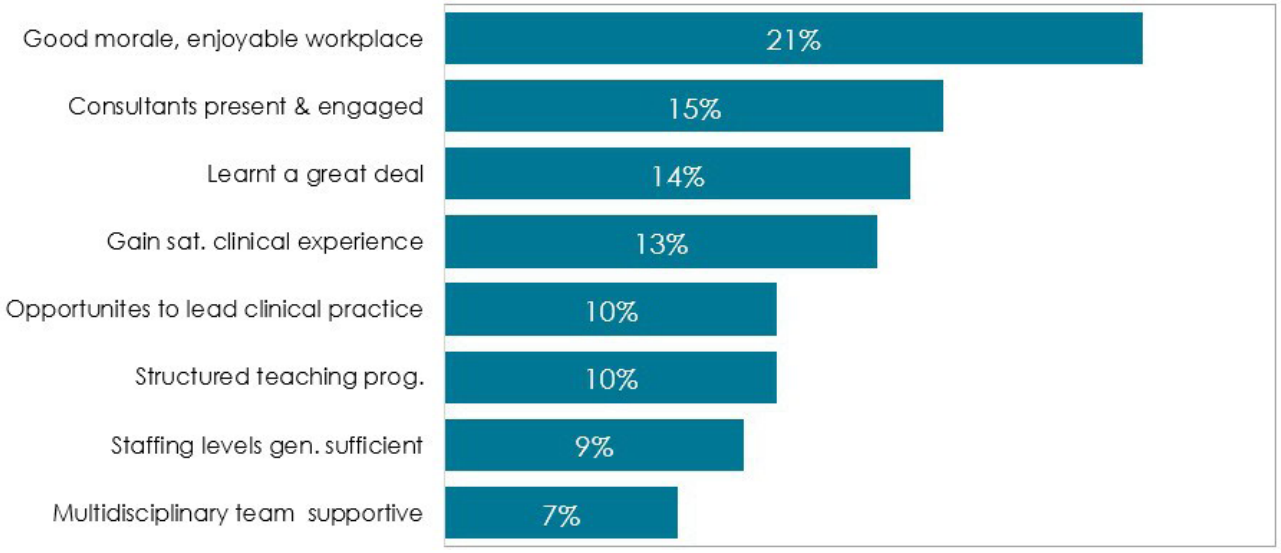

Figure 4 Drivers for overall trainee satisfaction. The relative importance of each metric is shown as %, the normalised regression coefficient, that is, regression coefficient compared to each of the other metrics, totalling 100%.

MDT - Multidisciplinary team

Case Study 1: Experience good, despite poor staffing

Location: North West London
Type: District general hospital
Survey findings:
Overall: Satisfaction 87–100% rating 'good' or 'excellent'.
Staffing levels: Consistently below average; 33–67% trainees report staffing as 'generally sufficient'.
Teaching programme: Satisfaction levels 83-94%.
Morale: Consistently high, 94-100% 'good' or 'excellent'.
Consultant engagement: Consultants 'present and engaged': Satisfaction in this domain 93–100%.
Take-home message: Despite staffing challenges, the trust excelled in other critical areas, delivering a good overall training experience. The structured teaching programme and engaged consultants played a pivotal role in morale and satisfaction.

'just another rotational trainee' is of great importance. Fostering an environment of psychological safety improves educational outcomes,[15] and schemes such as learning from excellence can make trainees feel valued and potentially improve patient care.[16]

These findings also demonstrate differences between various year groups in training. Staffing levels were perceived as worse by ST1 and ST4 trainees. ST1s are new starters in paediatrics, while ST4s are new to working on tier 2 (registrar) rotas. This perception may arise from discomfort within new roles, to which they later acclimatise. Alternatively, ST1s and ST4s usually work in DGHs, where staffing is perceived as less good. These two perceptions cannot be separated within our data.

The data explore only paediatric trainees in London. An important question is to what extent these findings apply to paediatricians not in training, to those outside London or to learners in other clinical disciplines. The

Case Study 2: Significant improvement in overall satisfaction despite poor staffing

Location: South London
Type: District general hospital
Survey findings:
Overall: Satisfaction increased over time from 64% to 90% rating 'good' or 'excellent'.
Staffing levels: At 2022 survey 29% satisfaction, fluctuating year on year with a median score of 43%.
Teaching programme: Improvement from 27% to 100%.
Morale: Improvement from 64% to 95%.
Leadership and management: Improvement from 45% to 89%.
Take-home message: Despite perceived insufficient staffing, the trust focused on improving their teaching programme, improving morale and additionally focusing on leadership and management experience. This affected a significant overall increase in trainee satisfaction.

list of reasonable expectations of trainees (box 2) are applicable to all trainees in all specialties; however, our surveyed group may be unrepresentative of other learner groups. Paediatrics has a higher proportion of female trainees (75% vs mean 57%)[17] than most other specialities, but has a similar ethnic variation.[17] Stresses on paediatric trainees were mid-ranking based on a GMC survey.[7] How experience of stress at work or demographics affect responses to the survey is not known. While each specialty comes with its own challenges, the broader themes important to trainees are likely to be translatable between specialities and geographically.

The findings presented here are a perceived reality, a subjective experience and compared with personal expectations. For example, 'Are consultants present and engaged?' is answered as yes/no, but the interpretation of this is left with the trainee. Depending on the trainee's background and personality, there will be different responses to these qualitative questions. However, over a large programme, and with the normalisation provided by working together and the mixing that occurs as trainees rotate, there will be some normalisation of this sort of subjective impression.

Expectations of trainees may vary with training level. What is considered 'satisfactory' for one level may not be by another. Expectations may change over time for a large group, perhaps accounting for falls in perceived staffing since 2019, during a time of stress and discontent in the NHS.[18] Objectively, there have been no falls in actual trainee numbers over this period.

Despite this, using perceptions as a metric has substantial value and is often the only measure of important domains. Some areas, such as morale, will be impossible to measure quantitatively. Others might appear to be quantifiable, such as staffing, where unfilled posts could be counted. However, this does not measure the impact on trainees, which depends on the rota, the department policy on locums and clinical activity. Even a fully staffed rota might be perceived as insufficient if the workload is extremely high.

Our findings could be extended by setting them alongside empiric data. For instance, trainees' ratings on 'learnt a great deal' could be viewed beside teaching programme content and its accessibility; or how trainee ratings of 'consultants present and engaged' relate to consultant rotas and contracted hours. Such metrics and comparisons may document where departments can make practical changes, and show what might lead to certain perceptions. Why, for instance, do trainees see particular units as having good 'morale' and others not? That would be valuable knowledge considering morale's strong association with trainee satisfaction and clinical outcomes.

This paper does not describe causal relationships, but how factors are associated with overall satisfaction, and the relative strengths of these associations. Although intuition would suggest a causal relationship,

this experiment has not yet been undertaken. The effect of changes in staffing might seem easiest to explore experimentally, but in practice this would be challenging. Imposing experimental staffing variations onto a system designed to deliver safe healthcare and train doctors in order to explore placement quality is hard to imagine from practical and ethical standpoints.

Other areas may seem more nebulous but could be easier to change. Knowing that placement satisfaction is associated with factors that could potentially be improved, it would be possible to devise interventions to increase scores in key metrics, such as morale or consultant engagement. The effect of this and any secondary effect on 'satisfaction' could be monitored. If successful, these interventions could be deployed elsewhere.

The authors have begun to explore what improves morale in more detail. Through informal focus groups at sites with good 'morale', consistent themes have emerged—active facilitation and attendance at teaching events, programmed time with colleagues away from the clinical workplace, and documenting positive aspects of their work and workplace. The authors hope this approach, scaled up and applied to other domains of trainee experience will transform the experience of being a trainee in the NHS.

CONCLUSION

Trainee satisfaction is crucial, affecting patient safety,[9 10] retention[19] and trainee mental health.

Our analysis has identified significant associations between overall post satisfaction and potentially modifiable elements such as consultant engagement and team morale. Staffing levels were less related to satisfaction.

These data are potentially applicable across all postgraduate medical education and give crucial insight into target areas where training can be improved. This can improve trainee retention, staffing levels and clinical practice for the future.

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Competing interests None declared.

Patient consent for publication Not applicable.

Ethics approval The MRC decision tool deemed the work as not to need REC approval (https://hra-decisiontools.org.uk/ethics/). Participants gave informed consent to participate in the study before taking part.

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