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Research Paper

# Woman or surgeon – Not both: Perceptions of support, enablers and barriers in general surgery

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ABSTRACT

*Introduction:* The General Surgery (GS) educational community of practice faces crisis. Recruitment is challenged by cultural norms of postponing post-foundation training; and retention with perceptions of elitism, discrimination and inflexibility (UK Shape of Training Steering Group, 2017; Kennedy, 2021) [1,45]. Surgical pedagogy has been examined through skill acquisition but what of the hidden curriculum (Brown et al., 2019) [26]. Three research aims were posed: who is a General Surgeon, what are the enablers or barriers to pursuing this career and is our current UK training system fit for purpose.

*Methods:* Qualitative methodology within a constructivist research paradigm was utilised. Recruitment included representative sampling of junior doctors, including men, women and those from diverse ethnic backgrounds. Individual semi-structured interviews explored participant perspectives of training, recruitment and work-life balance. Data was transcribed, familiarised, de-constructed and generated. Latent data analysis, coding and development, maintained reflexivity. 'Data sets' were transformed to a thematic map and key themes identified.

*Results and discussion:* Foundation, specialty doctors, core and higher surgical trainees were included (60 % men, 40 % women). Fundamental themes of support, attitudes and sacrifice were identified, interacting to influence educational narrative. Support comprised personal, institutional, academic and cultural forms. Attitudes of elitism, implicit and explicit gender bias, microaggressions and overt discrimination concealed as surgical tradition. An overarching concept of sacrifice was noted: personal, professional, fiscal and emotional, the so-called surgical currency.

*Conclusions:* The study explored phenotype, motivation, intellect and philosophy within GS. Highlighting issues in the system surrounding negative attitudes, cultures and behaviours, education is a powerful tool which can be used to challenge perceptions and improve training.

## Introduction and aims

General Surgery (GS) is facing crisis with attraction and retention of trainees [1]. The Royal College of Surgeons [2] mission statement reflects a dynamic, exciting and flexible profession with many 'intellectual challenges'. Despite competition ratios increasing across surgical specialities, with 3 times the number of applicants to posts [3], there remains a propensity towards a 'new cultural norm' of taking time out of training, often abroad, following foundation years (FY) with many not returning [4]. Though restrictions imposed to travel by the COVID-19 pandemic [5] may have influenced a transitory surge in recruitment, doctors within the specialty are unhappier than ever culminating in industrial action for enhanced pay and working conditions, with many citing the former as a 'direct measure of value' [6].

GS poses a clear deterrent for junior doctors including the challenges to work-life balance: high levels of contact time both clinically, to move from novice to expert [7] and academically: required research, audit, surgical portfolio, presentations, publications, teaching and leadership. The profession has long relied on mentorship and apprenticeship [8], but struggles today in the competency-based framework in which it operates with the juxtaposed dissolution of the surgical team, lack of role models and supervision. Moreover, the reduced European Union working time directive (EUWTD) and 'checklists' of annual requirements foster environments of service provision over training: quantity over quality [9]. It is difficult to decipher the value and encourage those into the profession.

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In addition, there seems a perception of elitism and unattainability amongst junior doctors and a growing problem with retention [10]. This is especially apparent for women. Despite 60% of medical students being female, the ratio of male to female consultants is 8:1 [2,11], with the Yorkshire and Humber Deanery having the third highest attrition rates in the UK for Women in Surgery (WinS) [12,13]. A clear disparity therefore exists between the order and those targeted for recruitment. A recent study noted that despite improvements, GS is unlikely to attain gender parity in training until 2028 [14], with a large number of medical professionals overestimating the number of WinS at both training and consultant levels [15]. More concerning perhaps, are findings that such overestimations (of true progress, often by men) lead to a causal effect of undermining the very initiatives aimed to promote equity [16].

Perhaps most alarmingly, research to date has shown that 63 % of women have experienced some form of sexual harassment in surgery with nearly 30 % being assaulted, with organisations failing to deal with this in an appropriate manor [17]. Men and women are indeed 'living different realities' within surgery and perhaps goes somewhere towards explaining attrition. Despite increasing numbers of women in training, only 14% have made it to surgical consultancy [18].

Increasing numbers of doctors are choosing to either postpone or never enter specialist training, with large numbers opting for career breaks [15]. The reasons for this include lack of flexibility in training, feeling undervalued and career uncertainty [4]. Those within the profession are becoming consistently more dissatisfied [1], attributable to the increasing workload in an already overburdened service; highlighted by challenges of the COVID-19 pandemic [19] and more recent strike action [6]. The panacea of increased staffing [20] is merely dressing an infected wound, without addressing its origin. In order to obtain full educational clarity therefore, the infrastructure of GS pedagogy must be examined, situated within its socioeconomic habitus [21]. That is, examining the values of the education system and training programme and how they are influenced by the cultural community of practice [22,23].

Careers in general surgery (GS), requires individuals to navigate a difficult curriculum so although individual resilience is a key factor [24], it is clear the community of practice is central to a trainee's ability to foster this [25]. The concept of 'the hidden curriculum' within surgery, which when driven by "cultural and social bias" [26] opposes the intended curriculum with the enacted [27]. The hidden curriculum refers to the unwritten, unofficial, and often unintended lessons, values, and perspectives that people learn. Whilst the "formal" curriculum consists of the learning activities trainees participate in, as well as the knowledge and skills educators intentionally teach to trainees, the hidden curriculum consists of the unspoken or implicit academic, social, and cultural messages that are communicated to trainees. The hidden curriculum concept is based on the recognition that people absorb ideas, concepts and values that may or may not be part of the formal course of study and described as "hidden" because it is usually unacknowledged or unexamined by learners, educators, and the wider community. Factors within surgery which form part of the hidden curriculum include burnout, discrimination, inequality, bullying and trainer bias, which may be firmly situated and follow the pattern of sociocultural 'norms' [26].

The aim of the subsequent research was to examine the hidden curriculum in more depth and decipher to what extent such factors are influencing recruitment, retention and the pedagogic narrative within General Surgery. A qualitative study has been designed, within a constructivist research paradigm [28] to address three research questions:

1. What are the perceptions of what it is to be a general surgeon?
2. What are the enablers or barriers to pursuing a career general surgery?
3. Do trainee general surgeons feel the UK general surgery training system is fit for purpose?

Exploration of these questions, will give insight into the educational and sociocultural identity of the profession, which may at times be perceived as elitist, unattainable and undesirable [29]. Moreover, it enables we as educators to improve this.

## Methods

### *Research design*

This study was conducted within a constructivist paradigm. A broadly experiential qualitative research stance was adopted in order to facilitate understanding of how participants perceived, experienced, and made sense of themselves and their career as a surgeon [30] through the use of qualitative interviews and reflexive thematic analysis (TA) [31]. Given the aims of this study, and the focus on participants' experiences, perspectives and sense-making, an experiential qualitative design was appropriate [30]. Reflexive TA facilitated an exploration of participants' contextually situated experiences, meanings, and behaviours [32].

### *Participants and sampling*

Purposive sampling was used to recruit 10 participants comprising of 6 men and 4 women working across 3 locations of one hospital Trust. Four participants were from ethnicities that were not white (Table 1). In line with the recommendations of Braun and Clarke [32] the researchers reviewed the data quality during data collection and the final sample size produced rich, experientially diverse data, which met the analytic requirements of reflexive TA. So, we consider the concept of Information Power, which "indicates that the more information the sample holds, relevant for the actual study, the lower amount of participants is needed" [33] (MALTURUD 2016). This is a representative sample for such research with the focus on individual participant experience and has been proven in previous qualitative education research [31,34,35].

### *Data collection*

Semi-structured interviews (conducted by KS) explored their careers as surgeons and doctors. Participants were asked about their lifestyle, their morale, how important role-models were and about the requirements for surgical training. As per the research design, the topic guide allowed for flexibility in developing understandings about the participants' careers and lives. Questions asked were not standardised and the conversational context varied between participants however all areas of interest were explored with all participants. Participants were interviewed remotely via Microsoft Teams. Interviews lasted no longer than 60 min.

Ethical approval for this study was granted by the University of Leeds School of Medicine Research Ethics Committee. Each participant received a participant information sheet, which provided details about

**Table 1**
Participant demographics. Foundation year 1 doctor; in first year of training after graduation, Core trainee; 2–5 years after graduation, Higher Specialist trainee; at least 6 years post-graduation.

| Participant | Grade | Gender | |
|---|---|---|---|
| 9 | Foundation 1 | Female | White |
| 3 | Foundation 1 | Female | Asian |
| 2 | Foundation 1 | Male | Asian |
| 5 | Foundation 1 | Male | Other |
| 1 | Core/FY2 | Male | White |
| 4 | Core trainee | Male | White |
| 8 | Core trainee | Female | White |
| 6 | Higher Specialist trainee (non-training grade) | Male | Asian |
| 7 | Higher Specialist trainee | Male | White |
| 10 | Higher Specialist trainee | Female | White non-British |

the research aims, the nature of participation and sources of support. Verbal consent was recorded at the time of interview. To maintain anonymity, each participant was given a pseudonym (P1–10) [32].

### *Data analysis*

The data were analysed using reflexive TA [31,34]. As this research aimed to explore the participants' subjective experiences a contextualist perspective was adopted, which views subjective experiences as contextually located [30]. Therefore, this study explored how the participants made sense of their experiences in their particular social, cultural, and historical contexts [35].

The analytic process began with immersion in the data, reflecting on and engaging with the data, noticing interesting aspects relevant to the research question. The coding process involved systematically generating codes, to capture all aspects of the data (complete coding) that were relevant to the research questions [34]. Initial themes were then generated by clustering concepts or issues that underpinned similar codes. Each theme had a central organising concept, which captured a pattern or meaningful aspect of the data, in relation to the research question [30].

## Findings and discussion: implications for practice

Three key themes were identified from data analysis in order to address the three research questions: (1) Support; (2) Attitudes; (3) Sacrifice. Each theme is illustrated with relevant data extracts and was noted key to influencing surgical training. The data has been edited to remove superfluous material. The below findings will examine if "*behind every stereotype is a grain of truth*" (P8), that is, the enablers and barriers to surgical training from the perspectives of those within it.

### *Support*

> "*We are getting better at accepting that we need to look after ourselves and a career in surgery doesn't always…look after you*"
>
> (P10)

Support may be defined as 'to encourage or give help' [36]. The first theme presented explores facets of support: professional, personal, external, training and time.

Surgery is a dynamic a career, a profession where "young doctors" are "immersed in an intense learning environment" [37]. Traditionally surgery has its educational roots in the apprenticeship model of learning, but over the years has undergone many changes [38]; from the Halsteadian 'watch one, do one, teach one' [39] whereby trainees gained confidence and competence in a stepwise fashion in their communities of practice moving from more proximal to central zones of development [25,40,41]; to focus on a Calman-esque competency based framework where trainees would gain skills in domains that could be actively measured via supervised learning events' (SLE's) [42] in line with evolving social, political and legal requirements.

### *Professional support*

The benefits of mentorship in surgery are well documented. Whilst mentorship offers a 'protective role', improving professional development, reducing stress, attrition and increasing productivity [43], many struggle with "*identifying, obtaining*" and maintaining a mentor, particularly those from non-white backgrounds and women. In this study, P8 felt "*lucky…to pick the right one*". Participant's considered good mentoring a "*positive, encouraging relationship*" but "*often hard to forge*" (P8). This is supported in the literature with accessibility to representative mentors or role models, challenging with a permeating 'old boys club' [44]. A recent review [44] into representation at the RCS noted that despite 41 % of surgical trainees being women, only 11 % of examiners were female and only 30 % overall were from non-white backgrounds, despite nearly half of UK doctors being non-white-British.

In this study many participants had been influenced by role models within that specialty. Discussing the role of mentorship senior trainees defined relationships between "*apprentice and master…respect and trust with guidance*" (P7). Whilst juniors viewed the trainee-mentor partnership more transactionally, whereby "*there should be more teaching*" often lacking in surgery (P3), compared to a desirable radiology career for many participants (P5, P4). This perhaps challenges the antiquated mentoring through osmosis notion which pervaded the old training system.

Of note, all senior trainees with mentors had male mentors: perhaps explainable by the lack of females in senior positions (only 14 % of consultant surgeons are women) [46] or are those existing women failing to lift as they climb? The concept of gender bias arose. Not all trainees had mentors; with some suggesting male trainers may fear accusations due to the #MeToo movement [47] though this is too simplistic a response. In light of recent findings [48] into sexual misconduct within surgery however, the role of a mentor or role model may be a protective factor.

A sub-theme of "male dominance" explored the concept of nurturing (those stereotypically and phenotypically similar) within the community of practice. Surgery was described as "*not friendly*" or "*welcoming*" lacking much needed "*females to bring…emotional support*" (P3). There is a traditional view of "white, male, Eurocentric" colonies within academic institutions (Universities and Royal Colleges), which must be 'decolonised' and diversified [49] in line with an ever-evolving society. Moreover, it could be suggested a pedagogic duty of surgery to do same if it really is committed to improving surgical recruitment, training and attrition. The lack of "*open arms*" (P1) policy must change.

The surgical role model in this study, noted someone "*dedicated…wanting the best for patients*" (P4), who "*leads by example*" (P6). Effective leadership is key; forming a new curriculum outcome. However, the damages of ineffective leadership are widespread, when defined by a toxic 'surgical personality' [50]. On deep exploration a warning may permeate for those lacking this personality "*a fish*" attempting "*to climb a tree*" (P7). Many participants were yielded not "*strong enough for surgery*" as women (P3) or as a "*quiet reserved man*" not a "typical *image of a surgeon*" (P9). Moreover, "*a female consultant surgeon*" was attributed to "*a unicorn; they don't exist*" (P8).

### *Personal (internal) and external support*

Across the majority of interviews, it was highlighted, though encouragement in training was important, pursuing a surgical career was attributed to self-drive (perhaps in the absence of role models). A person who "*breaks the glass ceiling…an Asian woman*" (P3). It was suggested "*none of this will happen, without drive*" (P7) and a need "*to reinforce yourself*" (P4) in times of austerity. The 'behavioural approach model' [55] supports this, suggesting some are "driven to persist in challenging environments…or…unpleasant stimuli", perhaps in a world void of similar beings.

Influence to pursue a surgical career through academic units or family was observed with having a "*brother do medicine*" providing "*a greater emotional maturity*" (P8), whilst lack of "*exposure at medical school*" (P5) resulted in higher avoidance. P10 was "*put off*" for not being "*clever enough or from a dynasty of* surgeons". The communities of practice were key – home, university, workplace. Many participants pursuing a career in GS had come from families with existing doctors (two with familial surgical backgrounds in addition); or had good exposure in the early years at medical school.

### *Training support*

Surgery is a vigorously demanding career, with the highest burnout rates [51]. The wider acceptance is "*surgery is tough*" (P7), with expectation of excellence in multiple areas, whilst demonstrating a full and socially balanced life. P7 notes the system encourages "*perfect surgeons, performance, managers, auditors, publishers, academics*" with "*hobbies,*

*families and friends*". The latter must not mar commitment to the profession however, an "*external pressure*" exists such that you "*feel guilty*" enjoying "*your personal life*" somehow you are "*not committed enough*" if you do not undertake "*projects…in your annual leave?*" (P7).

*Research within training*

Mandated academic research, such as Doctorates in Medicine (MD) necessitate time out of training to evidence academic commitment, "*five years' work*" may be "*brushed away*" (P9 on his MD), however there persists "*a lesser thought*" (P8) for those without research. Many are either obligated to delay their careers or pursue this alongside work which "*becomes a chore…and diminishes quality and enjoyment*" (P8). This is supported by a recent study [49] comparing GS training requirements worldwide: UK trainees spent the longest time training, with equal focus on research, leadership, management and teaching, with mandated operative 'numbers' to ensure there is no "dumbing down…of the system" (p.9). A system focused on measuring competency through tick-box domains, despite the curriculum structural reforms aiming to abolish this [52].

The new curriculum focusing on entrustable professional activities (EPA's) [53], relies on the central role trainers and educators need to play in trainees' education and learning. Given issues with access to and retention of mentors [43], drastic reform in the workplace setting is required. Historically, lack of training has been blamed on the European Union working time directive (EUWTD) (48 h per week on average) with a 'lack of consistency' jeopardising patient care [54]. Arguably, the focus is quantity of exposure rather than quality. Annually, surveys note trainee's dissatisfaction at all levels with missed training opportunities in favour of service provision [55]. Though recent junior doctor strikes and the COVID-19 pandemic [56] have highlighted these issues, there have been many historic acknowledgements with recommendations often being infrastructurally impossible.

The 2015 'IST Report' [57] aimed to dedicate more time to training, reduce service provision through utilisation of a non-medical workforce and focus on trainer-trainee mentorship. It found many at CT level spent increased time clerking, performing administrative tasks and taking referrals. In 2024, such tasks are up-streamed to the HST's, limiting CT's development in key skills required for surgical training, ironically domains set out in the new curriculum of 'managing a surgical take'. The result is a system that opposes its own outcomes and a workforce that feels de-valued. Higher trainees feel recommendations such as "*NELA* (*national emergency laparotomy audit*)" mean "*we operate less and less*" (P7) whilst juniors are "*just on the ward a lot*" feeling "*disposable*" (P10).

This is supported by findings that medical schools can influence the likelihood of someone applying to surgery, with factors such as dissection, surgical attachment and role-models being key [59]. Moreover, medical schools such as Hull York who produced the fewest number of graduates applying to surgery, have an educational infrastructure "committed to high levels of exposure to primary care", with fewer women applying [59]. P3's experience there was of a "*purely male dominated environment*" lacking "*any female consultants*". The narrative was "*you can't have kids and you can't get married*" if you want to do surgery. This is echoed by another participant being "*forced to choose*" between a career in surgery or "*a future for kids that don't even exist yet*" (P10).

Worryingly, there is a trend towards exiling surgery from the undergraduate curriculum in UK medical schools, with many lacking a "*good anatomy programme*" (P3). Leeds University for example, once praised for principal cadaveric dissection, has now defaulted to prosection teaching, with dissection only possible as an intercalated BSc: reflecting the onus back upon the individual. The most hi-fidelity form of surgical simulation training [60]; paradoxically deemed non-essential to undergraduates.

Support in training was explored with participants deeming service provision a key focus of surgical rotations with a "*lack of teaching*" (P5). Interest in radiology and medical careers were expressed based on enhanced teaching experiences, providing a "*safe learning environment*" (P2) where "*registrars are treated very well*". The nuance of critical refection being surgical training lacks all such facets. GS was noted inflexible in career decision-making with surgical educators requiring "*you follow that*" and tailor "*your portfolio as early as possible*" (P5). This perception is supported by selection criteria for GS application that penalises trainees for the number of years' post-graduation [61].

Senior surgical doctors felt a "*responsibility to involve juniors*" in the surgical "*vocation*" (P6), with suggestions to "*show them the good*" (P9). Collectively, there is recognition that the future generation require a different, more nurturing approach "*even if you're not the best. You need to encourage people*" (P7). The modern training system, often opposes this through a lack of time and "altered team spirit" (P7): the hidden curriculum [26]. P7 notes you "*risk being regarded weaker or emotional, if you don't follow the rules of the jungle*" (P7). This could manifest as not giving someone "*a hard time*" just because you were "*given a hard time*" (P9), a seemingly progressive and admirable quality, though in juxtaposition with "*following on with the surgical tradition*". Tradition in this context was framed a "*definite barrier that's been built and structurally instituted*" (P9) requiring resilience in enmity. The higher trainees in the study noted a struggle to balance traditional surgical culture with current demands and expectations: the intended and enacted curriculums opposing. Whilst more junior participant's felt to dismiss this is a passive acceptance of "*mistreatment*" (P8).

In multiple landmark surgical reports [46,58,62] trainees are referred to as 'the future' and how 'allowing flexibility' in training must be maximised. They also note that 'all consultants can train' [58]. The phrase 'can train' suggests both an ability and willingness to, though participants in this study felt if either one was lacking then the educational integrity should be questioned.

*Time for training*

Surgery was deemed "*a conveyor belt*" (P8). To forge meaningful relationships with colleagues, trainers and mentors takes time, with the structure of training sometimes opposing this, cross covering different teams and specialties [29]. Surgery was suggested so fast-paced that it often lacked the essence of reflection within development. Participants cited "*30 seconds on a ward round*" (P1) per patient, and "no time for teaching" (P2). Junior participants only acknowledged teaching as formalised or didactic sessions "*we're* (F1s) *told to do jobs not taught*" (P3), whereas senior participants felt most surgical teaching was experiential via observation and repetition [39]. In reality, postgraduate education mandates both formalised teaching beyond the classroom and the recognition of learning opportunities in practice. The challenge is enabling the workplace to move in tandem. Demand and service provision are increasing and disparity widens in junior expectation and ability. In the study, a senior doctor noted concerns regarding "*the level of junior clinical skills*" (P6).

Support verses 'spoon-feeding' was debated in the study, with a "*lack of ownership*" (P4) occurring as the person dissociates from their responsibilities [64]. Some would argue loss of 'the firm' within surgery has impacted not only continuity of patient care but the pastoral role it played for juniors to feel part of a team. P9, a senior male HST, notes "*if you do the operation, you see them the next day and the day after*" (P9), which builds "*trust and bonds*" (P8). In this study it was felt continual review can represent dedication and responsibility - someone worthy of training. Paradoxically a requirement for surgery often opposed by working patterns. Whilst return to 'the firm' is not possible with current rotas [65], it may also be considered unfavourable owning to its antiquated traditions with previous connotations of sexism, racism and nepotism [66]. P7, a senior female HST argues it shouldn't be "*my boy is coming to you. Look after him*" but that "*training*" should "*evolve and adapt to the needs of the society*" (P7).

The COVID-19 pandemic and recent industrial action has illuminated issues, with a staggering 74 % of trainees re-deployed and only 9 % meeting competencies to progress to the next stage [56]. Huge reduction

in trainee operating, elective work, SLE's and teaching has occurred. Introduction of specific COVID-related Annual Review of Competency Progression (ARCP) outcomes mandated extensions to already long training programmes (affecting 1 in 5 trainees), with adverse effects on wellbeing. Surgical training bodies' [58] aimed for "every case a training case" with campaigns like #NoTrainingTodayNoSurgeonsTomorrow. However, trainee experience is the opposite. One participant (P7) felt their Deanery unjustice "*to judge I haven't enough laparotomies*" despite many missed training opportunities. The perception that surgical trainees should not have been affected is increasingly "*contradictive*" (P7), and ARCP processes contradictory to the more pragmatic approaches adopted by medical specialities [62].

A beacon of hope may be found in the competency-based EPA's. More than "curriculum rollout and teacher buy-in" [67] this should be a meaningful learning experience between trainers and trainees: an aim of RCS pilot scheme [63,68] with "professionalisation" of the trainer at the forefront of development. Care must be taken to ensure all trainees are given equal opportunity. Anecdotally, trainees appointed to GS posts at specialty year 1 (ST, rather than CT), have benefitted from enhanced training opportunities raising issues of disparity. P7 notes, having "*7 hernias*" compared to a peer at "*47*" (P7).

Educational pedagogy is therefore situated within its sociocultural context. Support, or lack of, can take many forms in enabling or dissuading someone from GS. In order to explore this further, we must consider the developed theme of attitudes: how they influence surgical culture and therefore training.

## *Attitudes*

### *Attributes of a general surgeon*

GS linguistic descriptors include dedication, focus and meticulousness. The RCS describes surgery as "a demanding and satisfying career" but to be "successful" you "also need the right personality" [47]. Qualities may include being "leaders, decisive, confident and firm"; ironically "commonly considered male traits" [47]. Our study supports this, when asked, participants noted "*hard-working*", "*driven*", "*assertive*" and "*confident*" as descriptors (P1–10). All were perceived to be associated with male surgeons, noting these traits more negatively observed in female surgeons: the terms "*bossy*" and "*a bitch*" brandished. Though not personally held views, all participants had observed examples in clinical practice. Interestingly, P4 notes observing a male and female surgeon firmly asking for something, an "*immediate negative prejudice exists*" towards the woman having "*gone above and beyond in those personality traits*".

GS is a "*tough specialty in terms of…attitudes and behaviours*" with "*high stress situations…a lot of responsibility…and pressure*" (P4). Additionally, the "*environment and the politics*" adds to this pressure and "*can put people off*" (P10). The concept of 'grittiness' was explored, which may be defined as 'passion or perseverance' for achieving 'long-term goals' [64]. The nuance is of adversity requiring resilience: defined as adaptation to adverse conditions and emerging stronger [69]. Participants felt grittiness was associated with those who are "*stern and firm minded*", "*a personality*" who rarely observes the patient "as a whole" (P1). The "*female perspective*" was considered more receptive to "*the way you treat patients and manage your team*" (P3). The expected nurturing role of women to enhance ownership may then be opposed, if gritty traits are observed and deemed "*bullish*" (P4) compared to the merely "*driven*" man.

### *Gender identities and surgery*

Studies [64,70] have explored the role of conscientiousness (dependability and diligence) alongside grit. This poses a real paradoxical dilemma for 'gender identities' within surgery. The societal expectations of women's characters to be 'collegial and compassionate' [45] may inhibit them in surgery "*you're a little girl and you're not strong enough*" (P3). Women however, often have higher emotional intelligence than men, recognising reactions and feelings which guide behaviours and actions to enhance team performance, commitment and reduce stress levels [71]. This is supported by comments made by juniors (P2) "*women are assertive but they do it in a nice, collaborative way*". Despite this there is still a perception "*woman or surgeon, not both*" (P7).

Given surgical pedagogy is socio-culturally situated, societal gender roles must be explored. Historically, the medical profession was male dominated whilst women occupied nursing: the doctor-nurse relationship defined gender roles [72]. Stein initially described the 'doctor-nurse game' based around power differentials, with nurses deferring to the doctor's authority to avoid "usurping physician power" [73]. Generationally, the rise of female doctors, male nurses and increased nursing responsibilities (degrees, nurse practitioners and prescribers) has challenged both gender roles and physician power, with enhanced nurse assertion.

The paradoxical challenge posed, is though abolishment of the hierarchy can foster positive change [74] and reflect a reduction in the societal man-woman power differential [50], hierarchical member discrimination may be disproportionate; with studies suggesting nurses more likely to show hostility towards and challenge female authority [72]. One female HST noted "*the attitude of the nurses*" that may be "*more challenging towards a woman than towards a man*" (P7).

In this study, female participants did not feel "*valued but disposable*", having to work harder to "*make (nurses) your best friend*" (L10), and not feel bullied, ostracized or perceived "*as a threat*" (L7). The male participants also recognised "*there's a prejudice*" or "*negative perception*" (P4) of women, "*people will complain about them more than the male consultants*" (P9). An "inherent sexism" has been described regarding female surgeons, with "*men assertive*" demonstrating "*leadership*" but if women "*act exactly the same*" they are perceived as "*being aggressive, whining or bitchy*" (P9).

On defining an expert surgeon, a senior male participant repetitively referenced "he" when referring to a "*consultant*" *or* "*senior*" (P6). A male FY1 suggested "*people*" are unfamiliar with the "*idea of women being surgeons*" *and* "*assume women are not as good*" though they "*can be just as competent as male surgeons*" (P2). Women began practising surgery in the late 19th Century with the RCS WinS a prominent force since 2007 [46]; so why do attitudes of female surgical paucity and questionable competence pervade?

The study noted an undercurrent to "sup*press femininity*" (P7) in order demonstrate competence but a duplicitous hostility towards "*bullish women*" (P4) who profess a confidence acceptable only for "*driven men*" (P4). P10 describes men "*having a confidence they were allowed to have*", but the attitude towards women remains 'who do they think they are'. A female HST was told to "*choose between being a woman and being a surgeon*" (P7), implying she would definitely struggle with a "*job*" her male trainer found "*hard*". Perhaps successful women in surgery therefore do possess the grit and "*guts*" to deal with "*lots of chauvinists*" though "*I don't think there are many of us*" (P3), supporting current evidence. This undercurrent of resentment towards women pervades, contributing at best towards discrimination and at worst recent findings of sexual violence [48].

### *Gender bias*

Despite women doubling men in medical school, they are three times less likely to apply for surgery [75]. Women are continually discouraged throughout their career, with "*a perception*" they "*don't deserve to be* surgeons" (P7) and are often viewed "*as imposters*" by patients and other medical personnel. This is supported by examples of patients or colleagues in other specialties "*looking to any man*" (P1) in the clinical team for decisions, with women often likely to be mistaken for non-medical team members [47]. Challenges to female surgical authority, were also observed by male colleagues. P4 describes the male orthopaedic HST repeatedly calling the female HST "*nurse*" despite wearing scrubs and a badge with her designation. Nurses are integral to the medical profession, but when gender assumptions are made the narrative

becomes derisive: the same confusion would not occur over a man in scrubs.

Other micro-aggressions occur with suggestions that pursuing your chosen career means "*it will be really difficult for you to have a family and be a surgeon*" (P8). Supported by findings that women were more likely to be associated with family rather than career and work less than full time (LTFT) [76,77]. In this study, a male HST suggested "*part-time working*" not "*compatible with inpatient flow*" (P9), ergo, women may not be compatible with surgery. Such perceptions drive obstructive attitudes of the so-called "mythical less than full time surgeon" [46].

Another cited example was a senior female HST told upon applying for maternity leave "*we may as well write you off for surgery*" (P8). This is inspiring discussion in the future generations to challenge behaviours as "*having a child*" and the "*ability to operate*" should not be "*mutually exclusive*" (*P8*). Perhaps future generations will not be forced to accept 'the unacceptable to advance in the profession' [45]: the mistreatment of women. Though arguably the first generations of WinS had to accept the latter with RCS "positions, relying on votes" and the first female British surgeon Margaret Buckley posing as a man [47].

Though angered or frustrated by "*assumptions based on gender*" (P4), male participants did little to challenge, citing "*shock*" (P4) or "*surgical tradition*" (P9): the latter a fixed, unchangeable narrative. Of note, female participant's viewed female surgeons as determined "*women who said, no*" aiming "*to fight against* it" (P3). WinS are the most underrepresented speciality at just 32.5 % and earn 17 % less in basic pay than men [78]. With additional hours calculated upon this, they also earn less overall [65]. Perhaps it still remains words not deeds [79].

Social media drives to tackle the 'glass ceiling', include #ILookLikeASurgeon encouraging surgeons from all walks of life, including women and those from minority backgrounds, to share their stories and experiences on social media [80]. More recent campaigns include #ChooseToChallenge negative attitudes opposing diversity and #SurvivinginScrubs addressing cases of sexual misconduct and discrimination [69]. Such movements are necessary to address implicit and often explicit gender-bias that exists within the profession and society as a whole, and with that "discriminatory treatment and unequal opportunity" that follows [76].

*Surgical character*

This study was not unique, with participants describing a white, middle-class man in a three-piece suit as a typical surgeon, explainable by representative 'same-gender role modelling' encouraging idem in the profession [81]. A male dominated environment was noted, with attitudes suggesting men are more likely to have "ability" to be surgeons whilst women merely the "potential" [82]. The former an achievement in reality, whilst the latter only possible in theory.

Within the study, many attributed "*high flyers*" to those who "*shout the loudest*" (P10). Some held the training system responsible suggesting the "*baby who doesn't scream doesn't get fed*" (P7). Overseas participants felt they were subjected to unfair challenges to authority as "*a foreigner*" (P7), with a focus in the UK on "*defensive medicine*" (P6). The Kennedy Report [45] noted issues of sexism, racism and homophobia at the RCS, citing perpetuating colonialism and masonry influencing surgical culture: the not-so hidden curriculum [26,66]. Exclusion or nepotism is therefore based on achieving cultural norms. In addition, it was noted women often face more scrutiny [83] and less "operative autonomy" when compared to male counterparts [76].

De-colonisation of medical pedagogy should begin at the undergraduate level, with medical schools recognising the need for diversity in teaching. Examples include presentation of clinical signs based on ethnicity or counselling transgender patients on breast and prostate cancer [49]. Such drives aim to 'flatten power hierarchies' [84] and challenge what Stern [85] describes as the medical school "club" (favouring certain cultural identities). P2, a Malaysian FY1, recalls his experiences of being "*the only black guy in the all-whites team*" at medical school. The challenge remains tackling such hierarchies which strengthen the hidden curriculum.

The concept of populism verses elitism in surgery is suggested: the elitist "old boys club" [46] versus the rising populist non-traditional candidates (women, those from minority backgrounds). The study perception was of an elitist surgical culture, excluding those opposing the narrative. The result: discouragement of those that "*don't fit in*" (P10), and perpetuation of "*this is the way it is*" (P9). There seems an extreme ironic disparity therefore between the surgical order of "*prehistoric dinosaurs*" (P8) aiming to recruit a generation forged by rising socio-political awareness [65]. Doctors post 2016 junior doctor contract are more woke to issues of discrimination, work-life balance, mental health and wellbeing, and the idea of "*surgery is life, over everything else*" (P10) no longer prevails.

In order to fully understand this, the final theme of sacrifice in this study will be explored.

*Sacrifice*

Sacrifice may be defined as 'giving up something valuable to achieve something more important' [36]. The extent of surgical sacrifice is debatable, influenced by what one is willing to lose in pursuit. In the literature, Black [86] cautions to not "sacrifice all": alluding to stunted emotional maturity and loss of personal life. The so-called "*melancholy of surgical training*" (P8). GS is a demanding career: all participants noted sacrifice - whether a welcomed "*vocation*" (P6) or not. We explored why "*the price has to be paid*" (P8).

*Personal sacrifice*

The profession demands high levels of resilience [69] and often "an unwritten code of rules, norms and expectations", which include antisocial working hours and sacrificing personal time, alongside "never complaining; and keeping emotional or personal problems from interfering with work" [87]. Supporting studies have noted GS attracts those with perfectionism traits and multi-tasking predilection [50,88], recognised risk factors for burnout [89]. Emotional exhaustion, depersonalisation and reduced sense of personal achievement may be observed [89]. Behavioural inhibition (avoidance of risk and adverse environments) can occur with persistent stress [50] and the very traits that once enabled inhibit. When trainees are instructed to persist in such environments it promotes a culture of 'bullying', through discriminatory rotas, with little to no thought for doctor wellbeing [90,91].

*Fiscal sacrifice*

A postgraduate career in surgery is the most expensive: on average from £40,000 to £70,000 [92]. Requiring self-funding, studies [93,94] note those from poorer socioeconomic backgrounds more likely to exclude surgery early on, especially with record undergraduate debt in recent years [29]. In addition, the "*cost of living increasing*" and lack of financial renumeration for workload suggest surgery doesn't offer "*a good work-life balance*" (P2). The study revealed sub-themes of challenge and acceptance. Higher trainees felt "*adversity*" is the "*nature*" of surgery requiring "*strong resilience*" to avoid "*attrition*" (P9), whilst the more junior felt it fostered an environment to excuse mistreatment such as "*screaming at the registrar*" and being "*mean to trainees*" (P2). Juniors countered comments such as "*have thicker skin*" with challenging "*that kind of culture*" (P3). A "*lack of safety*" in raising concerns was noted resulting in "*repercussions on your career*" (P2).

*Surgical tradition*

The concept of 'surgical tradition' permeates senior generations "*brought up in more hostile environments*", often not "*effusive with praise… but cast a more critical eye*" (P9). Changing generational perspective is difficult, as we progress towards "*less abusive*" working environments (P4). Ferguson et al. [95] noted surgery has one of the highest bullying rates with nearly half of trainees experiencing some form during their careers. Though the Colleges have aimed to address this with campaigns

like #LetsRemoveIt [46], it remains subjective due 'to the individual interpretation of events' [91]. The perception of power exchange is therefore crucial in influencing personal narrative.

Surgeons were humorously defined as "*borderline psychopath*" (P10) in the study. The dogma of "*patients before self*" (P6) was an area of junior challenge, with impingement on the life aspect of work-life balance (WLB) (P2, 3, 5, 10). WLB, is subjective but for many would include time for relationships (personal, romantic, friends and family) and self-care (wellness, hobbies, spiritual or emotional fulfilment) [96]. Surgery challenges these owing to the 'long hours' spent at work [97] with increased risk of burnout, substance misuse, mental health issues and isolation [51]. Participants felt lack of time for the above may lead to "*unhappiness*" encouraging "*dropping out of the specialty*" (P8), echoed by Black [86] documenting his surgical career path as "missing 10 years of emotional and personal development".

*WLB sacrifice*

WLB was a key discussion in the study with participants' "*made to feel guilty*" for wanting a "*personal life*". They cited "*an external pressure*" that having "*family, marriage or some kind of life outside of work*" brought your work commitment into question (P4, P7). Senior trainees "*just accept*" life fitting around work (P4, 6, 7, 8, 9), whilst the more junior, felt "*you're not asking much*" for work to fit around life (P2, 3, 5, 10), highlighting a divide amongst those working in or considering a career in GS, and those not. The long training programme does render you "*a decade back from all your friends*" (P8), echoed in studies noting those who choose to train LTFT and extend the 'rat race' worse affected [97,98].

Junior participants felt surgery demanded early decision-making to "*pick you're a surgeon and that's your life*", citing the professions "*unpredictable*" reputation unable to "*work around a family life*" (P10). A perception of choosing between "*your career*" and "*your children*" felt unreasonable, even "*madness*" (P8). Surgical sacrifice is a choice to become 'a highly skilled surgeon' and may require 'a mask' emerging a 'very different person than the one intended' [86]. Intended and enacted once again are conflicted: both personally and educationally [27]. In the current study, P7 noted the default to blame oneself when times are "*particularly difficult*" but not challenge the community of practice. Participants within GS repeatedly talked about adaptation, an expectation of themselves, but not of the system. With changes to the new curriculum, advent of training in non-technical skills and human factors [46] it could be argued this is beginning to change, though individuals for now must shoulder the burden.

*Locational sacrifice*

Many participants cited a "*lack of geographical freedom*" (P8) and stability with an expectation "*you would move just to get the job*" (P2). A reference to the national selection process for UK GS [61], that mandates centralised ranking and allocation of jobs. Working destinations are assigned not requested; with women, LTFT trainees and non-white candidates often disadvantaged [66]. Following regional assignment, trainees must rotate annually to different hospitals, which not only disrupts clinical and educational communities of practice [25] but personal ones, such as "*buying a house*" (P2). Moreover, trainees may be expected to move regions at various points in training or even countries in the pursuit of career excellence. P7 and P6 both overseas surgeons have experienced not only "*cultural differences*" but biased perceptions that they are "*only here for the money*" and that "*women shouldn't be doing surgery*".

*Deferential sacrifice*

Participants in the study challenged the surgical hierarchy [99] of "*serving your time*" (P8) to "*work up through the ranks*" (P6), citing it "*very negative*" antiquated leadership which no longer feels "*a privilege*" (P6) to "*show respect to someone so rude*" (P3) just because they are senior. Trainees wish to be valued and treated with the same respect they are expected to show. Juniors felt more productive in their work if colleagues were "*nice*" (P3). Perhaps a more transformational form of leadership is appropriate, which may challenge the cultural reliance on resilience and grit, in the face of adversity [40]. Adversity such as discrimination and nepotism should be intuitionally eradicated as negative facets of the hidden curriculum [26,45] not factors required to be personally overcome.

GS therefore faces challenge to address the level of sacrifice in the profession. The study has highlighted, those currently in the profession are struggling and at times it feels "*a bit mission impossible*" (P7). GS will always demand some level of sacrifice and face challenge. Care must be taken however that the hidden curriculum does not distort the perception of this wonderful profession or lead to unnecessary sacrifice, without adequate support and encouragement.

## Study limitations

Whilst this study did not aim to define what general surgery training is like for all, it did attempt a general summary of findings across all participants. There are obvious limitations in terms of the generalisability of the findings and the general claims that can be made, for example not all ethnicities of general surgeons were included. However, by acknowledging the limitations of the sample, however, we want to suggest that the use of such criteria does not fit our approach where the value of it comes in its methodological integrity and ability to evoke the lived experience.

## Outlook

Three research questions were posed around what it is to be a General Surgeon. The first regarding the personal, academic and clinical attributes potentially required. The second, concerning the barriers or enablers (personal, cultural and social) to pursuing a GS career. Thirdly, whether current trainees felt the UK training system is fit for purpose. The questions posed were addressed through three key themes generated: support, attitudes and sacrifice. When considering the findings, it was clear themes and questions were socially and culturally integrated for example an attribute of being 'assertive', may be an enabler (self-assured) or barrier (pushy) depending upon other characteristics of the surgeon and those observing them (their gender, attitudes and level of sacrifice).

GS like any other career requires support and it was clear from the research all participants universally recognised the positive impact of this. The role of a mentor was key not only for positive clinical outcomes as previously known [43], but for doctor wellbeing and feeling part of a community of practice. The sense of belonging or having someone that you can identify with in a challenging environment was key for participants, especially given the perception surgery was somewhat unwelcoming and exclusive.

Contributing to the key theme of support was that of decision making. From the literature and experience it is clear surgery is a very demanding profession, requiring resilience [69], in all aspects of one's life: academically (extensive research and clinical requirements), physically (long, often anti-social hours), psychologically (high stress case load) and emotionally (having to move for jobs, isolation and transitioning stages). It also involves affirmative decision making, often beginning with very early career choices; for example, one's choice to undertake an intercalated degree in anatomy during medical school or a surgical elective to demonstrate commitment to specialty.

Such decisions are often undertaken at times of personal challenge. Black [86] insists training should enable 'physicians to care for other human beings' without 'sacrifice' of 'their own humanity'. Work over personal developmental milestones contributing to emotional maturity [24]. Findings within this study support this given "*the job is hard enough or for its very essence*" (P7), more should be done to support trainees. The new cultural norm [65] of time out of training for WLB and decision-making, is unsupported by inflexibility in surgical training, in favour

of early decision making. It is arguable the support of the system, alongside representative trainers are important enablers for success, whilst the opposite serves as a barrier.

Exploration of attitudes uncovered additional enablers, such as strong personal motivation, beneficial for career success during times of adversity, and was found in the more senior participants. Junior participants cited hostile working environments with lack of accessible role-models as barriers to surgical training, whilst the seniors acknowledged the lack of support or critical working environment, as a result of the system failings or "surgical tradition".

On structurally instituted attitudes, there was an overwhelming majority in the study that noted the "*British white male…privilege*" and "*uphill struggle for a lot of others*" (P9). In the study there was evidence of women fairing the worst, which supports previous research in this area [90]. Women are not only financially penalised but are subjected to sexism, gender bias, greater operative scrutiny, professional challenging and even sexual assault [47,48]. The subvert dialogue is not only derogatory, but so socioculturally ingrained that many are unaware of the derisive and misogynistic tone to encounters, examples of mistreatment or discrimination are marginalised or trivialised; and this study was no different. The training system supports prevalence of such attitudes, though it is hoped this will change in the future [46].

Finally, to address the question regarding challenges to retention in GS or a training system fit for purpose, the explored theme was sacrifice. The study has demonstrated sacrifice can present in many forms: financially, academically and personally, and for many it is a combination of these. It seems a perceived lack of work-life balance was key for participants in factors leading to attrition. Of the hierarchy (the traditional community of general surgical practice) the notion of "*whoever shouts loudest becomes the emperor*" (P9) was a factor in discouraging trainees.

The perception was not only of personal, financial, emotional and professional sacrifice but that one had to change themselves to fit the surgical mould in order to be a success. The drive to demonstrate the attributes of a surgeon. In striving for this, we risk of the ultimate sacrifice, through loss of self in burnout [51]. Trainee wellbeing must therefore be prioritised, and is a further area for research with the aim of Health Education England to make this a new class for LTFT in the coming years, in response to the COVID-19 pandemic29.

## Conclusion

The aim of this research was to explore the perceptions of a career in GS amongst junior doctors: their phenotype, motivation, intellect and philosophy. Situated as inside researchers, with awareness of pre-conceptions and potential for bias, through a process of deep, reflexive analysis these questions were addressed. The research has challenged sociocultural, emotional and personal perceptions that influence General Surgical and inspired discussion for improvement.

The study findings note GS faces some real challenges ahead. It seems a specialty that has prided itself upon resilience and anecdotally surgeon over self could be crumbled by a changing society and uprising of a generation that demand more and do not wish to separate work from self. This study, though limited by the nature of its sample size and interpretation of qualitative data by an inside researcher, is appropriate within the context of a constructivist research paradigm and further research is needed, including re-evaluation of training in light of the new curriculum [23] demonstrating that "*Behind every stereotype is a grain of truth*" (P8) through its exploration of the hidden curriculum, which has potential significant implications for surgical pedagogy. If we cannot eradicate negative facets, inspire and retain the future generation, then there will be no educational community of practice [2]. Moreover, the very definition of the word general is 'affecting all or most people, places or things' [12], we therefore have a moral, social and cultural responsibility to improve surgical training.

Our closing thoughts on the perception of a balanced General Surgeon have been inspired by one of the study participants, noting a "*triangle…the strongest architectural structure*" and in this, three facets should be noted: work, social and spiritual, in order to "*grow as a person…you just need to manage it the right way*" (P8).

In order to evolve as a specialty, we need to manage our education system in the right way. Provide support, representative role models, encouragement and teaching. Confront negative attitudes and disparaging language. Sacrifice nepotism in pursuit of equitable training in order to reduce attrition: as a surgeon and educator we choose to challenge.

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This study had ethical approval from the University of Leeds School of Medicine Research Ethics Committee - MREC20-016. Informed consent was gained from all participants.

## CRediT authorship contribution statement

**Kelda M.O. Sheridan:** Writing – review & editing, Writing – original draft, Resources, Project administration, Methodology, Investigation, Formal analysis, Conceptualization. **Naomi Quinton:** Writing – review & editing, Supervision, Methodology.

## Declaration of competing interest

We declare no financial or non-financial competing interests.

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