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Less Than Full-time Training in Surgery: A cross sectional study of flexible training in the surgical trainee workforce

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3 **Less Than Full-time Training in Surgery: A cross sectional study of flexible**
4 **training in the surgical trainee workforce**
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12 Orthopaedic Trainees Association.
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Abstract

Objectives:

Generational changes in lifestyle expectations, working environments and the feminisation of the medical workforce have seen an increased demand in postgraduate Less Than Full-time Training (LTFT). Despite this, concerns remain regarding access to, and information about, flexible training for surgeons. This study aimed to assess the opinions and experiences of LTFT for surgical trainees.

Design:

Prospective, questionnaire-based cross-sectional study.

Setting/participants:

An electronic, self-administered questionnaire was distributed in the United Kingdom and Republic of Ireland through mailing lists via the Association of Surgeons in Training and British Orthopedic Trainee Association.

Results:

Overall, 876 completed responses were received, representing all grades of trainee across all 10 surgical specialties. Median age was 33 years and 63.4% were female. Of those who had undertaken LTFT, 92.5% (148/160) were female. Most worked 60% of a full time post (86/160, 53.8%). The reasons for either choosing or considering LTFT were childrearing (82.7%), caring for a dependent (12.6%) and sporting commitments (6.8%). Males were less likely to list childrearing than females (64.9% vs. 87.6%; $p < 0.0001$). Only 38% (60/160) found the application process easy and 53.8% (86/160) experienced undermining behavior from workplace staff as a result of undertaking LTFT. Of all respondents, an additional 53.7% (385/716) would consider LTFT in future; 27.5% of which were male (106/385). Overall, only 9.9% of all respondents rated current LTFT information as adequate. Common sources of information were other trainees (47.3%), educational supervisors (20.6%) and local postgraduate school website (19.5%).

Conclusions:

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3 Over half of surgical trainees working LTFT have experienced undermining behaviour
4 as a result of their LTFT. Despite a reported need for LTFT in both genders, this
5 remains difficult to organise, access to useful information is poor, and negative
6 attitudes amongst staff remain. Recommendations are made to provide improved
7 support and information for those wishing to pursue LTFT.
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13 **Strengths and Limitations**

- 14 • This study describes the experiences of a cross-sectional cohort of current
15 surgical trainees who have, or who plan to, undertake LTFT in surgery. High
16 number of respondents helped provide a valid approximation of experiences.
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- 18 • The wide distribution of the survey in both the UK and ROI, and responses
19 from all training grades, regions and specialties helped mitigate against focus
20 on any one subgroup.
21
- 22 • However, all survey-based research is susceptible to responder bias.
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- 24 • There is the potential for these results to reflect those with either poor or
25 excellent experiences of LTFT who may have been more likely to respond.
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- 27 • These results are also limited to experience in the UK and ROI; the degree to
28 which this can be extrapolated to training in other countries is not known.
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Introduction

Less than full-time training (LTFT) is postgraduate training undertaken whilst working a reduced number of hours, expressed as a percentage of full time; thus resulting in a relative lengthening in the number of years spent in medical training. In the United Kingdom (UK), part-time postgraduate training was first introduced in the Oxford region in 1966 for married women¹, and was subsequently rolled out nationally. As a result, LTFT has become available across national postgraduate training schemes.

Funding for LTFT places is limited, and for a trainee to be eligible, there must be a 'well-founded reason' for not being able to work full-time. Current guidelines state this this must be either²:

- Disability or ill health, or being a carer for children or a ill or disabled partner, relative or other dependent, or
- Unique opportunities for personal or professional development (e.g. sporting commitments, academia, quality improvement or leadership roles).

In recent years numerous external factors have combined to influence medical training. The European Working Time Directive (EWTD) and United States of America (USA) Duty Hour Regulations have dramatically changed working patterns, and generational changes in lifestyle expectations, working environments, and the feminisation of the medical workforce have resulted in a gradual rise in demand for LTFT.

Across all specialties, in 2008 only 5.7% of the UK trainee doctor population were in LTFT, with the majority being female (96%)³. In comparison, this figure had risen to 11.3% by 2014⁴; of which 80.4% were female. This demonstrates both the increasing requirement for LTFT and the necessity for LTFT across both genders. This situation is not unique to the UK; over recent years there has been a call for increased access to flexible working in order to attract or retain doctors, particularly females, in Europe⁵⁻⁷, North America⁸⁻¹⁰, Asia¹¹, Australasia¹²⁻¹⁴ and Africa¹⁵. Despite this, in the UK there is evidence of variability in LTFT between both regions and specialty¹⁶, and concerns have been raised regarding surgical trainees' access to this.

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3 This study aimed to assess the experiences and opinions regarding access to LTFT
4 posts and the adequacy of information available to current surgical trainees within
5 the UK and Republic of Ireland (ROI).
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Methods

Participants and setting

Postgraduate surgical training within the UK and ROI consists of a minimum of 8 years of training following completion of the initial post-qualification Foundation Programme or intern year, respectively. Competitive entry occurs prior to both Core and Higher specialist training levels, with the exception of neurosurgery and cardiothoracic surgery, where run-through training exists from appointment post-Foundation Programme. The Joint Committee on Surgical Training (JCST) are responsible for curriculum development and quality assurance of all the surgical training programmes in the ten defined surgical specialities (cardiothoracic, general, maxillofacial, neurosurgery, orthopaedics and trauma, otolaryngology, paediatric, plastic, urology and vascular surgery). Core surgical knowledge is assessed by the Intercollegiate Membership of the Royal College of Surgeons (MRCS) examination and specialty specific knowledge during the later phase of higher surgical training is assessed by the Intercollegiate Fellowship of the Royal College of Surgeons (FRCS) examination. In 2015, there are 5,323 surgical trainees in the UK and 438 surgical trainees in the Republic of Ireland.

In the UK, approval for LTFT is given by the Trainee's Postgraduate Local Education and Training Boards (LETBs) in agreement with the Local Hospital Trust. LTFT is usually no less than 50% of full time training, but can be less (to a minimum of 20% for up to 12 months) if agreed by all interested parties¹⁷. The total duration of LTFT training time is calculated pro rata with full time training. Funding for LTFT posts is provided by both the Postgraduate LETBs (educational component of basic pay) and the local hospital (on-call banding arrangement).

Questionnaire design and distribution

A novel 22-item, questionnaire survey was developed, consisting of free-text, binomial and 5-point Likert scale responses. The questionnaire was designed with reference to previously published guidelines on questionnaire-based research¹⁸⁻¹⁹. The survey tool was peer-reviewed by experienced trainers and piloted by over 20

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3 surgical trainees with a spread of seniority and specialty. Content validity was
4 ensured by this peer-review and piloting process. Given the range of different
5 constructs measured, internal consistency calculations were not undertaken. The
6 feedback received was used to refine the question items. Individual question items
7 were compulsory. No individually identifiable information was collected (e.g. email
8 address); therefore, non-responders could not be identified for follow-up. No
9 incentives were offered for participation.

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11 A link to the online survey (SurveyMonkey.com, LLC, Palo Alto, CA, USA) was
12 distributed to members of the Association of Surgeons in Training (ASiT) and British
13 Orthopedic Trainee Association (BOTA), surgical specialty associations, and local and
14 national mailing lists. The ethical dimensions of this non-mandatory, anonymous
15 evaluation survey were considered and no concerns were identified. Completion of
16 the questionnaire was taken as implied consent to participate in this study.

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18 This study was undertaken by ASiT (<http://www.asit.org>), and BOTA
19 (<http://www.bota.org.uk>). ASiT is a pan-surgical specialty professional body and
20 registered charity working to promote excellence in surgical training for the benefit
21 of junior doctors and patients alike. Originally founded in 1976, ASiT is independent
22 of the National Health Service (NHS), Surgical Royal Colleges, and specialty
23 associations. BOTA is affiliated to the British Orthopaedic Association, and was
24 established in 1987 to represent the views of Orthopaedic trainees specifically.

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Data analysis

Only fully completed questionnaires were included in the analysis. Microsoft Excel (Microsoft, 2010, Redmond, Washington, USA) was used to calculate descriptive statistics. Statistical analysis was performed using Sigma Plot version 11 (Systat Software Inc, UK) and statistical significance was accepted at $p < 0.05$. Significance testing was performed using Chi-square test for non-parametric binary data. Free-text responses were independently categorized by theme into groups for analysis by two of the authors, with differences resolved by discussion. Survey sample size calculations were based on standard published formulae²⁰.

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Results

Respondent demographics

Of 1004 surveys submitted, a total of 876 were fully completed and included in the analysis. The mean age of respondents was 33 years old (range 24-52) and 63.4% were female. Respondents ranged from first year Core Surgical Trainees to Post-CCT (Certificate of Completion of Training) Fellowship trainees. Respondents were from all training regions within the UK and ROI and all 10 surgical specialties, with the majority working in General Surgery (44.1%). A summary of demographics and responses by gender is provided in **TABLE 1**.

Demand for Flexible Training

Overall, 18.3% (160/876) had previously undertaken or were currently taking LTFT during surgical training. Of those who had undertaken LTFT, 92.5% (148/160) were female and 7.5% (12/160) were male ($P < 0.0001$). Regarding surgical specialty, 48.1% (77/160) were General Surgery trainees, with 13.6% (22/160) in ENT and 8.75% (13/160) in Paediatric Surgery. Of those who had taken LTFT, 92.5% (148/160) first took LTFT during higher surgical training, 6.25% (10/160) during core surgical training and 1.25% (2/160) as a research fellow. Most respondents reported first taking LTFT during higher specialty training (Specialty Trainee Year 6, ST6) level (44/160, 27.5%), with the majority working 60% of a full time post (86/160, 53.8%) (**FIGURE 1**).

Of those respondents who had not previously undertaken LTFT, 53.7% (385/716) would also consider undertaking LTFT in the future; 27.5% of which were male (106/385). The reasons for either previously choosing or considering LTFT in the future were for childrearing (82.7%), caring for a dependent (12.6%), sporting commitments (6.8%) and other reasons (21.2%) (**FIGURE 2**). Other reasons were listed as being for: academia (17), ill health (4), humanitarian work (3), and leadership roles (2). Males were less likely to list childrearing when compared to females (64.9% vs. 87.6%; $p < 0.0001$).

Experience of Flexible Training

Of those who had previously undertaken LTFT, 53.8% (86/160) reported that they had experienced undermining behavior from staff in the workplace as a direct result of their LTFT. The proportions reporting this were not statistically different between genders.

Organisation and Information

Only 38% (60/160) of those who had undertaken LTFT found the process of application for LTFT easy or very easy to organize. Considering all respondents, only 9.9% rated the current adequacy of information about LTFT as good or very good; with 89.5% noting that there needed to be more information to be available. Out of those who had either taken or were considering LTFT, the common sources of information used were other trainees (47.3%), educational supervisors (20.6%) and local training region websites (19.5%).

Qualitative Analysis

Qualitative comments were invited from respondents regarding their experience of LTFT. In the free text comments box provided, 46 respondents described undermining or bullying behaviour by consultants and 17 described undermining or bullying behaviour by colleagues in relation to taking LTFT. Further qualitative analysis of these revealed major themes of issues with the on-call rota (14), receiving less operative exposure relative to time worked (11), negative affects on job rotations allocated by their Training Programme Director (8), and that a full time workload was still expected from them (5).

Respondents were asked to provide free text comments on reasons why they would not chose LTFT. Of these, 77 respondents stated they had no reason or desire to undertake LTFT and 70 did not want to prolong their training, 53 felt that LTFT offered inferior training, 36 felt they would be disadvantaged or experience undermining behaviour if they undertook LTFT, 30 felt LTFT resulted in lack of

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3 continuity of patient care and 27 stated the reduction in pay would be an issue for
4 them.
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8 Respondents were asked how LTFT information, and the availability of this, could be
9 improved. A breakdown of the major themes is provided in **TABLE 2**. Respondents
10 also provided examples of their own views and experiences of LTFT in the free-text
11 comment box. A representative sample of these is provided in **TABLE 3**. The major
12 themes included a lack of senior support for LTFT, lack of administrative support
13 from hospitals, lack of information, impact on training, and negative attitudes and
14 perceptions surrounding LTFT.
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Discussion

The results from this cross sectional study indicate that over half of surgical trainees working LTFT have experienced undermining behaviour as a result of this, and that despite a reported need for LTFT in both genders, it remains difficult to organise and the availability and accessibility of relevant information is poor.

Childcare was listed as the commonest reason for choosing or considering LTFT. Despite the growing number of female doctors in the UK²¹, there is evidence to suggest that female doctors are underrepresented at senior levels²²⁻²³. In 2008, 30% of the trainees applying to core surgical training and 22% of those within higher surgical training programmes were female²⁴; however only 10% of all consultant (attending) surgeons are female²⁵. It has previously been suggested that women may decide not to continue with higher surgical training, as this is the stage in their life when childrearing occurs²⁴, it is therefore crucial that access to LTFT posts is improved to maintain the inevitably increasing female surgical workforce. In the UK, the General Medical Council (GMC) and National Working Group on Women in Medicine has recognised this issue and made recommendations for improved access to LTFT to encompass improved support for carers and those with young children¹⁷. Similarly, In the ROI the Health and Safety Executive (HSE) national flexible training scheme for Higher Specialist Trainees has been launched and is funded and managed by the HSE Medical Education and Training unit²⁶.

In this study, over 7% of LTFT trainees within surgery were male, a lower percentage in comparison to all medical specialties as a whole (19.6%) in the 2014 GMC survey⁴. However, our results confirmed a further 33% of male respondents would consider LTFT in the future, which is higher than the proportions of male trainees in Australasia and USA, 26% and 13% respectively^{10,14}. Overall, surgical specialties have low numbers of LTFT trainees; in 2011 there were only 151 LTFT surgical trainees in the UK²⁷, and only 0.3% of surgical trainees in Australasia in a recent survey¹⁴. LTFT is relatively uncommon in surgery, possibly due to views of medical students and junior doctors that a career in surgery is not conducive to a good family life²⁸⁻³², and a lack of awareness that LTFT can be undertaken within surgery. It is imperative that

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3 education and encouragement should be provided to medical students throughout
4 undergraduate training to raise awareness that LTFT can be compatible with surgical
5 training. Role models (both female and male) are important in choosing surgical
6 careers³³, and both training programme directors and educational supervisors
7 should be aware of, and support of the option of LTFT. The opportunities for this
8 must be equally accessible for both men and women.
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14 Worryingly, 53.8% of those in LTFT posts reported undermining behaviour in the
15 workplace as a perceived direct result of their LTFT. Qualitative analysis revealed
16 bullying behaviour by both consultants and colleagues. Undermining, bullying or
17 harassment has no place within modern surgical training and is unacceptable³⁴. As
18 professionals, surgical trainees have the right to feel valued and safe in the
19 workplace, and are encouraged to raise concerns if undermining or bullying behavior
20 exists. Eight trainees also commented that their LTFT negatively affected job
21 allocations with two respondents commenting 'In ENT, head and neck jobs were not
22 allocated to LTFT trainees' and another commenting 'My training programme
23 director said he would not waste a popular job on a LTFT trainee'. The decision for
24 job allocations should be based on the individual's learning needs and not on LTFT
25 status; to do so is discriminatory. Another trainee commented that they had to share
26 operating lists with another registrar at the same level of training. This damages the
27 training of both, and such training experiences should be protected regardless of
28 LTFT status.
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42 Despite the increased need for LTFT within surgical training, only 38% found the
43 application process easy and less than 10% rated the availability of information to
44 help in the decision making process as adequate. It is imperative that there is
45 improved awareness and information to assist in the decision making process.
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50 **Recommendations**

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53 Based on the qualitative feedback provided in this study, recommendations for
54 improving awareness of LTFT, together with the content and availability of
55 information provided, are summarised in Table 2. In addition to these practical
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3 points, numerous other wider issues were raised. Based on these, respondents
4 recommended that there should be increased provision and funding for LTFT in
5 surgical specialties for both genders. Information should be readily available for all
6 surgical trainees wishing to or considering applying for LTFT, and ASiT has previously
7 called for improved career counselling services to assist surgical trainees in
8 successfully planning their careers³⁵. Both undergraduate and postgraduate training
9 programmes should include career advice related to LTFT and surgical specialties.
10 Individual departments and training regions should outline basic information
11 including eligibility criteria and the application process as well as a point of contact
12 for advice on their websites. Surgical colleges and specialty associations should also
13 provide information on their websites. On a practical basis, having a LTFT adviser
14 within each training region would help provide closer links with trainees and trainers
15 on a local level, providing advice and easing on-going challenges. Logistically,
16 hospital human resource departments need to be aware of LTFT and support
17 trainees undertaking this option. Finally, a wider cultural change is required to
18 address negative perceptions of LTFT amongst both colleagues and seniors. Any
19 trainee experiencing undermining or bullying behaviour as a result of these should
20 report their concerns and have an identified LTFT mentor to support them.
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Conclusions

Despite an increasing need for LTFT within surgical specialities, information regarding access to LTFT remains difficult to access. LTFT should be readily available to both males and females within surgery, and improved information should be proactively provided for those considering LTFT, locally, regionally and nationally. Education and encouragement by the medical workforce is required in order to encourage those wishing to pursue LTFT in surgery specialties, and prevent negative attitudes surrounding LTFT posts.

Acknowledgements

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Contributors

RLH and JEFF conceived and designed the study. All authors designed the questionnaire. RLH collected the data. RLH and JEFF analysed the data. All authors were responsible for compiling the manuscript and approving the final article.

Competing interests

The authors are current surgical trainees and elected members of the Executive of the Association of Surgeons in Training (Registered Charity No. 274841) or the British Orthopedic Trainees Association. The authors have no other relevant financial or personal conflicts of interest to declare in relation to this paper.

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Data sharing statement

Respondent level data is available from the corresponding author at president@asit.org. Consent to data sharing was not obtained but the presented data are anonymised and risk of identification is low.

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Table 1: Respondent demographics and responses by gender

Question	What is your gender?				Total (Gender combined)	
	Female		Male		n	%
Grade	n	% Total	n	% Total	n	%
Core Surgical Trainee (CST 1 - CST 2)	112	12.8%	60	6.8%	172	19.6%
Higher Trainee (ST3 - ST4)	98	11.2%	59	6.7%	157	17.9%
Higher Trainee (ST5 - ST6)	118	13.5%	64	7.3%	182	20.8%
Higher Trainee (ST7 - ST8)	97	11.1%	68	7.8%	165	18.8%
Research / Clinical Fellow	39	4.5%	22	2.5%	61	7.0%
Post-CCT	48	5.5%	23	2.6%	71	8.1%
Other	43	4.9%	25	2.9%	68	7.8%
Academic Post Holder						
Yes	29	3.3%	24	2.7%	53	6.1%
Already undertaken LTFT during surgical training?						
Yes	148	16.9%	12	1.4%	160	18.3%
No	407	46.5%	309	35.3%	716	81.7%
Would you consider undertaking LTFT during surgical training? †						
Yes	279	39.0%	106	14.8%	385	53.8%
No	127	17.7%	204	28.5%	331	46.2%
Total responses	555	63.4%	321	36.6%	876	100%

† Excluding those who have already undertaken LTFT during surgical training

Table 2: Respondent recommendation to improve LTFT information and the availability of this

Need to increase awareness of LTFT, particularly amongst:

- Senior surgeons (Consultants/Attendings)
- Hospital managers and administrative staff
- Increase publicity generally to raise awareness
- Provide a nationally relevant information pack with guidelines

Need to improve knowledge of LTFT, particularly amongst:

- Senior surgeons (Consultants/Attendings)
- Hospital managers and administrative staff
- Educational supervisors

Need to proactively make Information more available and accessible via:

- GMC
- Royal Surgical College websites
- JCST
- Deaneries
- Departments

Information on LTFT should be actively promoted via:

- At induction to hospitals
- At induction to training programs
- During teaching days
- Information evening in the Royal Surgical Colleges
- In annual review meetings
- At medical schools

Practical Information provided should include:

- Available opportunities for LTFT
- How to apply
- Options of percentages of LTFT available
- Process of undertaking LTFT
- Pay and conditions, including salary calculations
- Job planning
- Impact on training e.g. How long training increased by, number of workplace-based assessments required pro rata, window for taking examinations
- Guidance on return to work
- Specified point of contact for impartial support
- Local, regional or national support networks

Table 3. Representative qualitative comments from respondents regarding their LTFT experiences

“Seniors are poorly informed of process and opportunities for LTFT”

“I have found most support from nursing staff rather than fellow surgical colleagues”

“There is poor awareness of some of the technical challenges, planning and adaptations needed”

“I think trainees have a perception that it will negatively impact on their training”

“It's not the info itself it's the general attitude to flexitime training”

“Needs more senior support. Very little at present”

“Need to make it more acceptable.... for men and women”

“Don't make women feel like a failure for considering it!”

“Surgery is very "go-go" and is difficult to take a step back without feeling inadequate”

“There is a stigma in surgery [to LTFT] which is frankly pathetic”

“Once you become LTFT there is virtually no information/support on how to arrange logistically”

“It is easier to abandon [sporting] commitments, as the run-in time for competitive sport to declare the commitment means that you will not get a firm [LTFT] agreement in time”

“I have never felt that I have been treated differently clinically, but the administrative back-up is appalling and just creates a layer of unnecessary stress and logistical problems”

“I found it very easy to communicate with seniors about taking time out, but found talking to Human Resources departments and admin staff incredibly frustrating”

“There needs to be a widespread culture change in surgery which will enable more women to enter the profession and continue with it”

“There is a prevailing negative attitude towards LTFT training amongst older (esp male) consultants which make working and training LTFT much harder than it should be”

“You can provide service and have training, but one's progression is almost non-existent when you are working part-time”

“It is not really talked about as considered a taboo. It think information about perception and more discussion about it to consider it socially acceptable would be useful”

“[There need to be] seniors who do not guffaw at the potential option or say that it would just not be possible”

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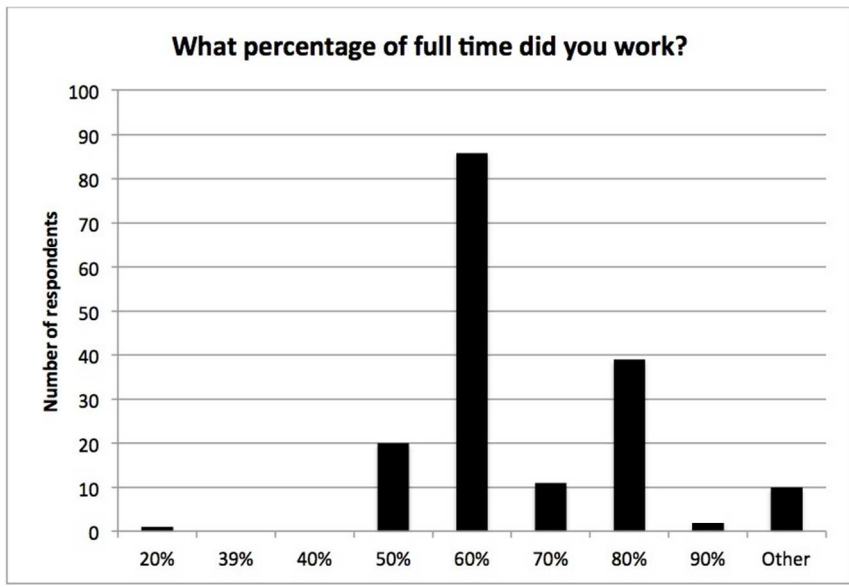


Figure 1. Distribution of responses for percentage of full time worked by LTFT trainees.
173x111mm (150 x 150 DPI)

Review only

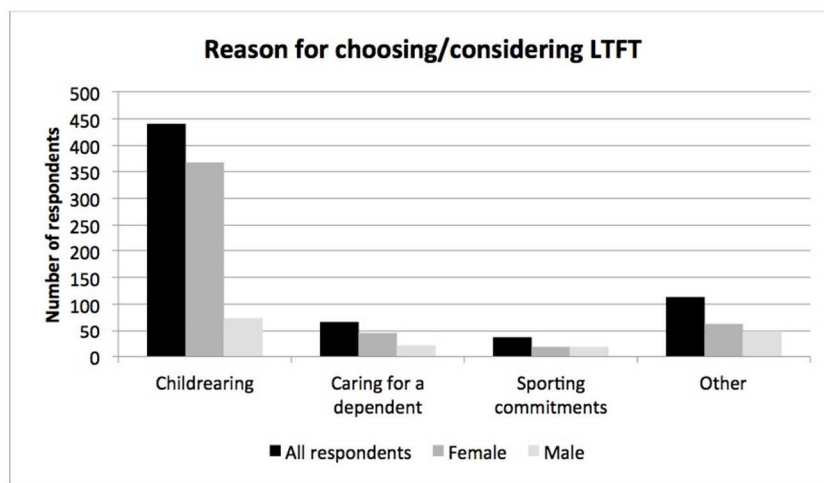


Figure 2. Reasons for previously choosing or considering LTFT in the future.
177x96mm (150 x 150 DPI)

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STROBE Statement for **Less Than Full-time Training in Surgery: A cross sectional study of flexible training in the surgical trainee workforce**

	Item No	Recommendation
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract <input type="checkbox"/>
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found <input type="checkbox"/>
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported <input type="checkbox"/>
Objectives	3	State specific objectives, including any prespecified hypotheses <input type="checkbox"/>
Methods		
Study design	4	Present key elements of study design early in the paper <input type="checkbox"/>
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection <input type="checkbox"/>
Participants	6	(a) <i>Cohort study</i> —Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up <i>Case-control study</i> —Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls <i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants <input type="checkbox"/>
		(b) <i>Cohort study</i> —For matched studies, give matching criteria and number of exposed and unexposed <i>Case-control study</i> —For matched studies, give matching criteria and the number of controls per case
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable <input type="checkbox"/>
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group
Bias	9	Describe any efforts to address potential sources of bias <input type="checkbox"/>
Study size	10	Explain how the study size was arrived at <input type="checkbox"/>
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why

		<input type="checkbox"/>
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding <input type="checkbox"/>
		(b) Describe any methods used to examine subgroups and interactions <input type="checkbox"/>
		(c) Explain how missing data were addressed <input type="checkbox"/>
		(d) <i>Cohort study</i> —If applicable, explain how loss to follow-up was addressed <i>Case-control study</i> —If applicable, explain how matching of cases and controls was addressed <i>Cross-sectional study</i> —If applicable, describe analytical methods taking account of sampling strategy <input type="checkbox"/>
		(e) Describe any sensitivity analyses

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Results		
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed <input type="checkbox"/>
		(b) Give reasons for non-participation at each stage <input type="checkbox"/>
		(c) Consider use of a flow diagram
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders <input type="checkbox"/>
		(b) Indicate number of participants with missing data for each variable of interest <input type="checkbox"/>
		(c) <i>Cohort study</i> —Summarise follow-up time (eg, average and total amount)
Outcome data	15*	<i>Cohort study</i> —Report numbers of outcome events or summary measures over time
		<i>Case-control study</i> —Report numbers in each exposure category, or summary measures of exposure
		<i>Cross-sectional study</i> —Report numbers of outcome events or summary measures <input type="checkbox"/>
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included <input type="checkbox"/>
		(b) Report category boundaries when continuous variables were categorized <input type="checkbox"/>
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses
Discussion		
Key results	18	Summarise key results with reference to study objectives <input type="checkbox"/>
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias <input type="checkbox"/>
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence <input type="checkbox"/>
Generalisability	21	Discuss the generalisability (external validity) of the study results <input type="checkbox"/>
Other information		
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based <input type="checkbox"/>

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2 *Give information separately for cases and controls in case-control studies and, if applicable, for exposed and
3 unexposed groups in cohort and cross-sectional studies.
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5
6 **Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and
7 published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely
8 available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at
9 <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is
10 available at www.strobe-statement.org.
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BMJ Open

Less Than Full-time Training in Surgery: A cross sectional study evaluating the accessibility and experiences of flexible training in the surgical trainee workforce

Journal:	<i>BMJ Open</i>
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Primary Subject Heading:	Medical education and training
Secondary Subject Heading:	Surgery
Keywords:	Less than full-time training, Flexible working, Education, SURGERY, Surgical training

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Manuscripts

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3 **Less Than Full-time Training in Surgery: A cross sectional study evaluating**
4 **the accessibility and experiences of flexible training in the surgical trainee**
5 **workforce**
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10 Rhiannon L Harries^{1*}, Vimal J Gokani¹, Peter Smitham², J Edward F Fitzgerald¹, on
11 behalf of the councils of the Association of Surgeons in Training and the British
12 Orthopaedic Trainees Association.
13

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47 **Running head** - Less than full time training in surgery

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49 **Category** - Original research

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51 **Funding** - Nil

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56 **Key words** - Less than full-time training; Flexible working; Surgical training;
57 Surgery; Education
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Abstract

Objectives:

Generational changes in lifestyle expectations, working environments and the feminisation of the medical workforce have seen an increased demand in postgraduate Less Than Full-time Training (LTFT). Despite this, concerns remain regarding access to, and information about, flexible training for surgeons. This study aimed to assess the opinions and experiences of LTFT for surgical trainees.

Design:

Prospective, questionnaire-based cross-sectional study.

Setting/participants:

An electronic, self-administered questionnaire was distributed in the United Kingdom and Republic of Ireland through mailing lists via the Association of Surgeons in Training and British Orthopedic Trainee Association.

Results:

Overall, 876 completed responses were received, representing all grades of trainee across all 10 surgical specialties. Median age was 33 years and 63.4% were female. Of those who had undertaken LTFT, 92.5% (148/160) were female. Most worked 60% of a full time post (86/160, 53.8%). The reasons for either choosing or considering LTFT were childrearing (82.7%), caring for a dependent (12.6%) and sporting commitments (6.8%). Males were less likely to list childrearing than females (64.9% vs. 87.6%; $p < 0.0001$). Only 38% (60/160) found the application process easy and 53.8% (86/160) experienced undermining behavior from workplace staff as a result of undertaking LTFT. Of all respondents, an additional 53.7% (385/716) would consider LTFT in future; 27.5% of which were male (106/385). Overall, only 9.9% of all respondents rated current LTFT information as adequate. Common sources of information were other trainees (47.3%), educational supervisors (20.6%) and local postgraduate school website (19.5%).

Conclusions:

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3 Over half of surgical trainees working LTFT have experienced undermining behaviour
4 as a result of their LTFT. Despite a reported need for LTFT in both genders, this
5 remains difficult to organise, access to useful information is poor, and negative
6 attitudes amongst staff remain. Recommendations are made to provide improved
7 support and information for those wishing to pursue LTFT.
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14 **Strengths and Limitations**

- 17 • This study describes the experiences of a cross-sectional cohort of current
18 surgical trainees who have, or who plan to, undertake LTFT in surgery. High
19 number of respondents helped provide a valid representation of the UK
20 trainee cohort.
21
- 22 • The wide distribution of the survey in both the UK and ROI, and responses
23 from all training grades, regions and specialties helped mitigate against focus
24 on any one subgroup.
25
- 26 • However, all survey-based research is susceptible to responder bias.
27
- 28 • There is the potential for these results to reflect those with either poor or
29 excellent experiences of LTFT who may have been more likely to respond.
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- 31 • These results are also limited to experience in the UK and ROI; the degree to
32 which this can be extrapolated to training in other countries is not known.
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Introduction

Less than full-time training (LTFT) is postgraduate training undertaken whilst working a reduced number of hours, expressed as a percentage of full time; thus resulting in a relative lengthening in the number of years spent in medical training. In the United Kingdom (UK), part-time postgraduate training was first introduced in the Oxford region in 1966 for married women¹, and was subsequently rolled out nationally. As a result, LTFT has become available across national postgraduate training schemes.

Funding for LTFT places is limited, and for a trainee to be eligible, there must be a 'well-founded reason' for not being able to work full-time. Current guidelines state this this must be either²:

- Disability or ill health, or being a carer for children or a ill or disabled partner, relative or other dependent, or
- Unique opportunities for personal or professional development (e.g. sporting commitments, academia, quality improvement or leadership roles).

In recent years numerous external factors have combined to influence medical training. The European Working Time Directive (EWTD) and United States of America (USA) Duty Hour Regulations have dramatically changed working patterns, and generational changes in lifestyle expectations, working environments, and the feminisation of the medical workforce have resulted in a gradual rise in demand for LTFT.

Across all specialties, in 2008 only 5.7% of the UK trainee doctor population were in LTFT, with the majority being female (96%)³. In comparison, this figure had risen to 11.3% by 2014⁴; of which 80.4% were female. This demonstrates both the increasing requirement for LTFT and the necessity for LTFT across both genders. This situation is not unique to the UK; over recent years there has been a call for increased access to flexible working in order to attract or retain doctors, particularly females, in Europe⁵⁻⁷, North America⁸⁻¹⁰, Asia¹¹, Australasia¹²⁻¹⁴ and Africa¹⁵. Despite this, in the UK there is evidence of variability in LTFT between both regions and specialty¹⁶, and concerns have been raised regarding surgical trainees' access to this.

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3 This study aimed to assess the experiences and opinions regarding access to LTFT
4 posts and the adequacy of information available to current surgical trainees within
5 the UK and Republic of Ireland (ROI).
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Methods

Participants and setting

Postgraduate surgical training within the UK and ROI consists of a minimum of 8 years of training following completion of the initial post-qualification Foundation Programme or intern year, respectively. Competitive entry occurs prior to both Core and Higher specialist training levels, with the exception of neurosurgery and cardiothoracic surgery, where run-through training exists from appointment post-Foundation Programme. The Joint Committee on Surgical Training (JCST) are responsible for curriculum development and quality assurance of all the surgical training programmes in the ten defined surgical specialities (cardiothoracic, general, maxillofacial, neurosurgery, orthopaedics and trauma, otolaryngology, paediatric, plastic, urology and vascular surgery). Core surgical knowledge is assessed by the Intercollegiate Membership of the Royal College of Surgeons (MRCS) examination and specialty specific knowledge during the later phase of higher surgical training is assessed by the Intercollegiate Fellowship of the Royal College of Surgeons (FRCS) examination. In 2015, there are 5,323 surgical trainees in the UK and 438 surgical trainees in the Republic of Ireland.

In the UK, approval for LTFT is given by the Trainee's Postgraduate Local Education and Training Boards (LETBs) in agreement with the Local Hospital Trust. LTFT is usually not less than 50% of full time training, but can be less (to a minimum of 20% for up to 12 months) if agreed by all interested parties¹⁷. The total duration of LTFT training time is calculated pro rata with full time training. Funding for LTFT posts is provided by both the Postgraduate LETBs (educational component of basic pay) and the local hospital (additional unsocial hours banding arrangement).

Questionnaire design and distribution

A novel 22-item, questionnaire survey was developed, consisting of free-text, binomial and 5-point Likert scale responses. The questionnaire was designed with reference to previously published guidelines on questionnaire-based research¹⁸⁻¹⁹. The survey tool was peer-reviewed by experienced trainers and piloted by over 20

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3 surgical trainees with a spread of seniority and specialty. Content validity was
4 ensured by this peer-review and piloting process. Given the range of different
5 constructs measured, internal consistency calculations were not undertaken. The
6 feedback received was used to refine the question items. Individual question items
7 were compulsory. No individually identifiable information was collected (e.g. email
8 address); therefore, non-responders could not be identified for follow-up. No
9 incentives were offered for participation.

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12 A link to the online survey (SurveyMonkey.com, LLC, Palo Alto, CA, USA) was
13 distributed to members of the Association of Surgeons in Training (ASiT) and British
14 Orthopedic Trainee Association (BOTA), surgical specialty associations, and local and
15 national mailing lists. Data collection took place from 12th January 2015 to 9th March
16 2015. The ethical dimensions of this non-mandatory, anonymous evaluation survey
17 were considered and no concerns were identified. Completion of the questionnaire
18 was taken as implied consent to participate in this study.

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21 This study was undertaken by ASiT (<http://www.asit.org>), and BOTA
22 (<http://www.bota.org.uk>). ASiT is a pan-surgical specialty professional body and
23 registered charity working to promote excellence in surgical training for the benefit
24 of junior doctors and patients alike. Originally founded in 1976, ASiT is independent
25 of the National Health Service (NHS), Surgical Royal Colleges, and specialty
26 associations. BOTA is affiliated to the British Orthopaedic Association, and was
27 established in 1987 to represent the views of Orthopaedic trainees specifically.

28 29 30 *Data analysis*

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33 Only fully completed questionnaires were included in the analysis. Microsoft Excel
34 (Microsoft, 2010, Redmond, Washington, USA) was used to calculate descriptive
35 statistics. Statistical analysis was performed using Sigma Plot version 11 (Systat
36 Software Inc, UK) and statistical significance was accepted at $p < 0.05$. Significance
37 testing was performed using Chi-square test for non-parametric binary data. Free-
38 text responses were independently categorized by theme into groups for analysis by
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two of the authors, with differences resolved by discussion. Survey sample size calculations were based on standard published formulae²⁰.

For peer review only

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Results

Respondent demographics

Of 1004 surveys submitted, a total of 876 were fully completed and included in the analysis. The mean age of respondents was 33 years old (range 24-52) and 63.4% were female. Respondents ranged from first year Core Surgical Trainees to Post-CCT (Certificate of Completion of Training) Fellowship trainees. Respondents were from all training regions within the UK and ROI and all 10 surgical specialties, with the largest percentage working in General Surgery (44.1%). A summary of demographics and responses by gender is provided in **TABLE 1**.

Demand for Flexible Training

Overall, 18.3% (160/876) had previously undertaken or were currently taking LTFT during surgical training. Of those who had undertaken LTFT, 92.5% (148/160) were female and 7.5% (12/160) were male ($P < 0.0001$). Regarding surgical specialty, 48.1% (77/160) were General Surgery trainees, with 13.6% (22/160) in ENT and 8.75% (13/160) in Paediatric Surgery. Of those who had taken LTFT, 92.5% (148/160) first took LTFT during higher surgical training, 6.25% (10/160) during core surgical training and 1.25% (2/160) as a research fellow. The largest percentage of respondents reported first taking LTFT during higher specialty training (Specialty Trainee Year 6, ST6) level (44/160, 27.5%), with the majority working 60% of a full time post (86/160, 53.8%) (**FIGURE 1**).

Of those respondents who had not previously undertaken LTFT, 53.7% (385/716) would consider undertaking LTFT in the future; 27.5% of which were male (106/385). The reasons for either previously choosing or considering LTFT in the future were for childrearing (82.7%), caring for a dependent (12.6%), sporting commitments (6.8%) and other reasons (21.2%) (**FIGURE 2**). Other reasons were listed as being for: academia (17), ill health (4), humanitarian work (3), and leadership roles (2). Males were less likely to list childrearing when compared to females (64.9% vs. 87.6%; $p < 0.0001$).

Experience of Flexible Training

Of those who had previously undertaken LTFT, 53.8% (86/160) reported that they had experienced undermining behavior from staff in the workplace as a direct result of their LTFT. The proportions reporting this were not statistically different between genders.

Organisation and Information

Only 38% (60/160) of those who had undertaken LTFT found the process of application for LTFT easy or very easy to organize. Considering all respondents, only 9.9% rated the current adequacy of information about LTFT as good or very good; with 89.5% noting that there needed to be more information to be available. Out of those who had either taken or were considering LTFT, the common sources of information used were other trainees (47.3%), educational supervisors (20.6%) and local training region websites (19.5%).

Qualitative Analysis

Qualitative comments were invited from respondents regarding their experience of LTFT. In the free text comments box provided, 46 respondents described undermining or bullying behaviour by consultants and 17 described undermining or bullying behaviour by colleagues in relation to taking LTFT. Further qualitative analysis of these revealed major themes of issues with the on-call rota (14), receiving less operative exposure relative to time worked (11), negative affects on job rotations allocated by their Training Programme Director (8), and that a full time workload was still expected from them (5).

Respondents were asked to provide free text comments on reasons why they would not chose LTFT. Of these, 77 respondents stated they had no reason or desire to undertake LTFT and 70 did not want to prolong their training, 53 felt that LTFT offered inferior training, 36 felt they would be disadvantaged or experience undermining behaviour if they undertook LTFT, 30 felt LTFT resulted in lack of

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3 continuity of patient care and 27 stated the reduction in pay would be an issue for
4 them.
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8 Respondents were asked how LTFT information, and the availability of this, could be
9 improved. A breakdown of the major themes is provided in **TABLE 2**. Respondents
10 also provided examples of their own views and experiences of LTFT in the free-text
11 comment box. A representative sample of these is provided in **TABLE 3**. The major
12 themes included a lack of senior support for LTFT, lack of administrative support
13 from hospitals, lack of information, impact on training, and negative attitudes and
14 perceptions surrounding LTFT.
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Discussion

The results from this cross sectional study indicate that over half of surgical trainees working LTFT have experienced undermining behaviour as a result of this, and that despite a reported need for LTFT in both genders, it remains difficult to organise and the availability and accessibility of relevant information is poor.

Childcare was listed as the commonest reason for choosing or considering LTFT. Despite the growing number of female doctors in the UK²¹, there is evidence to suggest that female doctors are underrepresented at senior levels²²⁻²³. In 2008, 30% of the trainees applying to core surgical training and 22% of those within higher surgical training programmes were female²⁴; however only 10% of all consultant (attending) surgeons are female²⁵. It has previously been suggested that women may decide not to continue with higher surgical training, as this is the stage in their life when childrearing occurs²⁴, it is therefore crucial that access to LTFT posts is improved to maintain the inevitably increasing female surgical workforce. In the UK, the General Medical Council (GMC) and National Working Group on Women in Medicine has recognised this issue and made recommendations for improved access to LTFT to encompass improved support for carers and those with young children¹⁷. Similarly, In the ROI the Health and Safety Executive (HSE) national flexible training scheme for Higher Specialist Trainees has been launched and is funded and managed by the HSE Medical Education and Training unit²⁶.

In this study, over 7% of LTFT trainees within surgery were male, a lower percentage in comparison to all medical specialties as a whole (19.6%) in the 2014 GMC survey⁴. However, our results confirmed a further 33% of male respondents would consider LTFT in the future, which is higher than the proportions of male trainees in Australasia and USA, 26% and 13% respectively^{10,14}. Overall, surgical specialties have low numbers of LTFT trainees; in 2011 there were only 151 LTFT surgical trainees in the UK²⁷, and only 0.3% of surgical trainees in Australasia in a recent survey¹⁴. LTFT is relatively uncommon in surgery, possibly due to views of medical students and junior doctors that a career in surgery is not conducive to a good family life²⁸⁻³², and a lack of awareness that LTFT can be undertaken within surgery. It is imperative that

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3 education and encouragement should be provided to medical students throughout
4 undergraduate training to raise awareness that LTFT can be compatible with surgical
5 training. Role models (both female and male) are important in choosing surgical
6 careers³³, and both training programme directors and educational supervisors
7 should be aware of, and support of the option of LTFT. The opportunities for this
8 must be equally accessible for both men and women.
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14 Worryingly, 53.8% of those in LTFT posts reported undermining behaviour in the
15 workplace as a perceived direct result of their LTFT. Qualitative analysis revealed
16 bullying behaviour by both consultants and colleagues. Undermining, bullying or
17 harassment has no place within modern surgical training and is unacceptable³⁴. As
18 professionals, surgical trainees have the right to feel valued and safe in the
19 workplace, and are encouraged to raise concerns if undermining or bullying behavior
20 exists. Eight trainees also commented that their LTFT negatively affected job
21 allocations with two respondents commenting 'In ENT, head and neck jobs were not
22 allocated to LTFT trainees' and another commenting 'My training programme
23 director said he would not waste a popular job on a LTFT trainee'. The decision for
24 job allocations should be based on the individual's learning needs and not on LTFT
25 status; to do so is discriminatory. Another trainee commented that they had to share
26 operating lists with another registrar at the same level of training. This damages the
27 training of both, and such training experiences should be protected regardless of
28 LTFT status.
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42 Despite the increased need for LTFT within surgical training, only 38% found the
43 application process easy and less than 10% rated the availability of information to
44 help in the decision making process as adequate. It is imperative that there is
45 improved awareness and information to assist in the decision making process.
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50 **Recommendations**

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53 Based on the qualitative feedback provided in this study, recommendations for
54 improving awareness of LTFT, together with the content and availability of
55 information provided, are summarised in Table 2. In addition to these practical
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3 points, numerous other wider issues were raised. Based on these, respondents
4 recommended that there should be increased provision and funding for LTFT in
5 surgical specialties for both genders. Information should be readily available for all
6 surgical trainees wishing to or considering applying for LTFT, and ASiT has previously
7 called for improved career counselling services to assist surgical trainees in
8 successfully planning their careers³⁵. Both undergraduate and postgraduate training
9 programmes should include career advice related to LTFT and surgical specialties.
10 Individual departments and training regions should outline basic information
11 including eligibility criteria and the application process as well as a point of contact
12 for advice on their websites. Surgical colleges and specialty associations should also
13 provide information on their websites. On a practical basis, having a LTFT adviser
14 within each training region would help provide closer links with trainees and trainers
15 on a local level, providing advice and easing on-going challenges. Logistically,
16 hospital human resource departments need to be aware of LTFT and support
17 trainees undertaking this option. Finally, a wider cultural change is required to
18 address negative perceptions of LTFT amongst both colleagues and seniors. Any
19 trainee experiencing undermining or bullying behaviour as a result of these should
20 report their concerns and have an identified LTFT mentor to support them.
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Conclusions

Despite an increasing need for LTFT within surgical specialities, information regarding access to LTFT remains difficult to access. LTFT should be readily available to both males and females within surgery, and improved information should be proactively provided for those considering LTFT, locally, regionally and nationally. Education and encouragement by the medical workforce is required in order to encourage those wishing to pursue LTFT in surgery specialties, and prevent negative attitudes surrounding LTFT posts.

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Contributors

RLH and JEFF conceived and designed the study. All authors designed the questionnaire. RLH collected the data. RLH and JEFF analysed the data. All authors were responsible for compiling the manuscript and approving the final article.

Competing interests

The authors are current surgical trainees and elected members of the Executive of the Association of Surgeons in Training (Registered Charity No. 274841) or the British Orthopedic Trainees Association. The authors have no other relevant financial or personal conflicts of interest to declare in relation to this paper.

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Data sharing statement

No additional data available.

For peer review only

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Table 1: Respondent demographics and responses by gender

Question	What is your gender?				Total (Gender combined)	
	Female		Male		n	%
Grade	n	% Total	n	% Total	n	%
Core Surgical Trainee (CST 1 - CST 2)	112	12.8%	60	6.8%	172	19.6%
Higher Trainee (ST3 - ST4)	98	11.2%	59	6.7%	157	17.9%
Higher Trainee (ST5 - ST6)	118	13.5%	64	7.3%	182	20.8%
Higher Trainee (ST7 - ST8)	97	11.1%	68	7.8%	165	18.8%
Research / Clinical Fellow	39	4.5%	22	2.5%	61	7.0%
Post-CCT	48	5.5%	23	2.6%	71	8.1%
Other	43	4.9%	25	2.9%	68	7.8%
Academic Post Holder						
Yes	29	3.3%	24	2.7%	53	6.1%
Already undertaken LTFT during surgical training?						
Yes	148	16.9%	12	1.4%	160	18.3%
No	407	46.5%	309	35.3%	716	81.7%
Would you consider undertaking LTFT during surgical training? †						
Yes	279	39.0%	106	14.8%	385	53.8%
No	127	17.7%	204	28.5%	331	46.2%
Total responses	555	63.4%	321	36.6%	876	100%

† Excluding those who have already undertaken LTFT during surgical training

Table 2: Respondent recommendation to improve LTFT information and the availability of this

Need to increase awareness of LTFT, particularly amongst:

- Senior surgeons (Consultants/Attendings)
- Hospital managers and administrative staff
- Increase publicity generally to raise awareness
- Provide a nationally relevant information pack with guidelines

Need to improve knowledge of LTFT, particularly amongst:

- Senior surgeons (Consultants/Attendings)
- Hospital managers and administrative staff
- Educational supervisors

Need to proactively make Information more available and accessible via:

- GMC
- Royal Surgical College websites
- JCST
- Deaneries
- Departments

Information on LTFT should be actively promoted via:

- At induction to hospitals
- At induction to training programs
- During teaching days
- Information evening in the Royal Surgical Colleges
- In annual review meetings
- At medical schools

Practical Information provided should include:

- Available opportunities for LTFT
- How to apply
- Options of percentages of LTFT available
- Process of undertaking LTFT
- Pay and conditions, including salary calculations
- Job planning
- Impact on training e.g. How long training increased by, number of workplace-based assessments required pro rata, window for taking examinations
- Guidance on return to work
- Specified point of contact for impartial support
- Local, regional or national support networks

Table 3. Representative qualitative comments from respondents regarding their LTFT experiences

“Seniors are poorly informed of process and opportunities for LTFT”

“I have found most support from nursing staff rather than fellow surgical colleagues”

“There is poor awareness of some of the technical challenges, planning and adaptations needed”

“I think trainees have a perception that it will negatively impact on their training”

“It's not the info itself it's the general attitude to flexitime training”

“Needs more senior support. Very little at present”

“Need to make it more acceptable.... for men and women”

“Don't make women feel like a failure for considering it!”

“Surgery is very "go-go" and is difficult to take a step back without feeling inadequate”

“There is a stigma in surgery [to LTFT] which is frankly pathetic”

“Once you become LTFT there is virtually no information/support on how to arrange logistically”

“It is easier to abandon [sporting] commitments, as the run-in time for competitive sport to declare the commitment means that you will not get a firm [LTFT] agreement in time”

“I have never felt that I have been treated differently clinically, but the administrative back-up is appalling and just creates a layer of unnecessary stress and logistical problems”

“I found it very easy to communicate with seniors about taking time out, but found talking to Human Resources departments and admin staff incredibly frustrating”

“There needs to be a widespread culture change in surgery which will enable more women to enter the profession and continue with it”

“There is a prevailing negative attitude towards LTFT training amongst older (esp male) consultants which make working and training LTFT much harder than it should be”

“You can provide service and have training, but one's progression is almost non-existent when you are working part-time”

“It is not really talked about as considered a taboo. I think information about perception and more discussion about it to consider it socially acceptable would be useful”

“[There need to be] seniors who do not guffaw at the potential option or say that it would just not be possible”

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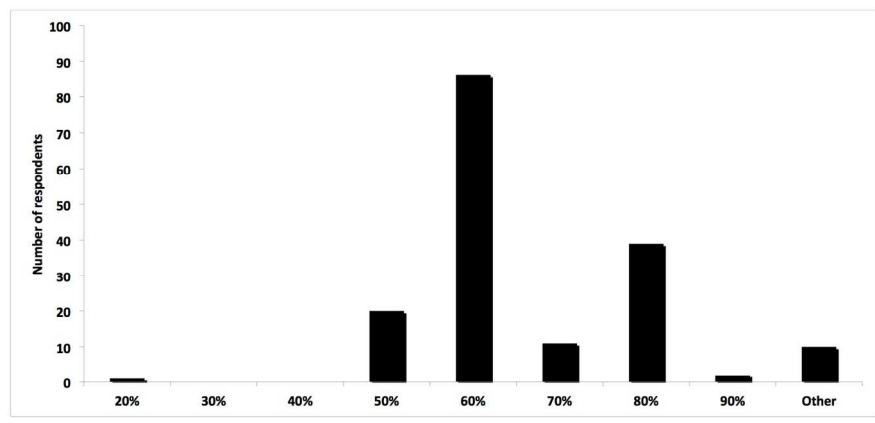


Figure 1. Distribution of responses for percentage of full time worked by LTFT trainees.
297x209mm (150 x 150 DPI)

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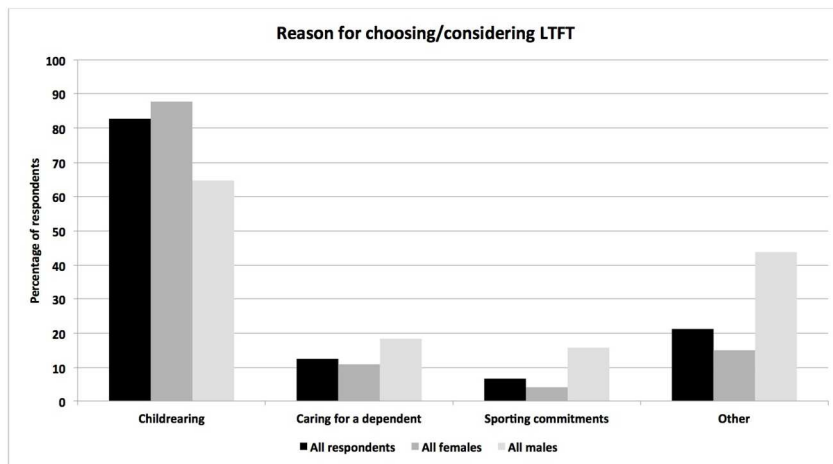


Figure 2. Reasons for previously choosing or considering LTFT in the future
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STROBE Statement for **Less Than Full-time Training in Surgery: A cross sectional study of flexible training in the surgical trainee workforce**

	Item No	Recommendation
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract PAGE 1 <input type="checkbox"/>
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found PAGE 3 <input type="checkbox"/>
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported PAGE 5 <input type="checkbox"/>
Objectives	3	State specific objectives, including any prespecified hypotheses PAGE 6 <input type="checkbox"/>
Methods		
Study design	4	Present key elements of study design early in the paper PAGE 7-9 <input type="checkbox"/>
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection PAGE 7-9 <input type="checkbox"/>
Participants	6	(a) <i>Cohort study</i> —Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up <i>Case-control study</i> —Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls <i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants PAGE 7-9 <input type="checkbox"/>
		(b) <i>Cohort study</i> —For matched studies, give matching criteria and number of exposed and unexposed <i>Case-control study</i> —For matched studies, give matching criteria and the number of controls per case
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable PAGE 7-9 <input type="checkbox"/>
Data sources/	8*	For each variable of interest, give sources of data and details of methods of

measurement		assessment (measurement). Describe comparability of assessment methods if there is more than one group
Bias	9	Describe any efforts to address potential sources of bias PAGE 7-9 □
Study size	10	Explain how the study size was arrived at PAGE 7-9 □
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why PAGE 7-9 □
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding PAGE 7-9 □ (b) Describe any methods used to examine subgroups and interactions PAGE 7-9 □ (c) Explain how missing data were addressed PAGE 7-9 □ (d) <i>Cohort study</i> —If applicable, explain how loss to follow-up was addressed <i>Case-control study</i> —If applicable, explain how matching of cases and controls was addressed <i>Cross-sectional study</i> —If applicable, describe analytical methods taking account of sampling strategy PAGE 7-9 □ (e) Describe any sensitivity analyses

Continued on next page

Results

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed PAGE 10-12 <input type="checkbox"/>
		(b) Give reasons for non-participation at each stage PAGE 10-12 <input type="checkbox"/>
		(c) Consider use of a flow diagram
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders PAGE 10-12 <input type="checkbox"/>
		(b) Indicate number of participants with missing data for each variable of interest PAGE 10-12 <input type="checkbox"/>
		(c) <i>Cohort study</i> —Summarise follow-up time (eg, average and total amount)
Outcome data	15*	<i>Cohort study</i> —Report numbers of outcome events or summary measures over time
		<i>Case-control study</i> —Report numbers in each exposure category, or summary measures of exposure
		<i>Cross-sectional study</i> —Report numbers of outcome events or summary measures PAGE 10-12 <input type="checkbox"/>
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included PAGE 10-12 <input type="checkbox"/>
		(b) Report category boundaries when continuous variables were categorized PAGE 10-12 <input type="checkbox"/>
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses
Discussion		
Key results	18	Summarise key results with reference to study objectives PAGE 13-14 <input type="checkbox"/>
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias PAGE 4 <input type="checkbox"/>
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence

		PAGE 13-16
		□
Generalisability	21	Discuss the generalisability (external validity) of the study results
		PAGE 13-16
		□

Other information

Funding 22 Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based

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□

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.