



Association for Surgical Education

It depends on your perspective: Resident satisfaction with operative experience



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ABSTRACT

Introduction: Resident satisfaction is a key performance metric for surgery programs; we studied factors influencing resident satisfaction in operative cases, and the concordance of faculty and resident perceptions on these factors.

Methods: Resident and faculty were separately queried on satisfaction immediately following operative cases. Statistical significance of the associations between resident and faculty satisfaction and case-related factors were tested by Chi-square or Fisher's exact test.

Results: Residents and faculty were very satisfied in 56/87 (64%) and 36/87 (41%) of cases respectively. Resident satisfaction was associated with their perceived role as surgeon ($p < 0.04$), performing $>50\%$ of the case ($p < 0.01$), autonomy ($p < 0.03$), and PGY year 4–5 ($p < 0.02$). Faculty taking over the case was associated with both resident and faculty dissatisfaction. Faculty satisfaction was associated with resident preparation ($p < 0.01$), faculty perception of resident autonomy ($p < 0.01$), and faculty familiarity with resident's skills ($p < 0.01$).

Conclusions: Resident and faculty satisfaction are associated with the resident's competent performance of the case, suggesting interventions to optimize resident preparation for a case or faculty's ability to facilitate resident autonomy will improve satisfaction with OR experience.

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1. Introduction

There is little dispute that the context of surgical education has changed significantly over the past 20 years. This and other factors beyond the training environment have contributed to concerns over a shortage of general surgeons for the future.^{1,2} It is estimated that between 2009 and 2028 the overall supply of general surgeons will decrease by 18%.² This anticipated shortage and the currently relatively high attrition rate in general surgery residency programs is concerning. General surgery has a higher resident attrition rate than both other surgical and non-surgical specialties^{3–6} with an estimated that annual attrition rate of 2%,⁷ and a cumulative attrition rate of 17–20% over the course of training;^{7–10} with more recent data estimating that 1 in 5 categorical general surgery residents will not complete their training.¹⁰ In light of this, surgical programs are working towards not only attracting surgical

residents, but retaining them as well. One approach to help resolve the attrition problem was revealed in the 2008–2009 ACGME NEARS survey, which reported that one that one factor predictive of resident attrition was dissatisfaction with operative experience.¹¹

Not only does increased resident satisfaction potentially improve retention rates for general surgery programs, but it may also improve performance and productivity. Despite extensive study in areas outside of medicine,^{12,13} there remains some controversy as to whether productivity produces satisfaction or vice versa; however, there is adequate support for the idea that in order for learning to be sustained, it must happen within the appropriate supportive learning environment.¹⁴ In correlating the optimal learning environment to accreditation length, residents in programs with longer cycle lengths for accreditation comment more frequently about procedures they performed ($p < 0.04$) and more frequently made comments such as “lots of hands-on experience in the OR” compared to residents in programs with shorter cycle lengths.¹⁵ Moreover, the importance of resident satisfaction is emphasized as a key performance metric with programs facing scrutiny and even citation when faced with poor results on the

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annual ACGME resident survey.

Despite the evidence that resident operative satisfaction is important to retaining and training surgery residents, there is little research evaluating the factors that contribute to their satisfaction. Our study aimed to evaluate resident satisfaction with operative involvement and to quantitatively identify what factors are associated with increased satisfaction for both faculty and residents. We hypothesized that residents who were given more autonomy would have greater levels of satisfaction, and that satisfaction would increase with post-graduate year (PGY) level. Our goal is that by identifying specific factors associated with satisfaction, we can improve resident operative experience and provide an environment that is productive and sustainable.

2. Methods

The Biomedical Institutional Review Board at the University of Texas Medical Branch-Galveston approved this study. Participants were recruited from the faculty and residents in the Department of Surgery at the University of Texas Medical Branch and asked to complete surveys after each operative case. Participation in the surveys were voluntary and without compensation. All faculty members within the Department of Surgery were eligible for participation in the project including subspecialties such as pediatric surgery, cardiothoracic surgery, and vascular surgery. All residents on the general surgery services were eligible, including non-categorical interns.

2.1. Survey design

The survey instrument was developed by a team of residents and faculty physicians in conjunction with a PhD educator, and based on literature reviews,^{16–35} and informal focus groups. The survey was designed to evaluate resident and faculty satisfaction with operative experience, as well as evaluate the potential relationships between resident satisfaction, participation, and factors such as faculty surgeon experience and resident skill level.^{28,31,33} An initial 18-question survey was piloted with a small group of residents and faculty to identify problems with question wording or interpretation of questions and answer choices. Subsequent revisions also underwent pilot testing. The final survey consisted of 15 questions for faculty and 16 questions for residents with a combination of “yes/no” questions, as well as rating scales and short answer.

Demographic data obtained from faculty surgeons included number of years post-training, the case performed, and the approximate number of times they had performed the case previously since completing their training. Residents were asked similar demographic information including PGY level, the case performed, and number of times they had performed this case previously. In addition, faculty and residents were asked questions about their perception of the residents level of preparation, and faculty were asked to rate their comfort with the resident's operative skill level. Residents and faculty were also asked in a “yes/no” format whether or not they perceived that the resident acted autonomously, if they felt the faculty took over the case, and if there was a perceived time constraint on the case. Finally, residents and faculty were asked what percentage of the case they think the resident performed (defined as <25%, 25–50%, 50–75%, and >75%), and what the residents' role was in the case (defined as “first assistant”, “surgeon junior”, “surgeon chief”, or “teaching assistant” in keeping with the ACGME case log format). Upon completion of data collection, a list of all cases performed was created and distributed to two senior faculty members in both vascular and general surgery for categorization as basic versus complex with 100% agreement among

reviewers.

2.2. Outcomes

The primary outcome was resident satisfaction based on operative experience as evaluated by their response on a five point Likert-type scale from very unsatisfied to very satisfied. The secondary outcome was faculty satisfaction with resident performance. Satisfaction with operative participation was evaluated in relationship to the type of case performed (laparoscopic vs. open vs. endovascular), case complexity (basic vs. complex), perceptions of autonomy, preparation, experience, level of supervision, and role and percent of the case performed.

2.3. Survey administration

Study personnel administered parallel versions of the survey to residents and faculty individually, immediately following every eligible case during a three-week period from July 21 to August 5, 2015. Cases were considered eligible if the faculty performing the case had volunteered to participate in the survey, and if there was at least one resident participating in the surgery. Surveys were de-identified, and coded with matching numeric identifiers to facilitate evaluation of data by operative case.

2.4. Analysis

Data were compiled and compared for intra-case agreement between residents and faculty concerning their satisfaction in the case as well as perceptions of autonomy. The rating of “very satisfied” on the Likert scale was used as the marker for satisfaction, and the information from the cases where residents or faculty rated themselves as “very satisfied” were compared to the remaining cases. Descriptive statistics were performed. Chi-square was used to evaluate both resident and faculty satisfaction with categorical variables: operative type (open vs. laparoscopic vs. endovascular), case complexity (basic vs. complex), PGY year (PGY1–3 and PGY 4–5), resident perception of time constraint (yes/no), resident and faculty perceptions of resident preparation (3-well prepared vs. 1-unprepared and 2-prepared), autonomy (yes/no), and whether or not faculty took over the case (yes/no), as well as percent of the case performed (<50% vs. >50%), resident role (surgeon chief/junior vs. first assistant), and finally faculty knowledge of resident skill (1-not comfortable through 3-moderately comfortable vs. 4 and 5-extremely comfortable). Bivariate analysis was also used to evaluate faculty satisfaction with the following variables: operative type, case complexity, PGY year, faculty perception of time constraint, percent of the case performed, resident perception of role, faculty comfort with resident skill, faculty experience (<10 years experience vs. \geq 10 years experience), and finally both resident and faculty perceptions of resident preparation, autonomy, and whether or not the faculty took over the case. Significance was set at p -value ≤ 0.05 . All statistical analysis was performed with SAS 9.4. (Cary, NC).

3. Results

Of the 187 cases performed during the study period by faculty members in the Department of Surgery during the study period, 113 cases met eligibility criteria. We collected matched resident and faculty data for 87 cases (77% response rate), for a total of 174 surveys. Thirteen of our twenty faculty members participated in the study.

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