

Research Letter

Resident satisfaction with radiation oncology training

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Received 23 January 2018; received in revised form 12 March 2018; accepted 12 March 2018

Abstract

Purpose: Residency training environments can differ significantly; therefore, resident satisfaction may vary widely among programs. Here, we sought to examine several variables in program satisfaction through a survey of radiation oncology (RO) trainees in the United States.

Methods and materials: An anonymous, institutional review board-approved, internet-based survey was developed and distributed to U.S. residents in RO in September 2016. This email-based survey assessed program-specific factors with regard to workload, work-life balance, and education as well as resident-specific factors such as marital status and postgraduate year. Binomial multivariable regression assessed the correlations between these factors and the endpoint of resident-reported likelihood of selecting an alternative RO residency program if given the choice again.

Results: A total of 215 residents completed the required survey sections, representing 29.3% of U.S. RO residents. When asked whether residency allowed for an adequate balance between work and personal life, the majority of residents (75.6%) agreed or strongly agreed, but a minority (9.3%) did not feel that residency allowed for sufficient time for personal life. The majority of residents

Sources of support: The authors report no external funding source for this study.

Conflicts of interest: The authors declare no conflict of interest.

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<https://doi.org/10.1016/j.adro.2018.03.003>

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(69.7%) indicated that they would choose the same residency program again, but 12.2% would have made a different choice. Almost three-fourths of residents (73.0%) felt that faculty and staff cared about the educational success of residents, but 9.27% did not. Binomial multivariable regression revealed that senior residents (odds ratio: 6.70; 95% confidence interval, 2.20-22.4) were more likely to desire a different residency program. In contrast, residents who reported constructive feedback use by the residency program (odds ratio: 0.22; 95% confidence interval, 0.06-0.91) were more satisfied with their program choice.

Conclusions: Most RO residents reported satisfaction with their choice of residency program, but seniors had higher rates of dissatisfaction. Possible interventions to improve professional satisfaction include incorporating constructive resident feedback to enhance the program. The potential impact of job market pressures on seniors should be further explored.

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Introduction

Residency programs differ in case diversity, resident autonomy, workload, service expectations, structure, supervision, and other factors that influence the educational experience. Recent publications¹⁻⁵ examined resident well-being, but literature on program satisfaction is limited,^{6,7} particularly in radiation oncology (RO).^{8,9} Information on the general work environment, call responsibilities, average workweek, and adequacy of ancillary support^{9,10} is valuable for medical students who are selecting a residency program⁷ and for institutions seeking benchmarks when evaluating their own programs. We sought to examine residency program satisfaction and work environment among U.S. RO trainees.

Methods and materials

In September 2016, after approval by the local institutional review board, all 88 U.S. RO program directors and coordinators listed in the Association of Residents in Radiation Oncology directory were emailed a request to distribute surveys to residents. The first 100 resident participants were given \$5 gift cards to incentivize participation. E-mail addresses were unlinked from responses for anonymity.

The online-based survey consisted of 9 demographic questions, 15 program-specific questions, and 22 burnout assessment questions. The full survey is available as a supplement. In this manuscript, we present the results pertaining to residency program work environment and satisfaction.

Binomial multivariable regression was used to determine which factors correlated with resident-program satisfaction. Satisfaction was measured by asking residents whether they would choose the same RO program again if given the opportunity. This variable was dichotomized for analysis (considered dissatisfaction if the response was “disagree” or “strongly disagree” and satisfaction if

the response was “neutral,” “agree,” or “strongly agree.” The results are reported as odds ratios (ORs) with 95% confidence intervals (CIs). All analyses utilized the R statistical software package version 3.3.1 (R Foundation for Statistical Computing, Vienna, Austria).

Results

Overall, 232 residents responded to the survey, and 215 completed the residency program portion of the questionnaire and were analyzed, representing 29.3% of all RO residents nationwide in 2016. The survey results are shown in [Table 1](#).

Education

When asked whether residency allowed for an adequate balance between work and personal life, most residents (75.6%) agreed or strongly agreed. The majority (69.7%) felt that they would choose the same RO residency program again. Approximately three-quarters of residents (73.0%) felt that the faculty and staff cared about the educational success of residents, and more than half (57.7%) felt that their program used resident feedback constructively.

On-call duty

Residents most commonly reported having either 4 to 6 weeks (41.9%) or 7 to 9 weeks (39.5%) of call. During an average week of call, 43.3% of residents reported seeing 2 to 3 consults outside of their normal clinical responsibilities. Two-thirds reported for work at least 1 weekend day during a call week (69.7%). When residents were asked how many hours were spent at work in an average week, 1.9% reported ≤ 40 hours, 20.9% worked 41 to 50 hours, 47.9% worked 51 to 60 hours, 20.9% responded 61 to 70 hours, and 8.4% reported working ≥ 70 hours.

Table 1 Survey responses related to residency program work environment and resident demographics

| | | | | | |
|--|------------------------|-------------------|-------------------|----------------|-------|
| Residents at my program are able to have an adequate balance between work and personal life. | | | | | |
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | |
| 3.3% | 6.0% | 15.3% | 50.0% | 25.6% | |
| I would choose the same radiation oncology program again if I had the chance. | | | | | |
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | |
| 3.72% | 8.4% | 18.1% | 31.6% | 38.1% | |
| Faculty and staff in my program care about my educational success. | | | | | |
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | |
| 0.9% | 8.37% | 17.7% | 46.5% | 26.5% | |
| My program uses resident feedback constructively. | | | | | |
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree | |
| 2.32% | 12.6% | 27.4% | 40.5% | 17.2% | |
| Residents at my program are assigned call duty on average: | | | | | |
| <4 wk/y | 4-6 wk/y | 7-9 wk/y | 10-12 wk/y | >12 wk/y | |
| 6.5% | 41.9% | 39.5% | 7.4% | 4.7% | |
| On an average week of call, how many consultations are you typically required to see outside of your normal clinical responsibilities? | | | | | |
| None | 1 | 2-3 | 4-5 | ≥6 | N/A |
| 3.7% | 20% | 43.3% | 20.5% | 11.6% | 0.93% |
| On an average weekend of call, I typically have to come in to work to perform duties related to call: | | | | | |
| Neither Saturday nor Sunday | At least 1 weekend day | Both days | N/A | | |
| 29.3% | 55.3% | 14.4% | 0.93% | | |
| During an average week of call, I typically have to stay late or return to work for duties related to call: | | | | | |
| No weeknights (Monday-Friday) | 1 weeknight | 2 weeknights | 3 weeknights | 4-5 weeknights | N/A |
| 25.6% | 32.1% | 14.4% | 15.3% | 11.2% | 1.40% |
| In an average week, I spend _____ at work. | | | | | |
| ≤40 h | 41-50 h | 51-60 h | 61-70 h | ≥70 h | |
| 1.9% | 20.9% | 47.9% | 20.9% | 8.4% | |
| My current level of debt related to education (including undergraduate and graduate expenses) is approximately: | | | | | |
| \$0-49,999 | \$50,000-99,999 | \$100,000-199,999 | \$200,000-299,999 | >\$300,000 | N/A |
| 41.9% | 9.30% | 13.5% | 21.9% | 13.0% | 0.47% |
| PGY status: | | | | | |
| PGY 2 | PGY3 | PGY4 | PGY5 | | |
| 26.5% | 27.0% | 20.9% | 25.6% | | |
| Relationship Status: | | | | | |
| Divorced/separated | Married | Single | Widowed | N/A | |
| 2.3% | 54.9% | 41.9% | 0.47% | 0.47% | |
| Adequate nursing support for patients is provided. | | | | | |
| Strongly disagree | Disagree | Neutral | Agree | Strongly agree | N/A |
| 3.3% | 18.1% | 13.0% | 41.4% | 23.7% | 0.47% |
| Staff work together to serve patient needs. | | | | | |
| Strongly disagree | Disagree | Neutral | Agree | Strongly agree | N/A |
| 25.1% | 2.79% | 14.0% | 56.7% | 25.1% | 0.47% |
| I feel my department has adequate social support for patients. | | | | | |
| Strongly disagree | Disagree | Neutral | Agree | Strongly agree | |
| 5.1% | 14.9% | 17.2% | 47.4% | 15.3% | |
| I feel my department has adequate dosimetry support. | | | | | |
| Strongly disagree | Disagree | Neutral | Agree | Strongly agree | |
| 0.47% | 8.4% | 5.6% | 45.6% | 40.0% | |
| I feel my department has adequate physics support. | | | | | |
| Strongly disagree | Disagree | Neutral | Agree | Strongly agree | |
| 0% | 1.4% | 6.5% | 43.3% | 48.8% | |

N/A, not available; PGY, postgraduate year.

Demographics and debt

When asked about educational debt, 13% of residents reported an educational debt of ≥\$300,000, 21.9% reported a debt of \$200,000 to \$299,999, 13.5% reported a debt of

100,000 to \$199,999, 9.3% reported a debt of \$50,000 of \$99,999, and 41.9% reported <\$50,000 of debt. Nearly one-third of respondents (32.1%) were women. Approximately half of all respondents (54.9%) were married (59.0% and 46.3% of men and women were married, respectively).

Table 2 Multivariable regression, choice of a different residency program as endpoint

| Variable | P-value | Odds ratio | 95% Confidence interval |
|---|----------------|------------------|-------------------------|
| Senior resident | <.01 | | |
| Year 2, 3, or 4 | | Reference | — |
| Year 5 | | 6.68 | 2.20-22.4 |
| Adequate nursing support | .62 | | |
| Disagree | | Reference | — |
| Agree or neutral | | 0.71 | 0.20-2.83 |
| Adequate social worker support | .07 | | |
| Disagree | | Reference | — |
| Agree or neutral | | 0.34 | 0.11-1.13 |
| Adequate dosimetry support | .17 | | |
| Disagree | | Reference | — |
| Agree or neutral | | 5.64 | 0.68-135.8 |
| Adequate physics support | .80 | | |
| Disagree | | Reference | — |
| Agree or neutral | | 1.65 | 0.02-91.0 |
| Residents at my program are able to have an adequate work-life balance. | .11 | | |
| Disagree | | Reference | — |
| Agree or neutral | | 0.31 | 0.07-1.37 |
| Faculty and staff in my program care about my educational success. | .43 | | |
| Disagree | | Reference | — |
| Agree or neutral | | 0.53 | 0.11-2.59 |
| My program uses resident feedback constructively. | .03 | | |
| Disagree | | Reference | — |
| Agree or neutral | | 0.22 | 0.06-0.91 |
| Residents, faculty, nurses, therapists, dosimetrists and other staff work well together to serve patient needs. | .41 | | |
| Agree or neutral | | Reference | — |
| Disagree | | 0.41 | 0.06-0.91 |
| I often have a workload that results in significant stress. | .97 | | |
| Agree or neutral | | Reference | — |
| Disagree | | 1.02 | 0.28-4.30 |
| Married | .71 | | |
| No | | Reference | — |
| Yes | | 0.81 | 0.26-2.51 |
| Sex | .55 | | |
| Female | | Reference | — |
| Male | | 0.70 | 0.22-2.32 |
| Education debt | .91 | | |
| <\$200,000 | | Reference | — |
| ≥\$200,000 | | 0.94 | 0.29-2.82 |
| Hours at work | .71 | | |
| ≤60 h | | Reference | — |
| >60 h | | 0.79 | 0.22-2.64 |

Staff support

Approximately 1 in 5 residents (21.4%) did not believe patients received adequate nursing support. One-fifth (20.0%) did not believe that their institution provided adequate social worker support for patients. Most believed that they had adequate support from physics (92.1%) and dosimetry (85.6%).

Program selection

On binomial multivariable regression (Table 2), senior residents (postgraduate year 5) were more likely to say

that they would have chosen a different residency program if given the chance (OR: 6.68; 95% CI, 2.20-22.4). In contrast, residents who reported constructive use of resident feedback by the residency program (OR: 0.22; 95% CI, 0.06-0.91) were more satisfied with their program choice.

Discussion

Residents were more likely to regret their choice of RO residency program if they were seniors. Figure 1 shows a pattern of increasing dissatisfaction with increasing

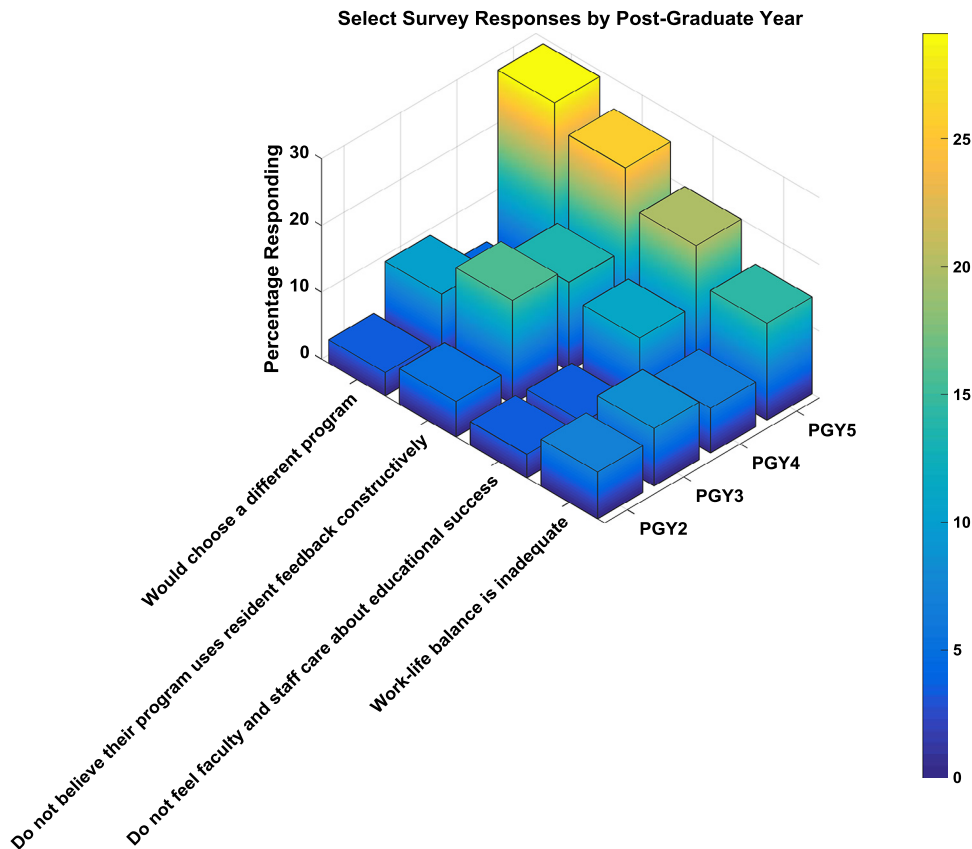


Figure 1 Results of select survey responses according to post-graduate level.

postgraduate year. Almost 1 in 3 seniors (29.1%) would not choose the same training program again.

In addition to examinations and clinical and family responsibilities, senior residents are uniquely faced with the responsibility of securing employment for the upcoming year. Prior surveys have shown that recent graduates value help from their home institutions, such as faculty mentorship and willingness of faculty to call potential employers, when securing a job.⁷ The competitiveness of the job market has been the subject of recent reports in the literature,^{11,12} with some suggesting an oversupply of radiation oncologists,^{7,13-15} particularly in certain markets and geographic regions.¹⁶ Future studies should evaluate the hypotheses that job search pressure increases senior resident dissatisfaction and increased program support for the job application process will reduce program dissatisfaction.

Notably, when using \$200,000 as a binary cutoff, no association was found between residency program satisfaction and debt. A large minority of residents reported <\$50,000 of debt. Prior studies have shown that U.S medical graduates pursuing RO have less debt than the majority of their counterparts who pursue other specialties.¹⁷ This may be a result of the large proportion of residents in RO with a PhD; they may receive funding for medical school tuition through a fellowship tied to their PhD.

The American Medical Association has developed a mini-Z burnout survey¹⁸ to determine workplace stress levels

and professional satisfaction. Internal program satisfaction surveys such as this may guide training programs to implement interventions that are aimed at increasing job satisfaction and reducing burnout. A culture of using resident feedback constructively was associated with positive sentiments toward the program. Notably, this protective effect was true after controlling for work environment factors, such as hours/days worked and available resources. Solicitation of periodic feedback with incorporation into residency training may improve program satisfaction.

Although recent trends show stagnant or decreasing female representation in RO residency training with an unclear etiology,¹⁹ we did not find an association with sex and program dissatisfaction.

This study is not without limitations. The survey response rate was 29.3%; the Accreditation Council for Graduate Medical Education resident survey response rate >90%. Response bias may have skewed the results toward dissatisfied residents. However, the distribution by post-graduate year was almost evenly distributed, with seniors making up 25.6% of respondents; 32.1% of respondents were women, mirroring the distribution in RO.¹⁹ A potential confounder is how anonymous the respondents felt the survey was; responses may have been tempered if a respondent was concerned about lack of anonymity. In addition, the survey may have produced different results if distributed later in the year, presumably at a time when

many senior residents have secured jobs. Future research may consider examining whether these responses remain constant after graduation by administering similar questions 1 year postgraduation. Even though our survey assessed whether dissatisfied residents would have preferred another RO program, the survey did not assess whether they would have chosen a different specialty altogether; this should also be explored further.

Conclusions

Most RO residents reported an adequate work-life balance and satisfaction with their choice of residency program. However, seniors were more likely to report dissatisfaction with their program. Despite underrepresentation in the field, women in RO training programs were no more likely than their male counterparts to report dissatisfaction with training. Improved evaluation of potential areas for program improvement could increase program satisfaction. Increased support during the interviewing/job application process may mitigate the higher rates of dissatisfaction among seniors.

Supplementary data

Supplementary material for this article (<https://doi.org/10.1016/j.adro.2018.03.003>) can be found at www.practicalradonc.org.

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