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Editorial

Attracting medical students and doctors into surgical training in the UK and Ireland

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ABSTRACT

Aims: Core surgical training (CST) programmes in the UK have seen a significant reduction in competition ratios over the past five years. This study aimed to determine motivating factors and perceived barriers to pursuing a career in surgery amongst junior doctors in training and medical students attending an annual conference.

Methods: A self-reported, electronic questionnaire was distributed to medical students, foundation year doctors, and doctors in postgraduate surgical training programmes (DIPST) who attended the Association of Surgeons in Training (ASiT) Conference in 2016. Respondents ranked factors attracting them to a career in surgery and factors that could improve perceptions of surgical careers. Chi-square test was used to test for differences between groups (a = 0.05, R Studio, V3.3.1).

Results: Of 394 respondents (response rate = 50.9%), 44.9% were medical students or foundation doctors ('Pre-CST') and 55.1% were DIPST ('Peri/post-CST'). Practical application of skills (97.4%), enjoyment of the theatre environment (95.4%) and positive experiences in surgical firms (84.7%) were primary driving factors towards a surgical career. Availability of private practice (32.2%), and sustainability of consultant jobs (49.0%) had less influence. For 'Pre-CST' respondents, role models (82.8% pre-CST v 74.9% peri-post CST, $p < 0.05$) and defined career progression (67.2% pre-CST v 47.0% peri-post CST, $p < 0.001$) were particularly important. 91% of all respondents agreed that a better balance of training and service within worked hours would improve perceptions of surgery.

Conclusion: Addressing the motivating factors and perceived barriers to surgical careers will help bolster recruitment of the future surgical workforce.

1. Introduction

Applications to surgical training programmes have traditionally required demonstration of high levels of clinical and academic performance, with high resultant competition ratioshttps://paperpile.com/c/x0YrYm/LMjB, [1]. Recent trends in competition ratios raise concerns for recruitment to a high quality future surgical workforce; within the last five years the competition ratios for core surgical training programmes (typically postgraduate year three and four) have fallen from 3.7:1 in 2011, to 1.6:1 in 2016 at the time of this study. In parallel, of those completing core surgical training, a declining proportion are choosing to apply to higher surgical training programmes (typically postgraduate years five to ten), being lost to alternative specialties, work abroad or permanent locum vacancies. In 2016, 50.4% of Foundation Year 2 (F2) doctors reported that they were progressing directly into specialty training in the UK. This shows a steady decline, compared to 52.0% in 2015, 58.5% in 2014, 64.4% in 2013, 67.0% in 2012 and 71.3% in 2011 https://paperpile.com/c/x0YrYm/D0up, [2]. Previous studies have explored practicing surgeons' rationale for selection of a surgical career, commonly reporting the desire to acquire craft specialty skills, practice in both acute and elective settings, and maintain regular patient contact https://paperpile.com/c/x0YrYm/BLNvw, [3]. Students interested in a surgical career often report positive experiences during their surgical placements at medical school https://paperpile.com/c/x0YrYm/h1z2C [4], and specifically the opportunity to 'scrub in' and assist with cases has been cited as impactful https://paperpile.com/c/x0YrYm/8dU10+ugxwx, [5,6]. Finally, it has been shown that trainees often continue in a career in surgery due to the perceived prestige associated with the specialty https://paperpile.com/c/x0YrYm/BkLXn [7], and as a result of positive interaction with senior surgeons who have acted as role models https://paperpile.com/c/x0YrYm/ftC4D, [8]. However, there has been a paucity of studies including doctors of a range of training grades and the positive and negative factors influencing their decision to pursue a career in surgery.

Specific efforts are required to better understand the motivators and detractors to surgical careers in order for surgical training programme directors, postgraduate deans, and specialty advisory committee chairs to enable improved recruitment, and ensure high quality candidates continue to choose to apply to surgical posts in the UK. This study aims were to answer why surgeons choose a career in surgery, and how recruitment and retention to surgical training can be improved.

2. Material and methods

2.1. Respondents and setting

All attendees to an Association of Surgeons in Training International Surgical Conference in March 2016 were invited to participate. The delegation included undergraduate medical students, foundation doctors (postgraduate years one and two), core surgical trainees (postgraduate years three and four), higher surgical trainees (postgraduate years five to ten) and consultant (attending) surgeons. The postgraduate

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training pathway in the UK and Republic of Ireland has been detailed previously https://paperpile.com/c/x0YrYm/ZuOm9, [9].

ASiT was founded in 1976, ASiT is a professional body and educational charity (charity number: 274841) working to promote excellence in surgical training across all ten surgical specialties in the UK and Republic of Ireland. ASiT is independent of the Surgical Royal Colleges and is run *by* trainees *for* trainees.

2.2. Survey tool and dissemination

An online, self-reported 37-point feedback questionnaire was disseminated to conference delegates, incentivised by receipt of their certificate of conference attendance on completion. Five-point Likert scales were used to quantify agreement with twenty-two pre-specified domains across two categories (with 1 or 2 out of 5 indicating '*Disagreement*', 3 indicating a neutral response, and 4 or 5 out of 5 indicating *'Agreement'*) [1]: Motivating factors: Why did you, or would you choose a career in surgery? [2]; Perceived barriers: How can recruitment and retention in surgical training be improved?

2.3. Ethics

No ethical issues were identified. Completion of the survey tool was accepted as consent for subsequent analysis of anonymised survey data.

2.4. Statistical analysis

Data analysis was performed using RStudio statistics package (V3.1.1, Boston, MA). Basic descriptive statistics were used to present geodemographic data and percentage agreement with each domain. Respondents were grouped by career stage (i.e. before registration on surgical training programme, or 'Pre-CST', versus after registration on a surgical training programme, or 'Peri/post-CST', and by gender for analysis. Comparative P-values for ordinal data were calculated using Chi-square tests with Yates' correction as appropriate (reported as percentage, Chi-square, p-value), with an α-level of 5%.

3. Results

3.1. Respondent demographics

Of 806 registered conference attendees, 774 were sent the survey and all 394 completed responses were included in analysis (50.9% response rate). Consultants involved in the conference were not included in the analysis as their certificates of participation were sent independently and not incentivised through completing the survey. Of all respondents 177 respondents were 'Pre-CST' (44.9%) and 217 respondents were 'Peri/post-CST' (55.1%); 17.5% of responses were from medical students, 27.4% from foundation doctors, 30.5% from core surgical trainees and 24.6% from higher surgical trainees. 63.2% of these were male (249/394), and 36.8% were female (145/394). The median age group of respondents was 25–29 years old (total range < 20 to > 45 years old). Respondents were representative of all ten recognised surgical specialties and all regions across the UK and Ireland.

3.2. Motivating factors: why did you, or would you choose a career in surgery?

Table 1 describes mean and percentage agreement with each pre-specified motivating factor. Enjoying the 'hands-on' aspects and practical skills that come with a surgical career was the most commonly reported strongly positive factor with 97.4% of respondents in agreement (384/394, mean agreement = 4.67). Enjoyment of the theatre environment (376/394, mean agreement = 4.50), providing instant solutions to problems (369/394, mean agreement = 4.45), and having role models or mentors in surgery (343/394, mean agreement = 4.30) were also identified as strong motivating factors. In contrast, factors such as opportunity for private practice (127/394, mean agreement = 3.00) and sustainability of consultant jobs (193/394, mean agreement = 3.50) were less influential in attracting respondents to a surgical career.

The differences in responses between 'Pre-CST' and 'Peri/post-CST' respondents are described in Table 2. Pre-CST respondents were also more likely to choose a career in surgery as a result of defined career progression (67.2% versus 47.0%, $c^2 = 17.6$, $p < 0.001$) and sustainability of consultant jobs (50.6% versus 47.8%, $c^2 = 6.52$ $p = 0.04$). The appeal of private practice was not a major motivator for either pre or post CST, although a higher percentage of pre-CST listed it as a motivator when compared to their senior counterparts (38.3% versus 25.9%, $c^2 = 9.30$ $p = 0.03$). There were however differences in responses between male and female on this topic with a significantly higher proportion of male respondents agreeing that the appeal of private practice was a motivating factor (40.7% versus 14.6%, $c^2 = 33.01$ $p < 0.001$). Responses by gender are described in Table 3. The sustainability of consultant jobs was also a greater motivator for males compared to females (56.8% versus 35.4%, $c^2 = 19.94$, $p < 0.001$).

3.3. Perceived barriers: how can recruitment to surgery be improved? (Perceived barriers)

The mean and percentage agreement with each pre-specified perceived barrier are described in Table 1. Being able to improve factors such as increased time for training during actual hours worked (357/394, mean agreement = 4.41), reducing the financial impact of surgical training (316/394, mean agreement = 4.34) and improving work life balance (342/394, mean agreement = 4.31), correlated with an increased attraction to a career in surgery. Only 32% agreed that reducing training time would be a motivating factor. Across all respondents, personal financial costs were highlighted as an area of improvement, with the majority of respondents in agreement (80.2%, mean agreement = 4.23).

The differences in responses between 'Pre-CST' and 'Peri/post-CST' respondents are described in Table 2. Pre-CST respondents reported that they would be significantly more attracted to a career in surgery if the work-life balance was improved (91.7% versus 79.7%, $c^2 = 16.6$, $p < 0.001$) and if training was more flexible (81.7% versus 67.3%, $c^2 = 11.1$, $p = 0.01$). Pre-CST respondents reported the opportunity to train as a specialist to be more of an important factor compared to peri-post-CST respondents (53.3% versus 40.2%, $c = 8.18$, $p = 0.04$).

The differences in responses between male gender and female gender respondents are described in Table 3. Male trainees felt that an increased sense of belonging to surgery (60.3% males agreed vs 53.0% females $c = 9.24$, $p = 0.02$), shorter training time (35.8% males agreed vs 27.1% females, $c = 10.4$, $P < 0.01$) and more exposure to surgical specialties as an undergraduate or postgraduate (64.6% males agreed vs 63.6% females, $c = 9.36$, $p = 0.02$) would improve recruitment and retention in surgical training. Female trainees felt improving work-life balance would improve recruitment and retention into surgical training (88.7% females agreed vs 85.6% males, $c = 7.74$, $p = 0.04$). Male trainees were significantly more concerned about surgeon specific outcome reporting (43.5% versus 34.2%, $c^2 = 9.92$, $P = 0.02$), than females.

4. Discussion

This study highlights key motivating and detracting factors towards pursuit of a surgical career in a diverse population of medical students, pre- and post-surgical specialty registration doctors in postgraduate training, with a high response rate. Key motivating factors such as 'hands on' training, exposure to the theatre environment and surgical 'role models' will help align future strategies to improve recruitment

Table 1
Agreement with specified domains across all respondents.

Factor	Mean agreement	Proportion in agreement (%)
Why choose a career in surgery?		
I like providing the instant solution to the problem	4.45	93.9
I enjoy the practical skills required and the 'hands-on' aspect	4.67	97.4
I enjoy being in the theatre environment	4.50	95.4
I want to be able to lead a multidisciplinary team in theatres	4.16	83.7
I have been inspired by other trainees or consultants in surgical specialties	3.96	78.3
I have had positive experiences in surgical firms as an undergraduate or postgraduate	4.21	84.7
I enjoy the patient interactions that I have seen/experienced in surgical firms	4.19	84.5
There is a lucrative private practice	3.00	32.2
Career progression is well defined	3.52	56.2
Consultant jobs are sustainable	3.50	49.1
The work-life balance was improved	4.31	86.8
Increased sense of belonging to surgery	3.69	58.2
There was better time for training during actual hours worked	4.41	90.6
Shorter training time (compared with other medical specialties)	3.10	32.5
The financial impact of surgical training was less	4.34	80.2
Training was more flexible to allow for extra-curricular activities	4.02	74.8
More exposure to surgical specialties as an undergraduate or postgraduate	3.79	63.6
There was less variation in trainers	3.87	66.0
There was less negative media coverage and less litigation	3.63	53.8
Surgeon specific outcomes were kept out of the public domain	3.40	42.1
I was able to specialise in the area I want without being a generalist	3.43	46.4

Table 2
Differences in responses 'Pre-CST' respondents versus 'Post CST' respondents.

Factor	Mean agreement (Pre-CST)	Mean agreement (Post-CST)	$\chi 2$	P-value
Why choose a career in surgery?				
I like providing the instant solution to the problem	4.57	4.32	0.52	0.88
I enjoy the practical skills required and the 'hands-on' aspect	4.81	4.57	0.05	0.82
I enjoy being in the theatre environment	4.54	4.45	0.64	0.74
I want to be able to lead a multidisciplinary team in theatres	4.19	4.13	1.44	0.48
I have been inspired by other trainees or consultants in surgical specialties	4.37	4.22	5.86	**0.04**
I have had positive experiences in surgical firms as an undergraduate or postgraduate	4.26	4.17	1.01	0.60
I enjoy the patient interactions that I have seen/experienced in surgical firms	4.22	4.14	0.02	0.99
There is a lucrative private practice	3.18	2.83	9.30	**0.03**
Career progression is well defined	3.71	3.36	17.6	< **0.001**
Consultant jobs are sustainable	3.60	3.38	6.52	**0.04**
How can recruitment and retention in surgical training be improved?				
The work-life balance was improved	4.50	4.18	16.6	< **0.001**
Increased sense of belonging to surgery	3.71	3.67	0.85	0.66
There was better time for training during actual hours worked	4.50	4.36	0.70	0.71
Shorter training time (compared with other medical specialties)	3.33	2.81	11.1	**0.01**
The financial impact of surgical training was less	4.39	4.08	4.30	0.12
Training was more flexible to allow for extra-curricular activities	4.26	3.88	11.1	**0.01**
More exposure to surgical specialties as an undergraduate or postgraduate	3.98	3.64	4.01	0.13
There was less variation in trainers	3.83	3.88	1.68	0.43
There was less negative media coverage and less litigation	3.65	3.64	3.95	0.14
Surgeon specific outcomes were kept out of the public domain	3.51	3.26	4.20	0.12
I was able to specialise in the area I want without being a generalist	3.65	3.29	8.17	**0.04**

and retention to surgical careers. Addressing the commonly reported detracting factors such as personal financial costs and risks of litigation may help to address concerns held by students and improve recruitment into surgery. Differences in motivating and detracting factors between 'Pre-CST' and 'Peri/post-CST' respondents highlight differences in perceived benefits and challenges of surgical training between these groups.

Our survey collected data from trainees from a broad range of training levels, across all specialties and regions of the UK and Ireland. Half of respondents were yet to gain a training post with surgery (Pre-CST), providing insight into motivators and detractors at a crucial stage of training where the specialty decisions still have the potential to be modified. In the context of declining application ratios for core surgical traininghttps://paperpile.com/c/x0YrYm/DA52O [10], it is important to examine key findings and consider what can be done to maintain a future surgical workforce. The 'Pre-CST' group expressed that improvements in work-life balance, flexibility in training, and an ongoing commitment to specialist training would increase their propensity to apply to a surgical training post. ASiT has previously advocated for ensuring specialist trainees receive specialist and emergency training and against the creation of a sub-consultant grade or any move away from specialisationhttps://paperpile.com/c/x0YrYm/i3PcZ, [11].

Flexibility in training is another key area for improvement in current training schemes, that is readily modifiable with the correct resourcing and development. Previous work has highlighted that a majority of surgical trainees (89.6%) would be in favour of additional flexibility being incorporated into surgical training, particularly junior trainees and female traineeshttps://paperpile.com/c/x0YrYm/i3PcZ, [11]. A cross sectional study undertaken by ASiT evaluated the experiences with Less Than Full-Time Training (LTFT) amongst the surgical trainee workforce https://paperpile.com/c/x0YrYm/ws0FI, [12]. This study highlighted that over half of the LTFT trainees reported undermining or bullying behaviour as a result of undertaking LTFT, and only 9.9% of respondents felt that the information and support

Table 3
Differences in responses male gender respondents versus female gender respondents.

Factor	Mean agreement (Male)	Mean agreement (Female)	$\chi 2$	P-value
Why choose a career in surgery?				
I like providing the instant solution to the problem	4.40	4.46	2.39	0.30
I enjoy the practical skills required and the 'hands-on' aspect	4.64	4.73	0.13	0.71
I enjoy being in the theatre environment	4.44	4.56	0.82	0.66
I want to be able to lead a multidisciplinary team in theatres	4.14	4.19	0.02	0.98
I have been inspired by other trainees or consultants in surgical specialties	4.28	4.25	0.25	0.29
I have had positive experiences in surgical firms as an undergraduate or postgraduate	4.19	4.19	1.23	0.54
I enjoy the patient interactions that I have seen/experienced in surgical firms	4.20	4.13	4.55	0.10
There is a lucrative private practice	3.15	2.67	30.76	< **0.001**
Career progression is well defined	3.59	3.36	3.90	0.14
Consultant jobs are sustainable	3.61	3.25	19.83	< **0.001**
How can recruitment and retention in surgical training be improved?				
The work-life balance was improved	4.31	4.32	7.74	**0.04**
Increased sense of belonging to surgery	3.77	3.54	9.24	**0.02**
There was better time for training during actual hours worked	4.41	4.44	3.33	0.20
Shorter training time (compared with other medical specialties)	3.17	2.95	10.4	< **0.01**
The financial impact of surgical training was less	4.20	4.23	2.11	0.35
Training was more flexible to allow for extra-curricular activities	4.01	4.06	3.15	0.21
More exposure to surgical specialties as an undergraduate or postgraduate	3.81	3.72	9.36	**0.02**
There was less variation in trainers	3.79	3.97	2.96	0.23
There was less negative media coverage and less litigation	3.63	3.68	4.54	0.10
Surgeon specific outcomes were kept out of the public domain	3.41	3.28	9.91	**0.02**
I was able to specialise in the area I want without being a generalist	3.48	3.37	1.55	0.46

available for LTFT was adequate. Based on these findings and in addition to the fact that 53.7% of the respondents indicated that they would consider LTFT in the future, there is a definite need to optimise flexibility in training and access to information on LTFT for trainees. ASiT has previously made several recommendations related to LTFT https://paperpile.com/c/x0YrYm/IamVQ, [13].

Across all groups risks of litigation and personal financial costs were highlighted as core detractors from pursuit of a surgical career. With regards to litigation risk, additional medico-legal training courses specifically designed to suit the demands of surgical training have the potential to support trainee development and improve morale. ASiT has previously run successful courses in conjunction with the Medical Protection Society as well as sessions at our annual conference addressing medicolegal aspects of a career in surgery.

ASiT recently published a study on the cost of surgical training highlighting the enormous financial burden shouldered by surgical trainees https://paperpile.com/c/x0YrYm/ZuOm9, [9]. The reported mean debt on graduation from medical school has increased by 55%, from £17 892 (those graduating between 2000 and 2004) to £27 655 (those graduating between 2010 and 2014), however this figure will drastically increase for future graduates under the new university tuition fee rates. The average cost to UK trainees to meet the mandatory requirements for completion of training (as outlined in Joint Committee of Surgical Training (JCST) guidance) ranges between £20,000 to £71,431 [12]. To date, this is the first study ascertaining the personal financial cost of completion of training in medical specialties. However previous research has shown that the cost to meet the essential and desired criteria for appointment in medical specialties and anaesthetics is considerably less in comparison to surgical specialties [13]. Given the ever-increasing levels of undergraduate debthttps://paperpile.com/c/x0YrYm/e9DlZ [14], we may see a further decline in interest in surgical specialties due to financial implications associated with choosing a specialty in surgery.

Non-financial costs of surgical careers must also not be forgottenhttps://paperpile.com/c/x0YrYm/9E4R, [15]. In a previous study of final year medical studentshttps://paperpile.com/c/x0YrYm/5R4a8 [16], conflict with personal and family commitments was the most highly ranked deterrent to pursuing a career in surgery - with 85% of female respondents citing this as a barrier compared to 12% of men. Long and sometimes unpredictable hours/working patterns, relocation due to availability of postshttps://paperpile.com/c/x0YrYm/xy4W0 [17], and the level of extra academic portfolio development during surgical training are all factors that can pose a challenge to work-life balance in comparison to many other medical specialties. A recent cross-sectional surveyhttps://paperpile.com/c/x0YrYm/xy4W0 [17], by ASiT highlighted the negative impact of training on the personal lives (including interpersonal relationships and ability to permanently settle) and physical and mental health of surgical trainees. Thirty-six percent of respondents in this survey reported having to move five or more times, and 89% had reported missing at least one major family event due to work commitments. The majority of respondents reported the negative impact that surgical training had on their mental (66%) and/or physical (73%) health.

This study also highlighted the importance of surgical mentors and role models, particularly with pre-CST individuals. Other studies to date mirror the key findings of this survey. Firstly, it is widely reported that effective role models and early involvement/formative experience in surgery during undergraduate years play a key role in encouraging students to choose surgery https://paperpile.com/c/x0YrYm/5R4a8+8dU10+76tDy+h1z2C, [4,5,16,18]. Early career mentorship by a trainee or consultant surgeon can provide students with realistic insight into what the career entails, and allows them to attain early experience that can bolster the quality of their clinical and academic portfolio. Formal mentoring national schemes https://paperpile.com/c/x0YrYm/df6oz+UoH8X [19,20], and the UK National Research Collaboratives offer structured, well-resourced solutions to this detractor https://paperpile.com/c/x0YrYm/kvfco+Vawcd+P7rcE, [21–23]. Having a role model in surgery may be particularly impactful in encouraging female medical students to consider a surgical career https://paperpile.com/c/x0YrYm/laH90+L8tbO, [24,25]. ASiT reinforces that all surgical trainees and consultant surgeons have a responsibility for informal and formal mentorship even from early stage. A culture of undermining and bullying has historically plagued surgery. ASiT recognises and is strongly against this ongoing contemporary issue. Promoting a safe, supportive workplace culture is paramount to not only ensuring patient safety, but to allowing strong mentorship for students and junior trainees.

Secondly, it is also widely reported that early positive experience on surgical firms can have an influential effect on specialty choice [3]. Students have reported greater interest in pursuing a surgical career if they have had engaging surgical rotations during their undergraduate years, particularly if they have had the opportunity for hands-on

experience, exposure to theatre environments and treated as part of the surgical team [5]. Despite the fact that 9% of medical school academic staff are surgeons [24], there is significant heterogeneity in the quantity of teaching on surgical subjects such as anatomy and basic surgical skills [25–27]. Previous work by Jaunoo et al. found that a significant amount of students were concerned by the lack of anatomy teaching [14]. Undergraduate Deans must focus on the provision of high-quality theatre exposure and anatomy teaching to ensure an ongoing interest in surgical specialties amongst medical students. ASiT has responded to the General Medical Council's consultation on their *Outcomes for Graduates* guideline, including increasing basic surgical skills, anatomy and basic of surgical care teaching https://paperpile.com/c/x0YrYm/dKyZ, [26]. Medical schools can further help to ensure time spent on surgical placements is meaningful by encouraging students to keep a surgical logbook of cases in their existing undergraduate portfolio, and setting learning objectives such as scrubbing in for a set number of cases per surgical attachment week.

The *Broadening the Foundation Programme*https://paperpile.com/c/x0YrYm/XXqG+5Wyv [27,28], initiative aimed to increase community (general practice, paediatrics and psychiatry) rotations in foundation years. ASiT offers caution towards any plans to reduce the volume of surgical training posts within Foundation Programme schemes. Given these shortfalls, involvement in student surgical societies, interest groups and other academic surgery opportunities may increasingly serve as supplementary influential experiences that attract students and junior trainees to surgery [28–30]. Additionally, national research collaboratives have also proved the feasibility of trainee-driven research and is a robust venue for surgical trainees to engage in meaningful academic research [19,21].

In this study, an enjoyment of the theatre environment and the 'hands-on' aspect of a surgical career was the most commonly cited motivating factor. ASiT has been committed to providing affordable and accessible courses, including several regional and pre-conference courses in foundation surgical skills as well as specialty core and higher surgical skillshttps://paperpile.com/c/x0YrYm/bUVq, [29]. Additionally, simulation may also serve an important role in meeting this need for hands-on training for medical students and pre-CST doctors interested in surgery. Previous work by ASiThttps://paperpile.com/c/x0YrYm/oVKU [30], showed that only 41.2% of trainees had access to simulation facilities, and Local Education and Training Boards (LETBs) should be offering mandatory simulation courses for training to trainees free-of-charge [12]. The ASiT-BOTA Lost Tribe prospective cohort studyhttps://paperpile.com/c/x0YrYm/PoLs [31], found that only four training posts in a study population of 2569 senior house officers (SHO) in postgraduate surgical training met the quality indicators set by the JCST. ASiT has extensively campaigned for and recommends that LETBs and training programme directors strive to increase formal teaching opportunities and time spent in theatre and clinic for CST doctors.

The current climate amongst the medical workforce, particularly junior doctors, is one of low morale and high-levels of work-related stress [31]. These factors coupled with the recent unprecedented junior doctor strike action in response to the newly implemented junior doctors contract has created an environment where trainees feel increasingly undervalued (32). Although it is perhaps too early to see what effect the new contract has had on training, in 2016, only 66% of foundation year 2 (FY2/PGY2) trainees chose to progress on to core/specialty training posts, compared to 78% from the year before (33). Changes to undergraduate training, pressures on the health service and recent medico-political events have all created an atmosphere of uncertainty about how the appeal of undertaking surgical training can be upheld. This study has identified both motivating factors which need to be fostered and areas of improvement that can improve student and trainee interest in surgery.

4.1. Strengths and limitations

This study achieved an adequate response rate from students and trainees across various grades, regions and surgical specialties. The aspects of training analysed provide an overview on the motivating and deterring factors to pursuing a career in surgery. Given the nature of the respondents being attendees at a surgical-themed conference, there may be an element of selection bias amongst the medical students surveyed.

Sub-group analysis on respondents who were previously interested but failed to pursue a career in surgery, or those who left clinical medicine entirely would have added a useful comparison to the captured data. Additionally, surveying motivating and deterring factors between both surgical and medical specialties in this cohort of respondents may have highlighted useful comparisons.

5. Conclusion

Competition within applications to surgical training posts have declined over recent years. As a surgical profession, we must strive to address and combat factors that dissuade excellent applicants from considering a career in surgery. Our study has highlighted key themes such as improving the work life balance of surgical trainees, increasing flexibility of surgical training and an ongoing commitment to specialist, rather than generalist, training as being directly related to increasing applicants preference towards a surgical career. Continuing work must be done to improve the flexibility of surgical training whilst reducing personal financial investments to make a career in surgery accessible for all. Additionally fostering and promoting engagement of students within surgical environments, enhancing opportunities to become involved in theatre and becoming part of the surgical team are vital to attract the next generation of future surgeons.

Surgical leaders should be lobbying organisations such as the General Medical Council and Medical Schools Council for better quantity and quality of undergraduate teaching. Lobbying for improvements across all of the detracting factors highlighted in this study may help restore the idea of a surgical career as being exciting, dynamic and attainable to all.

Ethical approval

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Author contribution

NW/PD- Data collection, Data analysis, Writing of the first draft.
JG- Data analysis, Critical appraisal of manuscript.
SR- Study design.
VG- Study design.
HM- Critical appraisal of manuscript.
GH- Critical appraisal of manuscript.
RH- Study design, Critical appraisal of manuscript.

Conflicts of interest

Nil.

Research registration unique identifying number

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Guarantor

RH.

Data statement

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Provenance and peer review

Not Commissioned, internally reviewed.

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