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An environmental scan of current mentorship: fostering the next generations in cardiothoracic surgery in the UK

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Abstract

Objectives Mentorship is critical to the professional development of junior colleagues in cardiothoracic surgery. Despite its presumed importance and frequent discussion, its impact within cardiothoracic surgery training remains uncharacterised within the UK. We aimed to evaluate mentorship experience and identify gaps in the system of mentorship education. The differences between men and women's views on mentorship are also considered.

Methods We prospectively collected of 92 responses [50 M:42 F] over 18 weeks. 'Society for Cardiothoracic Surgery in Great Britain and Ireland (SCTS) Critically Appraising mentorship' survey was formulated using electronic questionnaire system and distributed via emails to health professionals and medical students by using SCTS membership directory. The survey domains explore respondents' demographics, current or previous academic appointments, leadership roles, experience of mentorship, and opinions regarding ideal implementation of mentorship model, including the views on necessity for racial and gender concordance between mentor and mentee.

Results 43% of respondents (40/92) had less than 5 years of experience in practice, but in general men were more experienced than women with over 15 years of practice (40% versus 9.52%) ($p=0.01$). Women are more likely to change their practice due to favourable work-life balance (40%, 4/10) or due to financial incentives (40%, 4/10). On the other hand, men were mostly likely to transit due to career specialisation (38.1%, 8/21) ($p=0.014$). 48% of respondents (45/92) have a system of mentorship in the current practice, but 66.67% (30/92) did not have formal evaluations. All male participants did not think gender of mentor/mentee was important, but 21.43% (9/42) of women did ($p=0.002$).

Conclusion The need for mentorship programme is widely recognised and is imperative to achieve maximum career potential, both professionally and personally. The key will be to establish more structured mentoring programme, finding apposite mentor-mentee dyad, predefining mentorship need, and recognising the unique needs associated with the mentee's identity. Women face unique challenges as a minority, and this must be considered when forming mentorship relationship.

Keywords Cardiothoracic surgery, Mentorship, Surgical education, Teaching

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Introduction

Medicine and Surgery are unique artforms. We all spend time in our career development striving to flourish, not just to survive, as a measure of success. What halts our paths in this pursuit of 'ultimate' success, is the question we all want to answer? As a cardiothoracic society, we aim to improve the care and safety of all patients who encounter our services, and it is essential that our practising members are also allowed to flourish and succeed.

The term "mentorship" derives from Homer's *Odyssey*, in which Mentor, a friend of Odysseus, was entrusted with the care of Odysseus' son while Odysseus was away fighting the Trojan war. Within this parental-like relationship between Mentor and Odysseus' son, guidance and life lessons were imparted to the young son, and during this time, the son developed into a fine young man [1]. Mentorship has been commonly discussed as key to success in cardiothoracic surgery (CTS). It was the topic of Dr Irving Kron's 2011 American Association for Thoracic Surgery (AATS) presidential address. Dr Kron referred to a Buddhist proverb, "If you save a life, you are responsible for that life forever" and suggested the same connectedness should be applied between cardiothoracic surgeons and their trainees [2].

Mentorship is not only vital for professional development of junior colleagues, but also improves personal development, and can rekindle our passion while reducing the risk of compassion fatigue [3]. The latest survey suggests that NHS staff were 50% more likely to experience high levels of work-related stress compared with the general working population, resulting in burnout [4]. A recent systematic review showed that burnout was associated with a doubling of patient safety incidents [5]. Compromised psychological wellbeing of medical professionals can lead to detrimental effects, such as iatrogenic harms. Many of us will be pleased to take on outside interests and passions to give us fulfilment and some of us see our identity in the work we perform and want to take the risk that a great career can offer. But what risks should we accept and how best to mitigate them?

Despite its presumed importance and frequent discussion, mentorship within CTS training remains uncharacterised and its impact on doctors, allied health professionals (AHPs) and students in CTS within the UK is unknown. Who are mentors to trainees? What traits do these mentors bring and how do they specifically affect successful completion of training? What characteristics are mentees looking for in mentors, what do they find, and what gaps in mentorship remain? Answering these questions was the goal of this study. To accomplish this, a series of questions within the 2022 Society of Cardiothoracic Surgeons in Great Britain and Ireland (SCTS) 'Critically Appraising mentorship' survey were formulated.

Method

Data collection

Between 1st June and 31st October 2022, a survey assessing demographics, mentorship, and career pathways was designed by means of SurveyMonkey (Portland, Ore.) and e-mailed to various health care professionals working in CTS or to medical students using the SCTS membership directory. The survey questions are developed as a group, Women in the Cardiothoracic Surgery (WICTS) network within the SCTS. Data were collected with three rounds of email invitations. Survey participation was voluntary, non-incentivised, and all responses remained anonymous.

Survey design

The survey domains explore respondents' demographics, current or previous academic appointments, leadership roles, experience of mentorship, and opinions regarding ideal implementation of mentorship model, including the views on necessity for racial and gender concordance between mentor and mentee.

Statistical method

R Core Team (R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria 2022) was used for all statistical analysis. Chi-squared test (with Yates' correction for 2×2 tables) was used to compare answers among groups. Significance level for all statistical tests was set to 0.05. Microsoft Word (Microsoft Corp., USA 2022) was used to create flow diagrams.

Results

Participant demographics and practice details

A total of 92 responses were received from 50 men (54%) and 42 women (46%) participants. 43% of respondents (40/92) had less than 5 years of experience in practice, but in general male respondents were more likely to practice over 15 years (40% versus 9.52%) ($p = 0.01$). Among male respondents, the majority (52.78%, 38/92) were consultant surgeons, compared to 21.43% (9/92) of the female participants ($p < 0.01$). 52.17% (48/92) of the respondents were Caucasians (female 50%, male 54%) and Asians were relatively prevalent (29.35%, 27/92). No difference emerged between men and women ($p = 0.898$). 58.7% (54/92) of the participants pursed fellowship or external training, but more commonly in men (68% versus 47.62%) ($p = 0.078$). The majority (78.26%, 72/92) did not hold academic appointments in both men and women ($p = 0.749$). Men were more likely to hold leadership positions on a local (42% versus 30.95%) or a national level (13.05% versus 7.14%) ($p = 0.089$) (Table 1).

77% of respondents (71/92) did not change their career and the difference between men and women

Table 1 Demographics of respondents. NTN indicates national training number

Parameter		Female	Male	Total	*p*
Time in practice	< 5 years	25 (59.52%)	15 (30.00%)	40 (43.48%)	**$p = 0.01$ ***
	5–10 years	8 (19.05%)	11 (22.00%)	19 (20.65%)	
	11–15 years	5 (11.90%)	4 (8.00%)	9 (9.78%)	
	16–20 years	3 (7.14%)	6 (12.00%)	9 (9.78%)	
	21–25 years	1 (2.38%)	7 (14.00%)	8 (8.70%)	
	> 25 years	0 (0.00%)	7 (14.00%)	7 (7.61%)	
Current title/position	Consultant Surgeon	9 (21.43%)	38 (76.00%)	47 (51.09%)	**$p < 0.001$ ***
	Doctor (NTN/Non-NTN)	15 (35.71%)	9 (18.00%)	24 (26.09%)	
	Allied Health Professional (Nursing, Pharmacy)	11 (26.19%)	3 (6.00%)	14 (15.22%)	
	Medical Student	7 (16.67%)	0 (0.00%)	7 (7.61%)	
Race/ethnicity	Caucasian	21 (50.00%)	27 (54.00%)	48 (52.17%)	$p = 0.898$
	Black/African	3 (7.14%)	2 (4.00%)	5 (5.43%)	
	Asian	12 (28.57%)	15 (30.00%)	27 (29.35%)	
	Other	6 (14.29%)	6 (12.00%)	12 (13.04%)	
Fellowship or external training	Yes	20 (47.62%)	34 (68.00%)	54 (58.70%)	$p = 0.078$
	No	22 (52.38%)	16 (32.00%)	38 (41.30%)	
Academic appointment	Yes	8 (19.05%)	12 (24.00%)	20 (21.74%)	$p = 0.749$
	No	34 (80.95%)	38 (76.00%)	72 (78.26%)	
Local leadership positions	0–1	29 (69.05%)	29 (58.00%)	58 (63.04%)	$p = 0.469$
	2–3	12 (28.57%)	18 (36.00%)	30 (32.61%)	
	> 4	1 (2.38%)	3 (6.00%)	4 (4.35%)	
National leadership positions	0–1	39 (92.86%)	41 (82.00%)	80 (86.96%)	$p = 0.089$
	2–3	2 (4.76%)	9 (18.00%)	11 (11.96%)	
	> 4	1 (2.38%)	0 (0.00%)	1 (1.09%)	

* statistically significant ($p < 0.05$)

Table 2 Practice details of respondents

Parameter		Female	Male	Total	*p*
How many times did you change practice in your career?	Never	32 (76.19%)	39 (78.00%)	71 (77.17%)	$p = 0.245$
	Once	6 (14.29%)	10 (20.00%)	16 (17.39%)	
	More than once	4 (9.52%)	1 (2.00%)	5 (5.43%)	
Reason for transition	Better work-life balance	4 (40.00%)	1 (9.09%)	5 (23.81%)	**$p = 0.014$ ***
	Financial incentives	4 (40.00%)	1 (9.09%)	5 (23.81%)	
	Career specialisation	0 (0.00%)	8 (72.73%)	8 (38.10%)	
	Location preference	1 (10.00%)	0 (0.00%)	1 (4.76%)	
	Didn't specify the reason	1 (10.00%)	1 (9.09%)	2 (9.52%)	

* statistically significant ($p < 0.05$)

is insignificant ($p = 0.245$). Women are more likely to change their practice due to favourable work-life balance (40%, 4/10) or due to financial incentives (40%, 4/10). On the other hand, men were mostly likely to transit due to career specialisation (38.1%, 8/21) ($p = 0.014$) (Table 2) (Fig. 1).

Current mentorship practice

48% of respondents (45/92) have a system of mentorship in the current practice, but 66.67% (30/92) did not have formal evaluations, evaluating the effectiveness or mentorship using both quantitative and qualitative measures and tools. Male participants were more likely to have a mentorship system (54% versus 42.86%) ($p = 0.392$), but with infrequent evaluations. 55.56% (10/18) of female participants reported a system of a formal evaluation, but only (18.52% 5/27) in men ($p = 0.024$) (Table 3) (Fig. 2).

Ideal implementation of mentorship model

The majority (89.13%, 82/92) "strongly agree" or "agree" that mentorship should be a critical tool for development in a person's career, and no difference is emerged between men (86%) or women (92.86%) ($p = 0.117$). It is uncertain whether the relationship should be chosen by the mentee or a mentor. 68.48% (63/92) of the participants "strongly agree" or "agree" that mentors should be chosen by the mentees ($p = 0.979$), but also 42.39% (39/92) believe that mentees should be chosen by the mentors ($p = 0.716$). No statistical difference was seen in both genders. Furthermore, 66.31% (62/92) "strongly agree" or "agree" that

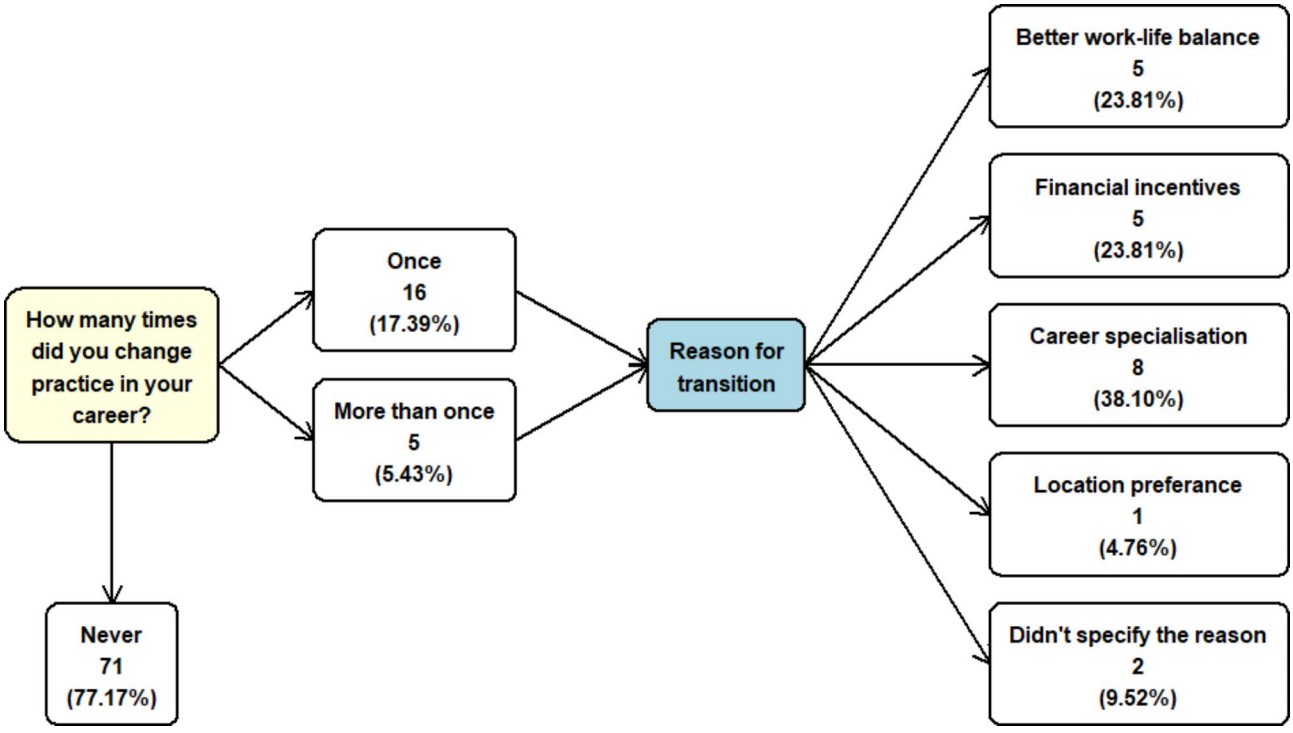

Fig. 1 Practice change of respondents

Table 3 Current mentorship practices among the respondents

Parameter		Female	Male	Total	*p*
Do you have a system of mentorship in your current practice?	Yes	18 (42.86%)	27 (54.00%)	45 (48.91%)	$p=0.392$
	No	24 (57.14%)	23 (46.00%)	47 (51.09%)	
Is this formally evaluated?	Yes	10 (55.56%)	5 (18.52%)	15 (33.33%)	$\mathbf{p=0.024}$ *
	No	8 (44.44%)	22 (81.48%)	30 (66.67%)	

* statistically significant ($p<0.05$)

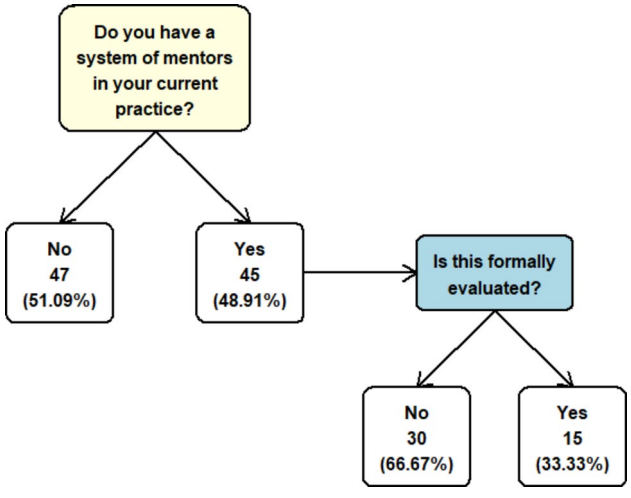

Fig. 2 Current mentorship practices among the respondents

mentorship is the responsibility of seniors ($p=0.35$) and 65.22% (60/92) believe that it should be mandated by an employing organisation ($p=0.254$). (Table 4) We further explored the necessity to have a mentor of the same gender or race/ethnicity. All male participants did not think gender of mentor/mentee was important, but 21.43% (9/42) of women did ($p=0.002$). The majority (95.65%, 88/92) did not think race/ethnicity was an important issue in mentorship and no statistical significance was found between genders. In addition, 75% (69/92) felt mentors should be from the same specialty ($p=0.307$), but more supported by men than women (80% versus 69.05%) (Table 5).

WICTS 'Lift as you climb' mentorship scheme from 2021 to 2022

Out of 42 female respondents, 52.38% (22/42) used the mentorship scheme developed by the WICTS network within the SCTS between 2021 and 2022. 68.18% were (15/22) mentees and 80% (12/15) of them stated that

Table 4 Mentorship Is/Should be

Parameter		Female	Male	Total	*p*
Mentorship should be a critical tool for development in a person's career	Strongly agree	29 (69.05%)	23 (46.00%)	52 (56.52%)	$p=0.117$
	Agree	10 (23.81%)	20 (40.00%)	30 (32.61%)	
	Neither agree nor disagree	1 (2.38%)	5 (10.00%)	6 (6.52%)	
	Disagree	1 (2.38%)	2 (4.00%)	3 (3.26%)	
	Strongly disagree	1 (2.38%)	0 (0.00%)	1 (1.09%)	
Mentees should be chosen by the mentor	Strongly agree	5 (11.90%)	6 (12.00%)	11 (11.96%)	$p=0.716$
	Agree	13 (30.95%)	15 (30.00%)	28 (30.43%)	
	Neither agree nor disagree	14 (33.33%)	18 (36.00%)	32 (34.78%)	
	Disagree	10 (23.81%)	9 (18.00%)	19 (20.65%)	
	Strongly disagree	0 (0.00%)	2 (4.00%)	2 (2.17%)	
Mentors should be chosen by the mentee	Strongly agree	8 (19.05%)	10 (20.00%)	18 (19.57%)	$p=0.979$
	Agree	21 (50.00%)	24 (48.00%)	45 (48.91%)	
	Neither agree nor disagree	10 (23.81%)	11 (22.00%)	21 (22.83%)	
	Disagree	2 (4.76%)	4 (8.00%)	6 (6.52%)	
	Strongly disagree	1 (2.38%)	1 (2.00%)	2 (2.17%)	
Mentorship is/should be the responsibility of seniors	Strongly agree	12 (28.57%)	15 (30.00%)	27 (29.35%)	$p=0.35$
	Agree	14 (33.33%)	20 (40.00%)	34 (36.96%)	
	Neither agree nor disagree	7 (16.67%)	11 (22.00%)	18 (19.57%)	
	Disagree	7 (16.67%)	4 (8.00%)	11 (11.96%)	
	Strongly disagree	2 (4.76%)	0 (0.00%)	2 (2.17%)	
Mentorship is/should be mandated by an employing organisation	Strongly agree	11 (26.19%)	19 (38.00%)	30 (32.61%)	$p=0.254$
	Agree	13 (30.95%)	17 (34.00%)	30 (32.61%)	
	Neither agree nor disagree	9 (21.43%)	7 (14.00%)	16 (17.39%)	
	Disagree	6 (14.29%)	7 (14.00%)	13 (14.13%)	
	Strongly disagree	3 (7.14%)	0 (0.00%)	3 (3.26%)	

* statistically significant ($p<0.05$)

Table 5 Ideal implementation of mentorship model from respondents

Parameter		Female	Male	Total	*p*
It is important for a mentor/mentee to be of the same gender	Yes	9 (21.43%)	0 (0.00%)	9 (9.78%)	**$p=0.002$** *
	No	33 (78.57%)	50 (100.00%)	83 (90.22%)	
Mentor/mentee should be of the same race/ethnicity	Yes	3 (7.14%)	1 (2.00%)	4 (4.35%)	$p=0.489$
	No	39 (92.86%)	49 (98.00%)	88 (95.65%)	
Mentors should be from the same specialty or within the medical community	Same specialty	29 (69.05%)	40 (80.00%)	69 (75.00%)	$p=0.307$
	Not the same specialty but within the medical community	8 (19.05%)	8 (16.00%)	16 (17.39%)	
	Does not have to come from within the medical community	5 (11.90%)	2 (4.00%)	7 (7.61%)	
Being happy to participate in a mentorship scheme in the future	Yes	36 (87.80%)	47 (94.00%)	83 (91.21%)	$p=0.505$
	No	5 (12.20%)	3 (6.00%)	8 (8.79%)	

* statistically significant ($p<0.05$)

goals, they identified with the mentors, were met. The most common mode of communications was virtual platforms, 63.64% (14/22). Approximately half, 54.55% (12/22) had 2–5 meetings and 90.91% (20/42) said they would recommend participation to colleagues (Table 6).

Discussion

A total of 92 responses were received from 50 men (54%) and 42 women (46%) participants. 89% of respondents agree or strongly agree that mentorship is critical in professional development. 48% of respondents (45/92) have a system of mentorship in the current practice, but without formal evaluations in 66.67% (30/92). 65% of respondents believe that mentorship should be mandated by the institution, whether hospital based-or within the society itself. The survey also reveals important gender differences in mentorship needs between men and women. All male participants did not think gender of mentor/mentee was important, but 21.43% (9/42) of women did ($p=0.002$).

Table 6 WICTS 'Lift as you climb' Mentorship Scheme from 2021–2022. WICTS indicates women in cardiothoracic surgery network at Society of Cardiothoracic surgeons of Great Britain and Ireland

WICTS 'Lift as you climb' mentorship scheme from 2021–2022		Total
Did you use it?	Yes	22 (52.38%)
	No	20 (47.62%)
Your role	Mentor	7 (31.82%)
	Mentee	15 (68.18%)
Did you meet your goals you identified with your mentor? ($n=15$)	Yes, all goals met	7 (46.67%)
	Yes, some goals met	5 (33.33%)
	No, I was unable to meet effectively with my mentor	3 (20.00%)
Mode of communications	Face to Face	3 (13.64%)
	Telephone	2 (9.09%)
	Microsoft Teams or other virtual platform	14 (63.64%)
	We were unable to meet effectively	3 (13.64%)
Number of meetings	0–1	6 (27.27%)
	2–5	12 (54.55%)
	> 5	4 (18.18%)
Would you recommend participation to colleagues?	Yes	20 (90.91%)
	No	2 (9.09%)

* statistically significant ($p<0.05$)

Difficulties women facing in a career in clinical (and academic) cardiothoracic surgery

The ratio of male to female consultant surgeons in the UK is approximately 8:1 and women remain a minority [6]. Furthermore, CTS is one of the most unevenly gender distributed specialties with female cardiothoracic surgeons constituting less than 10% of the workforce [7]. This is also reflected in our survey, in which there were more male respondents (54%, 50/92) than the female participants (46%, 42/92). (Table 1) Pompili et al. suggest that a total of 67% of female respondents in CTS experienced gender discrimination in the workplace and 35% considered leaving surgery, but this was only a consideration of 13% in men [8]. In addition, 31% of men reported that they were "very satisfied" with their career, compared to only 17% of women ($p<0.0001$) [8]. This is also reflected in our study that more female respondents changed their practice mostly for favourable working conditions (40%, 4/10), whereas the main reason for men was career specialisation (38.1%, 8/21) ($p=0.014$). (Table 2) (Fig. 1) Sarsons et al. state that female surgeons encounter unique biases related to referrals from physicians, who view patients' clinical outcomes differently depending on the performing surgeon's gender [9]. Moreover, women are getting fewer leadership or academic opportunities [10]. Gender discrimination continues, originating from conscious and unconscious bias and, therefore, women in surgery face unique challenges that men do not perceive [11]. This may be related to the finding from our study that 21.43% (9/42) of females felt it was important for a mentor/mentee to be of the same gender, whereas no male respondents saw this as a significant issue ($p=0.002$). (Table 5). This emphasises that it is vital to recognise the unique needs of mentees in mentorship.

Women in cardiothoracic surgery (WICTS) – mentorship programme

To promote and foster an environment that supports women in the specialty, the WICTS network within the SCTS was established in 2021 under Miss Karen Booth, consultant cardiac surgeon [7]. The WICTS is dedicated to encouraging, enabling, and inspiring women to fulfil their surgical career ambitions, as well as improving awareness of gender discordance among men. Between 2021 and 2022, the WICTS network within the SCTS has introduced the 'Lift as you climb' mentorship scheme, which was successful. 80% (12/15) of the mentees stated that goals they identified with the mentors were met and 90.91% (20/22) said they would recommend participation to colleagues. (Table 6) This was the first time in the history of CTS in the UK that a mentorship scheme was initiated.

Importance and men/women perspective of an ideal mentorship programme

To overcome gender discordance, but also to fulfil individual mentee's unique needs, having multiple mentors can be beneficial. Stephens et al. address that 77.8% (288/370) of cardiac surgery trainees viewed mentorship as "critical to success", but is also beneficial beyond the training years [12]. This has resulted in 84% of trainees having multiple mentors throughout their careers [12]. Having different mentors can be useful depending on each mentor's expertise or type of support that mentees require. In our study, 75% (69/92) felt mentors should be from the same specialty ($p=0.307$), but this view had more support from men than women (80% versus 69.05%) (Table 5).

The research suggests that as long as mentees have a clear goal they want to achieve, gender, race/ethnicity, geographical location or even the specialty should not be a barrier to successful mentorship. Kashiwagi et al. recommend formulating clear objectives or goals between mentors and mentees can lead to an effective mentorship [13]. Cooke et al. suggest that mentees should set their own goals, and "strive to actively seek feedback, ask questions, and keep an accurate record of progress" [14]. So, self-motivation of the mentee is of paramount importance. This finding is consistent with our survey, in which more participants felt mentors should be chosen by the mentees (68.48%, 63/92) than the inverse (42.39%, 39/92) (Table 4). Although the onus is on the mentee to reach out, mentorship has bidirectional efforts from both mentors and mentees. A successful mentor/mentee relationship requires investment of time and effort from both the mentee and mentor. Ultimately, this

will be mutually beneficial to help with work-life balance and reduce rates of physical stress and burnout [14].

Limitation

The low survey and response rate ($n = 97$) may limit the statistical validity of our findings. Type I or II errors may occur and the generalisability of our findings to the entire cohort of health professionals working in CTS may be limited. This may also be related to potential selection bias. Furthermore, due to the nature of self-reported data on the survey, recall bias may not be avoidable.

Conclusion

Our survey demonstrates that the need for a mentorship scheme is recognised and is imperative to achieve maximum career potential, both professionally and personally. Although challenges persist with widespread implementation in the UK, it is vital to recognise individual mentee's unique needs in mentorship. Women face specific challenges as a minority, and this must be considered when forming a mentorship relationship. These efforts to support women, empowering them to optimally contribute or to be recognised will ultimately benefit organisations, the community, future generations, and most importantly, positively affect the quality of patient care.

Abbreviations

AATS	American Association for Thoracic Surgery
AHP	Allied Health Professional
NHS	National Health Service
NTN	National Training Number
SCTS	Society of Cardiothoracic Surgeons of Great Britain and Ireland
WICTS	Women In Cardiothoracic Surgery

Author contributions

Michelle Lee 1. Substantial contributions to analysis, or interpretation of data for the work; AND. 2. Drafting the work or revising it critically for important intellectual content; AND. 3. Final approval of the version to be published; AND. Georgia Layton 1. Substantial contributions to the acquisition of data for the work. Elizabeth Belcher 1. Substantial contributions to the conception or design of the work; or the acquisition of data for the work. Deborah Harrington 1. Substantial contributions to the conception or design of the work; or the acquisition of data for the work. Gillian Hardman 1. Substantial contributions to the conception or design of the work; or the acquisition of data for the work. Betsy Evans 1. Substantial contributions to the conception or design of the work; or the acquisition of data for the work. Narain Moorjani 1. Substantial contributions to the conception or design of the work; or the acquisition of data for the work. Karen Booth 1. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND. 2. Final approval of the version to be published; AND.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethical approval

In accordance with the Declaration of Helsinki.

Human ethics and consent to participate

All participants have given verbal permission.

Consent to participate

All participants have given verbal permission.

Competing interests

The authors declare no competing interests.

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References

1. Apthorp MJ. A New Edition of the odyssey. Classical Rev. 1993;43(2):228–30.
2. Kron IL. Surgical mentorship. J Thorac Cardiovasc Surg. 2011;142(3):489–92.
3. Lin J, Reddy RM. Teaching, mentorship, and coaching in Surgical Education. Thorac Surg Clin. 2019;29(3):311–20.
4. West M. What does the 2019 NHS Staff Survey truly tell us about how staff needs are being met? The King's Fund2020 [Available from: https://www.kingsfund.org.uk/blog/2020/02/2019-nhs-staff-survey-are-staff-needs-being-met].
5. Hodkinson A, Zhou, Anli, Johnson J, Geraghty K, Riley R, Zhou A, et al. Associations of physician burnout with career engagement and quality of patient care: systematic review and meta-analysis. BMJ. 2022;378:e070442.
6. RCS. Women in Surgery: Royal College of Surgeons of England. 2022 [Available from: https://www.rcseng.ac.uk/careers-in-surgery/women-in-surgery/statistics/
7. SCTS. Women in Cardiothoracic Surgery Network: Society for Cardiothoracic Surgery in Great Britain and Ireland. 2022 [Available from: https://scts.org/professionals/women_in_cardiothoracic_surgery_network.aspx
8. Pompili C, Opitz I, Backhus L, Leschber G, Veronesi G, Lauk O, et al. The impact of gender bias in cardiothoracic surgery in Europe: a European Society of Thoracic Surgeons and European Association for Cardio-Thoracic Surgery survey. Eur J Cardiothorac Surg. 2022;61(6):1390–9.
9. Sarsons H. Interpreting signals in the labor market: evidence from medical referrals. Harvard University. 2017. https://scholar.harvard.edu/files/sarsons/files/sarsons_jmp.pdf. Accessed 31 Dec 2024.
10. Gao SW, Forcillo J, Watkins AC, Antonoff MB, Luc JGY, Chung JCY, et al. 60 years after the First Woman Cardiac Surgeon: we still need more women in cardiac surgery. CJC Open. 2021;3(12):S89–94.
11. Colletti LM, Mulholland MW, Sonnad SS. Perceived obstacles to Career Success for women in academic surgery. Arch Surg. 2000;135(8):972–7.
12. Stephens EH, Goldstone AB, Fiedler AG, Vardas PN, Pattakos G, Lou X, et al. Appraisal of mentorship in cardiothoracic surgery training. J Thorac Cardiovasc Surg. 2018;156(6):2216–23.
13. Kashiwagi DT, Varkey P, Cook DA. Mentoring Programs for Physicians in Academic Medicine: a systematic review. Acad Med. 2013;88(7):1029–37.
14. Cooke KJ, Patt DA, Prabhu RS. The Road of Mentorship. Am Soc Clin Oncol Educ Book. 2017;37:788–92.

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