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Cardiothoracic Surgery Training: An Honest and Anonymous Assessment of the Trainee Experience

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Abstract

Objective(s): Trainee assessments aim to identify areas for improvement and address problems within training programs. However, effectiveness is limited by an inability to assess programs anonymously. We hypothesized concern for undesired repercussions may discourage honest responses. To test this, we conducted a comprehensive survey of trainees to assess their educational and work-related experiences anonymously.

Design: A 51-question survey was distributed electronically to the Thoracic Surgery Residents Association (TSRA) membership. Questions were multiple-choice. The Likert scale was utilized.

Setting: The survey was accessed electronically and was completed by participants nationwide.

Participants: Trainees were incentivized to complete the survey with the opportunity to receive a $50 gift card or TSRA textbook. 109 of 551 cardiothoracic surgery trainees completed the survey.

Results: 109 trainees (109/551, 19.8%) completed the survey. 57.8% of respondents reported complying with work hour restrictions, but 32.2% (n=35) did not feel comfortable reporting violations honestly. The majority of respondents agreed or strongly agreed that their program was preparing them to independently perform low risk cardiac (4.19 [1.22]) and thoracic (4.08 [1.13]) cases independently, 30.3% of chief residents reported planning to pursue additional training. 66% of respondents stated they would select the same program again. 33% reported having high morale, 47.7% moderate and 19.3% poor or declining morale. 84.4% of respondents did not feel their race or gender significantly impacted their training, 26.6% reported systemic bias in recruitment of new trainees or faculty, and 38.5% believed there was inadequate diversity among faculty and trainees. 30.3% reported experiencing verbal or physical harassment by an attending or fellow (14.7%).

Conclusions: Despite reporting an overall positive operative experience, a significant number of trainees plan to pursue additional training. The survey identifies important areas for attention including underreporting of issues related to diversity, as well as verbal and physical harassment by fellows and attendings.

Keywords: cardiothoracic surgery trainees, ACGME, surveys, training experience

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generally positive (Figure 3). Most felt adequately prepared for their boards (4 [3-5]), that their programs are receptive to feedback (4 [3-5]), and agreed that their program directors were invested in their training and professional well-being (4 [4-5]). Yet, surprisingly, only about half (52.3%, n=57) of respondents had a designated mentor.

Diversity and Inclusion

While most trainees felt their race/ethnicity has no impact on their training (70.6%, n=77), 8.3% (n=9) of respondents felt that there was a negative impact. Slightly more than half (61.5%, (n=59)) of respondents felt there is adequate diversity among faculty and trainees at their institution. 26.6% (n=25) respondents perceive systematic bias in the recruitment of new trainees or faculty at their program. 67.9% (n=74) respondents feel that their gender has no impact on their training. Of these, 70.3% were male. 11 trainees reported that their gender has a positive impact on their training and 9 reporting a negative impact of their gender on their training [Table 3]. Of those reporting a negative impact, n=7 were female and n=2 were male. Of those reporting a positive impact, n=1 was female and n=10 were male [Table 3].

Notably, 30.3% (n=33) of respondents reported verbal or physical harassment by an attending and or senior resident/ fellow (14.7%, n=16). The majority of respondents (74.3%, n=81) reported that their institution has a method of safe reporting of harassment or other issues [Table 3].

Overall Opinion and Morale

In assessing overall opinion of their program, slightly more than half of residents (66%, n=72) would pick the same program again [Figure 4]. When asked why "No" or "Unsure" the most cited reason was training quality (n=7) [Table 4]. The mean score was a 4 [3-5] in response to the statement "I would recommend my program to future trainees". Morale was high among a minority of participants (33%, n=36) and moderate among the majority (47.7%, n=52). 8.3% (n=9) said morale was poor and declining (11%, n=12) .

Discussion

Honest assessment of CT surgery trainee experiences in the United States is a complicated process. The annual residency surveys currently utilized are a significant component of the certification process. Areas that are assessed within the survey include: Clinical Experience and Education, Faculty Teaching and Supervision, Evaluation, Educational Content, Diversity and Inclusion, Resources, Patient Safety/ Teamwork, Professionalism and Overall Evaluation of the program. All accredited programs are expected to participate in the survey with a required completion rate of 70%. Program accreditation relies heavily on the responses to these surveys as they are used to provide early warning of areas in which the program may be non-compliant with ACGME requirements. When warning areas are identified, the ACGME charges the program director with demonstrating methods through which they will rectify any issues that may have been identified [1]. While this method is well-structured, there is concern about the reliability of results obtained via this method due to non-anonymity and fear of repercussions to participants.

The survey discussed here was created with the intention of assessing the responses provided when trainees are given

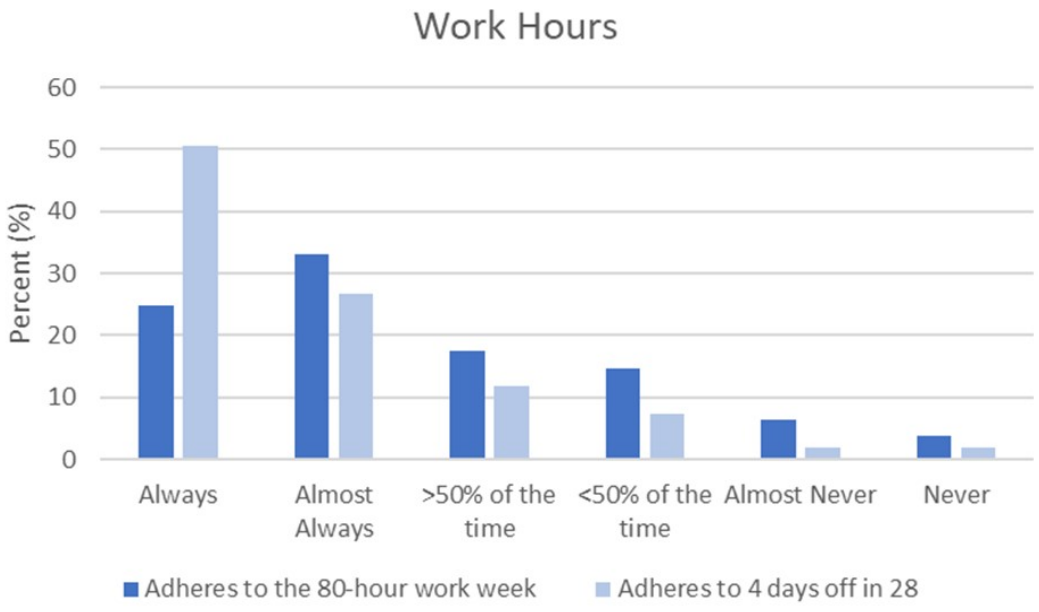

Figure 2: Trainee Adherence to Work Hour Restrictions

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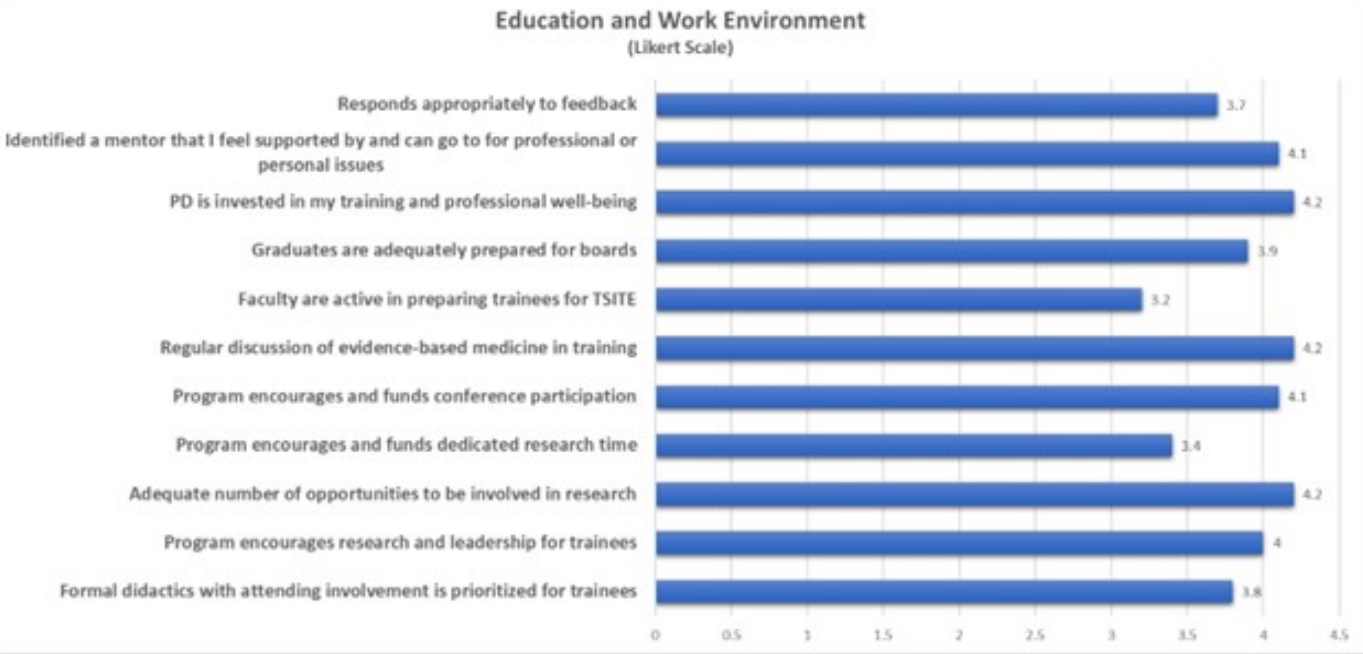

Figure 3: Trainee Opinions on Education and Work Environment

Table 3: Trainee experiences surrounding diversity, inclusion and harassment

Diversity and Inclusion	n(%)
Impact of your gender on your training	
No answer	15 (13.8%)
No Impact	74 (67.9%)
Positive Impact	11 (10.1%)
Negative Impact	9 (8.3%)
Impact of your race/ethnicity on your training	
No answer	15 (13.8%)
No Impact	77 (70.6%)
Positive Impact	8 (7.3%)
Negative Impact	9 (8.3%)
Adequate diversity among faculty and trainees at your program	59 (61.5%)
Systematic bias in recruitment of new trainees or faculty at your program	25 (26.6%)
Verbally or physically harassed by an attending at your program	33 (30.3%)
Verbally or physically harassed by a senior resident or fellow at your program	16 (14.7%)
Institution has method of safe reporting of harassment or other issues	
Yes	81 (74.3%)
No	5 (4.6%)
Unsure	23 (21.1%)

an opportunity to give feedback anonymously without fear of negative consequences. Importantly, the results of the survey highlight a general sense of satisfaction amongst current trainees in cardiothoracic surgery that completed the survey. The majority feel prepared to go into practice by the completion of their training. For those pursuing more training, the primary reason is the desire for a niche area of practice, as opposed to lack of preparation. There is a general sense of support for conference attendance, adequate research opportunities, and adequate in-service exam preparation. Most feel their education is supported and prioritized by faculty. All these responses provide reassurance that most of

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the programs represented by survey respondents are meeting the expected thresholds in the areas of Clinical Experience, Education, Faculty Teaching, Resources, Teamwork and Educational Content.

Although the general feedback obtained from the survey was positive, there were several responses that raise concern. The first of these is duty hour adherence. 57.8% reported that their program adheres to the 80-hour work week and get at least 4 days off in a 28-day period. However, when asked about comfort reporting work hours honestly, 12.8% (n=14) respondents selected disagree and 19.2% (n=21) selected strongly disagree. If greater than 30% of survey respondents do not feel comfortable reporting work hour violations honestly, one would suspect that when completing the annual survey, the answers provided are not accurate. As a result, the data gathered from those results may not in fact be representative of the true trainee experience.

Another important finding of this survey is regarding inclusion and diversity. The results of this survey suggest that there is a perceived sense of recruitment bias amongst not only trainees, but faculty as well. Concerns around the topics of gender and diversity have been highlighted in other settings both at the trainee and the faculty level. In a publication looking at trends in integrated CT surgery programs, Powell et al2 found that amongst trainees in integrated CT surgery programs, there were 26.2% that identified as Asian, 5.3% as Hispanic and 2.2% as African-American. 66.4% were caucasian. When time trend analyses were used, they did not find any improvements in gender diversity or representation of African Americans and Hispanic residents in integrated cardiothoracic programs over the 14-year time-period that was reviewed. This suggests that despite efforts that programs may be making to increase diversity, the trainee pool is not becoming more diverse.

When one extends this look to the faculty level, the numbers are not much more encouraging according to the available data. Although Blacks/African Americans and Hispanics compose 13.4% and 18.3%, respectively, of the U.S. population according to the 2018 Census data3, these groups only comprised 5% and 5.8% of all practicing physicians in the same year4. Along similar lines, in 2018 although 50.8% of the U.S. population was female, only 35.8% of practicing physicians identified as female5. Ortmeyer et al6 assessed the racial/ethnic and gender diversity in the field of CT surgery as compared to other surgical subspecialties and medicine overall in the year 2018. They found that 17% of CT surgery faculty were female (compared to 27% of surgical faculty ($p<0.01$)). Black/African American faculty comprised 3% and Hispanic comprised 5% of CT surgery faculty which was similar to surgical faculty. 24% of CT surgery trainees were women, compared to 36% of surgical trainees ($p<0.01$).

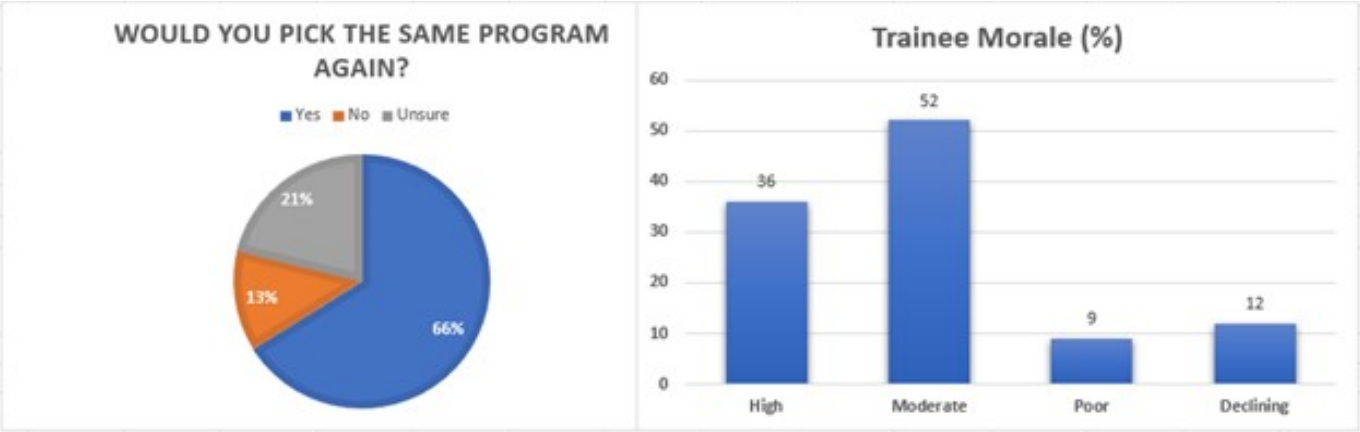

Figure 4: Trainee Thoughts on Programs and Overall Morale

Table 4: Reasons why trainees reported "No" or "Unsure" when asked if they would pick the same program again.

Opinion/Morale (If no or unsure, why? (mentions, FRQ))	N
Training Quality	7
Faculty	6
Changes since starting or mislead	6
Non Training Reason	3
Culture	2
Research/Mentorship	2
Change type of program	1

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4% of residents were Black/African American and 5% were Hispanic. These findings suggest a notable discrepancy between reality versus the expectation of diversity in our programs.

The fact that trainees are identifying this issue creates concern in that it may not only affect morale, but it may also limit the option for trainees to select mentors from a diverse pool of faculty. Additionally, this may impact recruitment of a broader pool of trainees that will eventually swing the pendulum to a more diverse workforce. If we are unable to improve the diversity at the faculty level, the challenge of recruiting medical students who will eventually grow into a diverse workforce, may continue to be an uphill battle.

A somewhat alarming finding of this survey was the report of verbal or physical harassment by a senior resident, fellow or attending. 30.3% of respondents endorsed harassment by an attending at their program and 14.7% harassment by a senior resident or fellow. The culture of surgery has progressed significantly from the anecdotal days of surgeons with "bad behavior" that goes unchecked in and out of the operating room. There should be no place for verbal or physical harassment by ones' colleagues at any level. An important take-away from these findings would be the need for programs to invite trainees to discuss episodes of harassment in a safe, non-retaliatory environment. This should include the individual experiencing the harassment as well as those that may observe it.

Finally, it is important to note the report of poor/declining morale in 19% of participants. The culture of "suck it up" is still prevalent in the CT surgery environment. This has proven detrimental in surveys assessing well-being7. A systematic review and meta-analysis evaluating over 17,000 physicians in training identified that 20.9-43.2% of trainees screened positive for depression or depressive symptoms. The effects of this poor state of mental health include lower-quality patient care and increased risk for future depression amongst physicians. The need to identify and address this early on is paramount.

A limitation of this survey is that it may be more beneficial to separate the responses of this survey by program-type. As suggested by Lebastchi and Yuh8, trainees in I-6 programs expressed significant overall satisfaction with their training choice for various reasons including more streamlined education, less general surgical time, and integration of cardiovascular and pulmonary medicine. Due to anonymity, we are unable to determine the distribution of trainee programs amongst respondents (e.g. multiple people responding from within the same program). As a result, there may be skewed representation of one program where certain patterns are more prevalent. Another limitation is that this survey does not assess all current cardiothoracic surgery trainees in the United States. Therefore, it is not entirely representative of the current trainee pool. In addition, an individual's interpretation or varied terms may affect how they answer. For example, a trainee's personal understanding of adequate experience, comfort with procedures, harassment and diversity may skew how they answer a question. Future efforts would be aimed at distribution to the broader pool, potentially with directed support from individual programs.

There is little data evaluating the effectiveness of the anonymous program surveys. The lack of this information raises concern that the current method fails to identify the real issues within current cardiothoracic surgery (CT) training programs, thus limiting opportunities to identify ways to correct potential problems in a meaningful way. Several factors weigh on a trainee's willingness to be honest on the annual survey. One is the impact on their training program. Often, highlighting grievances can lead to the program being placed on probation or potentially shut down. This could have a significant impact on trainees who are not only are dependent on the program for their training and future career preparation, but their income. The risk of having one's program placed on probation (and consequently being unable to complete training if the program is shut down) is likely higher than the benefit of airing grievances that trainees may feel are minor. Additionally, trainees may consciously or subconsciously be affected by fear of retaliation by faculty in their program. Although the ACGME surveys are designed to be anonymous, there may be a concern that the results can be traced back to the trainee. A suggestion for managing this fear is to have trainees complete the survey after they have completed their training, almost as an "exit interview". The benefit of this is that it removes the fear of immediate, potentially detrimental effects on the program. However, some may argue that this would result in a delay in intervention on the part of the ACGME if something significant is reported.

Conclusions

Training future cardiothoracic surgeons is a challenging and sometimes unrewarding process. Technical readiness, cognitive development, and clinical savvy must be balanced with quality of life, mentorship, and mental health. At times, the demands of this field make it difficult to appropriately balance both sides while trying to produce competent, safe surgeons in a limited training period. In addition, this development needs to take place while adjusting to a changing society where the calls for greater inclusion and diversity get louder. It would only serve to benefit the world of CT surgery and our patients if efforts are made to assess the experience of trainees in a reliable way, and utilize the feedback obtained to continually improve programs across the country.

Disclosure

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