

The Gender Gap in a Surgical Subspecialty

Analysis of Career and Lifestyle Factors

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Background: Although the percentage of women in surgical subspecialties is increasing, little is known about the experiences of these women compared with their male counterparts.

Objective: To identify career and lifestyle factors that distinguish female otolaryngologists.

Design, Setting, and Participants: Otolaryngologists were asked to respond to a confidential 119-item questionnaire. The instrument was sent to all 502 female members of the American Academy of Otolaryngology–Head and Neck Surgery who had finished their residency training and were practicing medicine. For response comparison, the survey was mailed to 2 male otolaryngologists who were matched to each female survey recipient for years since completion of training, geographic region, and practice type.

Results: Of the 673 respondents (52.6% response rate),

women were more likely to be divorced or separated ($P = .001$) and have fewer children ($P < .001$). In contrast to men, women reduced their work hours in conjunction with having more children ($P < .001$). Controlling for professional hours and hours spent in the operating room per week, type of practice, and years since completion of residency, women earned 15% to 20% less per year than men ($P < .001$). Men relied more on their spouse or partner for household responsibilities and child care ($P < .001$), and 34.3% of the women (compared with 7.1% of the men) spent 21 to 40 h/wk on household management ($P < .001$).

Conclusion: Although male and female otolaryngologists receive equal training opportunities, women earn less money for performing similar jobs and have increased family responsibilities, which may effect their career advancement.

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OTOLARYNGOLOGY, LIKE most surgical fields, has traditionally been a male-dominated profession. As the numbers of women entering medical school have increased, the percentages of women general and subspecialty surgeons have likewise risen. The professional and personal experiences of these women will influence physicians in training through their effect as role models and serve to define the surgical workforce of the 21st century. Thirty-one articles in the English literature since 1966 have reported on various aspects of women in surgical fields.¹⁻³¹ Most of these represent position papers and editorial perspectives. Six studies restricted their surveys to women surgeons.^{15-18,24,29} Two reports directly compared female surgeons with their male colleagues.^{23,28} However, in both of these studies, the women surgeons surveyed were significantly younger than the men.^{23,28} Because several important mark-

ers of professional success and satisfaction correlate with years of practice, we designed a study of male and female otolaryngologists that controlled for differences in years and type of practice, to elucidate their distinctive career and lifestyle experiences.

METHODS

IDENTIFICATION OF FEMALE AND MALE OTOLARYNGOLOGISTS

The names, addresses, and gender of all subjects were obtained from the American Academy of Otolaryngology–Head and Neck Surgery (AAO-HNS) in the spring of 1998. No organizational membership requirements were identified that could contribute to a selection bias. All practicing female members of the AAO-HNS who had completed their residency training were considered eligible for the study. A target list of survey recipients was constructed from all female otolaryngologists and 2 matched male otolaryngologists. Male phy-

Table 1. Comparison of Survey Responders With Nonresponders Based on American Academy of Otolaryngology–Head and Neck Surgery 2002 Membership List*

Characteristic	Response (n = 673)	Nonresponse (n = 606)	P Value
Female	36.7	37.0	.93
Median age, y	41	41	.29
Academic practice	20.5	10.4	<.001
Board certified	94.2	86.8	<.001
Median year completed residency	1989	1989	.27
Geographic location			
New England	5.0	4.7	.84
Mid Atlantic	14.6	11.6	
South Atlantic	18.6	20.6	
North Central	22.8	22.7	
South Central	15.7	16.3	
Mountain	5.8	6.0	
Pacific	17.6	18.2	

*Data are given as percentages unless otherwise indicated.

sicians were matched with female physicians according to time since completion of training (± 5 years), practice type (academic, solo practice, or group practice), and geographic practice location (taking into account the region of country, eg, Northeast, South, Midwest, and West, and the population density as determined by the 1990 US Bureau of the Census). The target group of eligible participants consisted of 502 women and 1004 men. All subjects were asked to complete a written, anonymous survey addressing career and lifestyle issues specific to otolaryngology.

DESIGN OF THE QUESTIONNAIRE

The questionnaire was based on one previously used in a Canadian study¹⁶ of women surgeons. This instrument was expanded and modified to develop an otolaryngology-specific 119-item questionnaire for the present study. In addition to collecting demographic information from each physician, the questions covered the following 6 areas: (1) achievements and encouragement or support throughout medical school and surgical training; (2) current professional activities, including academic rank, tenure, and annual income; (3) childbearing experiences and household or child-rearing responsibilities; (4) satisfaction with career and home life; (5) role model issues; and (6) personal experiences with gender, race, or religion discrimination and sexual harassment. Responses were in the form of answers to yes or no questions, 4- to 6-point Likert scales, rank orders, and percentages of effort.

ADMINISTRATION OF THE QUESTIONNAIRE

Of 1506 otolaryngologists who were mailed surveys, 73 forms were returned with no forwarding address, leaving 1433 surveys that were presumably received. Of these, 709 otolaryngologists (49.5%) completed the questionnaire. On subsequent validation in 2002 of AAO-HNS membership, 36 responders were rejected, leaving 673 valid surveys for analysis. One hundred seventeen of the nonresponders were also rejected, leaving 606 survey recipients with verifiable AAO-HNS data to compare with the responses. The final validated response rate was 52.6%. The questionnaire was initially sent with an introductory letter to all members of the study population in June of 1998. An additional mailing of the question-

naire with a reminder to nonresponders was performed in August 1998 and again in March 1999. Questionnaire coding protected confidentiality. All responses were entered anonymously into a computerized database by one of us (S.D.D.) and verified by another (L.M.).

STATISTICAL ANALYSIS

Methods of categorical or ordinal data analysis were applied as appropriate. For a binary response variable, Fisher exact test was applied to individual 2×2 tables. Ordinal or ranked responses were tested with the Wilcoxon rank sum test. Stratified 2×2 tables were combined across strata after testing for the homogeneity of the odds ratio. Categorical tables larger than 2×2 were analyzed with the χ^2 test. Ordinal categorical response variables were analyzed for the influence of more than 1 predictor by the use of proportional odds models.³² This applied to questions that elicited a continuum of responses with an implicit ordering (eg, "strongly agree," "agree," "neutral," "disagree," or "strongly disagree"). Response categories with few occurrences were amalgamated before modeling. In all cases, the proportional odds assumption was tested by a score test for equality of regression coefficients. In the case of income, for which the response categories approximated the actual numeric values, a mean response model³³ for income was fit with weighted least squares by using the income midpoint of each response category as the class weight (eg, the category \$200 000 to \$250 000 was represented by the midpoint \$225 000). Gender differences in income were adjusted for hours worked, hours in the operating room, practice type, and time since completing residency.

The characteristics of survey respondents were compared with those of nonrespondents based on membership information on file with the AAO-HNS. These data, on nearly all US otolaryngologists, included address, type of practice, board certification, years since medical school and residency, age, and gender. Group comparisons by geographic location were based on the comparison of proportions of members residing in each of 7 regions defined by the AAO-HNS in their 2002 Socioeconomic Survey³⁴ of otolaryngologists. Percentages used to characterize responses to a survey question as used throughout the text and tables are percentages of the number of answers to the specific question and not necessarily of the total number of surveys completed.

RESULTS

CHARACTERISTICS OF THE RESPONSE COHORT

Women comprised 36.7% of the 673 respondents, thus matching the 1:2 ratio of women to men in the original mailing list. Respondents tended to be married (84.7%), have 1 or more children (77.6%), practice in a nonacademic setting (81.6%), and have finished their residency recently (95.7% since 1980 and 51.1% since 1989). Most reported working an average of 41 to 60 h/wk (57.4%) and spending fewer than 12 of those working hours in the operating room (57.5%). Almost all (94.2%) were board certified. Thirty-three percent (33.5%) reported having pursued additional fellowship training, and 18.4% held an academic position at the time of the survey. Compared with the nonrespondents, the respondents were similar in terms of age, gender, and geographic region as defined by the AAO-HNS in their 2002 survey of incomes by region (**Table 1**). Men and women responded in the same proportions (52.8% of men vs

52.3% for women, $\chi^2 P = .932$). According to AAO-HNS membership information, responders were similar to non-responders in length of time since completing training, with the median year of residency graduation in 1989 for both groups. Physicians in an academic practice setting were more likely to respond to the survey than nonacademic practitioners (63.9% vs 50.6%, $P < .001$), as were board-certified physicians (54.7% board certified vs 32.8% not board certified, $P < .001$).

DEMOGRAPHIC CHARACTERISTICS

Eighty percent (80.4%) of female otolaryngologists were married at the time of the survey, compared with 87.3% of men. Women were more likely to be divorced than male otolaryngologists (8.6% vs 2.9%, $P = .001$). Men (among those who were spouses or partners) had more children (mean, 3.0 vs 2.4; $P < .001$) and were less likely to be childless than women ($P < .001$) (**Table 2**). Almost 42% (41.8%) of women otolaryngologists reported marrying another physician, compared with 13.6% of men ($P < .001$). Female otolaryngologists were more likely to believe that a spouse or partner expected his career advancement to take priority over their own (13.7% vs 2.6%, $P < .001$). This contrast was unchanged if the spouse was also a physician or a surgeon.

EDUCATION AND TRAINING

There were no statistically significant differences between the 246 women and the 427 men with respect to medical school class rank, frequency of obtaining first choice of residency, or receipt of additional advanced degrees (master's or PhD) (**Table 3**). Women tended to pursue longer residencies, with 45.5% training for 5 years or more compared with 34.6% for men ($P = .005$). Slightly more men (38.5% vs 31.0%, $P = .054$) pursued subspecialty fellowship training. The type of fellowship differed by gender, with women more likely to select pediatric otolaryngology fellowship training, while men more often obtained fellowship training in plastic surgery ($P < .001$). Although more than 90% of men and women stated that they were happy with the decision, a substantial minority (4.5%) of women otolaryngologists were more likely to report that, if they had it to do over again, they would choose a nonsurgical specialty ($P = .001$). This was significantly greater than the 0.7% of men who replied similarly. When asked about the support and encouragement from colleagues and family members during their training, men and women reported the same proportions with positive support (96.7% for women and 96.5% for men). Men and women also reported the same median levels of people providing support ($P = .733$) and responded with almost identical scores on a support scale with -2 for no support and 2 for substantial support (0.85 vs 0.82, $P = .155$).

PROFESSIONAL ACTIVITIES AND CAREER SUCCESS

Men and women otolaryngologists were similar with respect to their practice type (**Table 4**), hospital affilia-

Table 2. Respondent Demographics*

Demographic	Women (n = 246)	Men (n = 427)	P Value
Median age, y	41	41	.21
Martial status			Referent
Married	80.4	87.3	.20
Single	8.6	6.2	.001
Divorced	8.6	2.9	.001
No. of children			
Mean	2.4	3.0	<.001
Without children	30.1	17.5	<.001
Spouse a physician	41.8	13.6	<.001
Geographic location			
New England	5.2	4.8	.72
Mid Atlantic	15.6	14.0	
South Atlantic	14.8	20.8	
North Central	24.4	22.0	
South Central	16.1	15.5	
Mountain	5.6	5.8	
Pacific	18.3	17.2	

*Data are given as percentages unless otherwise indicated.

Table 3. Education and Training*

Education	Women (n = 246)	Men (n = 427)	P Value
Graduated upper 10% of medical school class	51.7	51.0	.88
With first choice of residency	69.1	70.9	.63
Median years of residency	3.6	3.4	.002
Residency ≥ 5 years	45.5	34.6	.005
Fellowship	31.0	38.5	.054
Type of fellowship†			
Otology	18.4	25.8	<.001
Head and neck	15.8	22.7	
Pediatric	39.5	11.7	
Facial plastic surgery	6.6	28.8	
Advanced degree (master's or PhD)	17.6	13.3	.31
Board certified in otolaryngology	96.7	97.4	.91

*Data are given as percentages.

†Of 254 applicable responses.

tion (university, university affiliated, or community), or receipt of board certification in otolaryngology. Of the 151 respondents with full-time academic appointments, men and women were similar in faculty rank, awarding of tenure, and appointment on the tenure track (**Table 5**). The 15.0% of women academic otolaryngologists who reported that they were not promoted fairly did not differ significantly from the 8.8% of men who responded similarly ($P = .300$). Male academic otolaryngologists had more peer-reviewed publications than women ($P = .003$) after adjusting for university rank.

In characterizing their workweek, there was no gender difference in the average number of hours spent on work-related activities while at home or the percentage of time spent on patient care, teaching, research, or administration. Male otolaryngologists reported a higher frequency of longer professional hours worked per week (33.2% of men compared with 23.7% of women worked

Table 4. Professional Activities and Career*

Professional Activity	Women (n = 246)	Men (n = 427)	P Value
Practice type			
Academic (full time)	24.4	21.3	.39
Other	75.6	78.7	
Board certified in otolaryngology	96.7	97.4	.91
Year completed residency			
Before 1980	3.3	5.0	.07
1980-1989	39.9	47.2	
1990-1999	56.8	47.9	
Hospital affiliation			
University	20.9	21.3	.39
University affiliated	19.7	15.9	
Community	55.3	60.2	
Professional hours per week			
0-40	15.8	11.2	.01
41-60	60.6	55.5	
61-80	22.0	28.1	
≥81	1.6	5.2	
Time devoted to			
Patient care	78.6	79.8	.70
Teaching	6.7	6.2	.23
Research	4.3	2.6	.35
Administration	6.6	8.6	.01
Hours operating per week			
0-12	63.0	54.3	.03
≥13	37.0	45.7	

*Data are given as percentages unless otherwise indicated.

Table 5. Academic Career Achievement*

Achievement	Women (n = 60)	Men (n = 91)	P Value
University rank			
Professor	6.7	9.9	.46
Associate professor	30.0	35.2	
Assistant professor	55.0	45.0	
Other	8.3	9.9	
Tenure track	39.9	47.2	.25
Awarded tenure	56.8	47.9	.29
Peer-reviewed articles published			
0	5.2	2.2	.003†
1-5	20.7	14.6	
6-15	44.8	24.7	
16-25	10.3	21.4	
>25	19.0	37.1	

*Data are given as percentages.

†Adjusted for university rank.

>60 h/wk, $P = .002$) and more time in the operating room (45.7% of men compared with 37.0% of women spent 13-24 h/wk performing surgery, $P = .033$).

To compare compensation, we constructed mean response models for income, controlling for practice type, number of professional hours worked per week, hours spent in the operating room per week, and years since completion of training. Among the 30.2% of respondents completing a fellowship, the type of fellowship had no effect on income ($P = .980$). As depicted in **Figure 1**, reported income rose predictably with increased hours worked, time devoted to practice, and time since com-

pleting training. Despite controlling for each of these effects on income, women earn, on average, \$40 000 less per year than men (approximately 20% less than the median income for men).

In academia, where income is more dependent on fixed salaries, we found gender differences in reported total income of otolaryngologists. Upon analyzing the reported income of 133 respondents with full-time academic appointments having the rank of assistant professor or higher, we found women earned \$35 000 less than men with the same faculty rank ($P < .001$ from a mean response model) (**Figure 2**). This discrepancy could not be explained by additional work, as professional hours per week ($P = .394$) and hours operating per week ($P = .488$) did not differ by gender among this academic cohort.

FAMILY AND HOUSEHOLD RESPONSIBILITIES

Male otolaryngologists were significantly more likely to identify their spouse or partner as having primary responsibility for running the household (49.2% vs 8.6%, $P < .001$). Correspondingly, female otolaryngologists spent more time per week on their household, with 34.3% (vs 7.1% of male otolaryngologists) reporting that they dedicated more than 20 h/wk to domestic activities ($P < .001$). For those otolaryngologists with children, women were more likely to have younger children at the time of the survey (66.7% of women vs 52.7% of men had children younger than 5 years, $P = .005$), have live-in child care ($P < .001$), and crafted a patchwork of child care arrangements that excluded their spouse or partner if at least 1 child was younger than 12 years (83.3% of women vs 24.3% of men, $P < .001$). By contrast, 75.6% of men vs 16.7% of women included their spouse or partner in organizing other arrangements for daily child care of children younger than 12 years. Men were also likely to report that their spouse or partner provided care for the children during evenings and weekends (66.7% of men vs 45.1% of women, $P < .001$) and noted that it was their spouse or partner who provided child care when a child had a minor illness (89.4% of men vs 14.1% of women, $P < .001$). Most male and female otolaryngologists with children reported that there were no opportunities for faculty members or residents to share jobs, and 45.6% of women believed that there was no formal maternity leave policy at their institutions.

Although women in our cohort reported working fewer hours than men, the women's work hours were more affected by the responsibilities of child rearing and running the household, whereas men were insulated from these responsibilities. By fitting a proportional odds model, we successfully predicted hours worked as a function of gender, number of children living at home, and practice type. There was a significant interaction between physician gender and number of children ($P < .001$). This interaction can be seen in **Figure 3**, in which the number of professional hours per week declines for women in proportion to the number of children. By contrast, men's work hours per week were independent of the number of children.

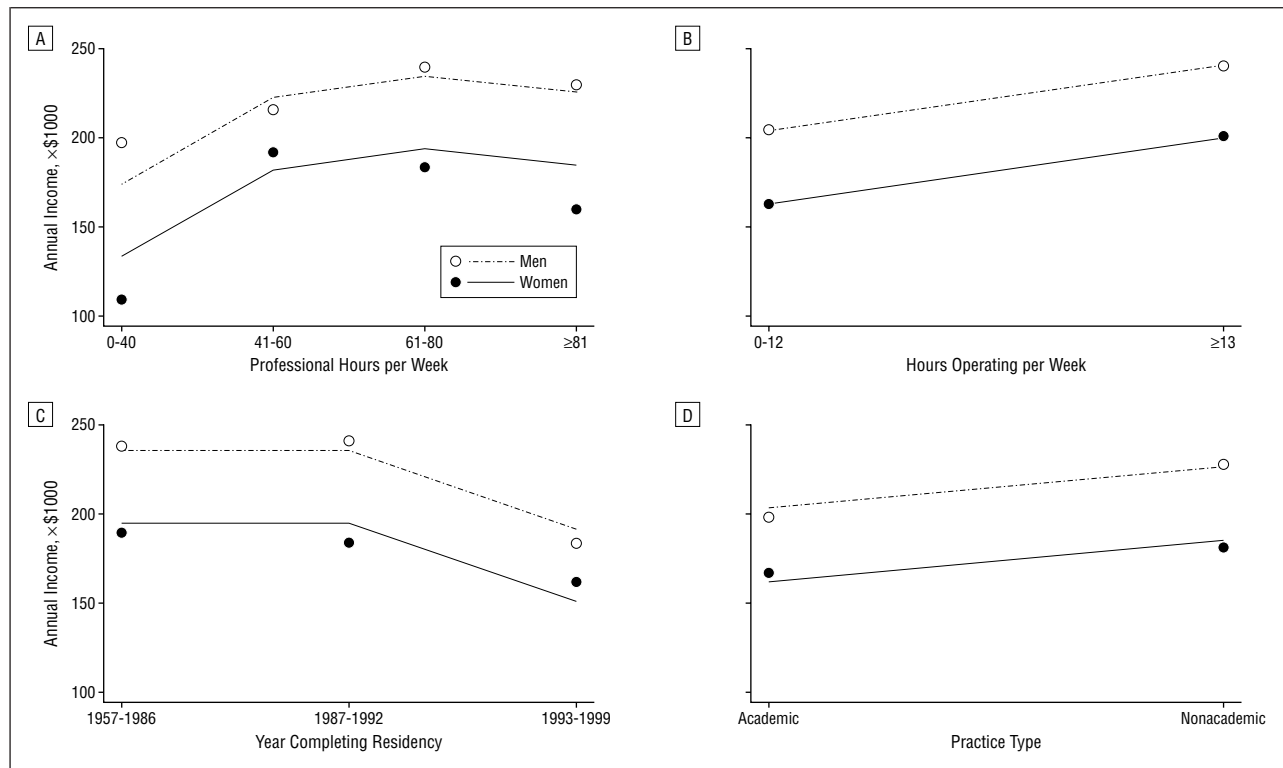


Figure 1. Inequity in income. After fitting the data to a mean response model, annual income was plotted by gender for (A) hours worked, (B) hours in surgery, (C) time since completing residency, and (D) type of practice. All factors were found to significantly affect income. Gender was significant after controlling for all other predictors ($P < .001$ for all). The mean income disparity for women was \$40 000 (approximately 20% less than the median income for men).

SATISFACTION WITH CAREER AND HOME LIFE

There was no gender gap with respect to satisfaction derived from family life, marriage, and personal health and physical condition. Women were more likely than men to report that their career interfered with their personal life ($P = .043$), with 30.6% of women claiming their career compromised their family or personal life “a great deal” or “a very great deal,” compared with 24.2% of men. The gender difference was greater for the perceived interference of personal life on career, with 11.6% of women claiming at least “a great deal” of interference, compared with 4.5% of men ($P = .002$). As an overall index of satisfaction, we asked respondents whether, if they had it to do over again, they would choose a nonmedical or nonsurgical career. Seventeen percent of respondents claimed they would choose a nonmedical career, with no difference by gender (15.5% of women vs 17.9% of men, $P = .53$). However, 8.3% of women and 2.2% of men reported they would choose a nonsurgical career ($P < .001$).

ROLE MODEL ISSUES

Female otolaryngologists differed from men in their response to the statement “women medical students need role models of successful women faculty members.” Women were more likely to “strongly agree” (57.2% vs 18.4%), and men were more likely to “strongly disagree” (3.8% vs 1.2%) ($P < .001$). Of 162 respondents with a female mentor (28.4% of those who answered the survey question), there was no significant gender difference in whether the female men-

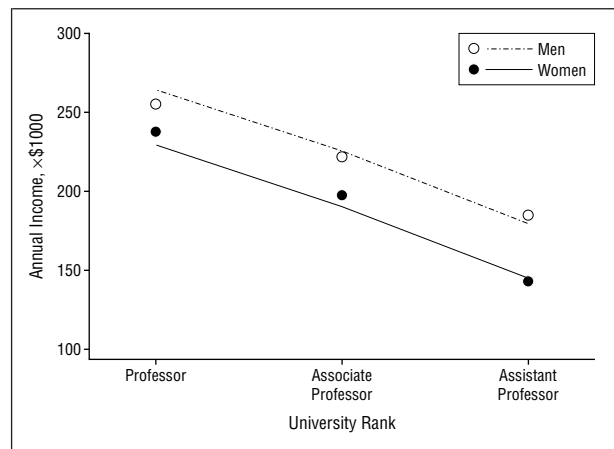


Figure 2. Academic income by rank and gender. Of 133 survey respondents having full-time academic appointments at the rank of assistant professor or higher, incomes rise with greater rank. However, at any academic rank, women earn from \$18 000 (professor) to \$42 000 (assistant professor) less than men. The mean gender difference for the cohort was \$35 000 ($P < .001$).

tor was a surgeon ($P = .100$). Among the 496 respondents choosing a male mentor, there was also no gender difference in whether the male mentor was a surgeon ($P = .410$). Male mentors were almost all surgeons (97.0%), while only 71.6% of female mentors were surgeons ($P < .001$). Sixty percent (60.2%) of respondents would unconditionally encourage men to pursue a career in surgery, and 44.8% would encourage women. There were no gender differences among those who would encourage either men or women ($P = .203$ and $P = .211$, respectively).

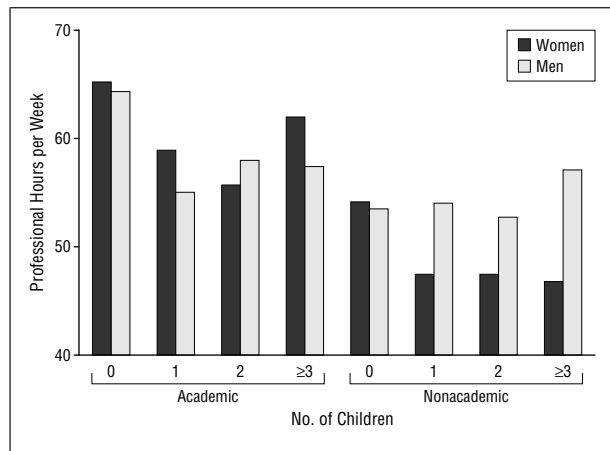


Figure 3. Number of children significantly affects professional work hours for women but not for men in nonacademic practice ($P < .001$). Practice type was also significant ($P < .001$), with work hours being significantly longer in academic practice compared with nonacademic practice.

DISCRIMINATION AND HARASSMENT

Women reported more discrimination on the basis of sex throughout all aspects of preparation for and practice of their careers. Women were more likely than men to perceive discrimination on the basis of sex in residency selection, during residency training, in fellowship selection, and throughout fellowship training ($P \leq .001$ for all). Male and female house staff, medical students, nurses, support staff, and patients contributed to these perceptions of discrimination. After completion of training, 19.9% of women otolaryngologists reported sexual harassment sometimes or frequently vs 4.7% of men ($P < .001$). Since completion of training, 31.4% of women vs 3.4% of men believed that discrimination on the basis of sex had hindered their career development or advancement ($P = .001$). Men were twice as likely to believe that their employer had a formal policy regarding grievances involving sexual discrimination or harassment ($P < .001$), regardless of whether such a policy existed, and of all those who believed a policy existed, men were almost 3 times more likely than women to be satisfied with this policy ($P < .001$).

COMMENT

Our study suggests that the experiences of female otolaryngologists differ from those of their male colleagues in important ways. In 5 of 6 areas explored in the study, we identified significant differences between men and women otolaryngologists that appear to affect their career and lifestyle: (1) current professional activities, including academic rank, tenure, and annual income; (2) childbearing experiences and household or child rearing responsibilities; (3) satisfaction with career and home life; (4) role model issues; and (5) personal experiences with gender, race, or religion discrimination and sexual harassment. Only in the area of achievements and encouragement or support did female and male otolaryngologists report comparable experiences. Despite being equally qualified as applicants to otolaryngology residencies and fellowships, women otolaryngologists ex-

perience less professional success as defined by salary. Women otolaryngologists earned approximately 20% less than men, after accounting for differences between men and women in hours worked, hours performing surgery, type of practice, and years since completion of training. In addition, the personal cost of this career choice for a woman appears to be higher than for a man, as reflected by the increased rates of divorce and separation, childlessness, and regret regarding the choice to pursue a surgical career.

The strengths of our study include the nationwide sampling of all female otolaryngologists, large number of respondents compared with prior gender comparison studies^{23,28} (3- to 7-fold increase), examination of potential response bias, and multivariate modeling techniques to control for confounding variables. In contrast to earlier surveys, male and female surgeons in this analysis were matched with respect to variables that may contribute to success and satisfaction in career and personal life. Because women represent a small proportion of the total number of practicing otolaryngologists (502/7627 [6.6%], according to the 2000 AAO-HNS database), the survey was mailed to all women who were members of the AAO-HNS and to 2 male academy members who were matched to the women on the basis of practice type, time since completion of residency, and geographic region. The intent of matching the mailing lists was to increase the likelihood that the men surveyed would constitute a comparable sample. In our study, survey respondents were more likely to have academic appointments and to be board certified. Practice type was a common control variable throughout our data analysis, so that any disproportionate effect of practice type on results would have been minimized. On the other hand, questions addressing academic issues may incorporate a small bias (and a reduced sample size because only 22% of respondents had a full-time academic position) to the extent that those who are unsatisfied or perceive gender issues may have been more likely to complete the questionnaire. Our results are similar to those from previous studies in cardiothoracic surgery²³ and plastic surgery,²⁸ which found that men and women surgeons were similar with respect to training and professional practice characteristics. The discrepancies between male and female surgeons in these earlier studies were focused on remuneration and promotion, perception of discrimination and harassment, and the balance of career and family.

Because physician compensation generally increases with years of practice, potential explanations for the salary discrepancies identified in prior reports centered on the difference in seniority between the men and women surveyed.^{23,28} We controlled for those variables that could explain differences in reported compensation, including (1) hours worked per week, (2) hours spent in the operating room per week, (3) subspecialty practice type, and (4) years since completion of training. Despite controlling for differences between the male and female otolaryngologist groups, men were found to earn significantly more than women performing the same work. This salary discrepancy was true for surgeons completing their training after 1995 and for those who started their practices or careers 20 years ago. Such a difference

in compensation among a highly trained group of surgeons is disappointing in light of the increased societal awareness compelling equal pay for equal work. Similar discrepancies have been reported in other fields of medicine. Despite the fact that women are less likely than men to pursue careers in invasive cardiology, the mean compensation for female invasive cardiologists dropped by 12% between 1997 and 1998, while the mean compensation for male invasive cardiologists increased by 1.3%.³⁵ A survey of recent trainees by the American College of Cardiology found that starting salaries for women were significantly lower than those for men.³⁶ Although the reasons for the lower income of female otolaryngologists are likely multifactorial, several reports suggest that women may view work differently than men, leading to disparate pay.³⁷⁻³⁹

In our study, 24% of the women and 21% of the men reported having full-time university appointments. Although men and women completed their training at the same time, had similar positions, and were promoted at the same rate, men earned \$33 000 more per year than women at the same academic rank. This difference could not be explained by men working longer hours or spending more time in the operating room, because (unlike their nonacademic colleagues) the professional hours worked were the same for men and women in academia. The observation that women in academic medicine are more likely to encounter career obstacles is not restricted to surgical subspecialties. Studies^{40,41} have reported on the disparities in the advancement of men and women on medical school faculties. In a review of all US medical school graduates during 15 years, although women were more likely than men to hold a faculty position at some time after graduation, women were less likely to advance from the junior to the senior ranks.³⁷ Our study was not confined to academic otolaryngologists (82% of the respondents reported being in a nonacademic setting). However, in the absence of an analogous promotion schema in private practice, useful information regarding gender distinctions can be gleaned from close examination of the academic subgroup. No differences were found, albeit in a smaller subsample, between male and female otolaryngologists with respect to several factors that may contribute to academic advancement, including appointment with tenure or being on the tenure track, awarding of advanced degrees, number of years spent engaged in research, fellowship training, and awarding of research grants. Men and women devoted similar efforts to patient care, teaching, research, and administration.

Although physicians share many similar concerns and characteristics, surgery represents a distinct specialty choice. Women remain underrepresented in surgical fields.⁴² The paucity of female role models in surgery, particularly in academic surgery, is cited as a potential explanation for why the rise in the number of female medical students has not translated into a corresponding increase in women surgeons.^{22,43} Twenty-seven percent of the women surgeons surveyed in the present study identified a female surgeon who served as a mentor and fostered their interest in a surgical career, compared with 77% of male otolaryngologists who identified a male surgeon as a mentor. Because women are sparsely represented on otolaryngology faculties, female medical students may find it difficult to iden-

tify mentors of the same gender in the field. The importance of mentors has also been identified in the career development of women in academic medicine. In a landmark study,³⁸ multifaceted interventions to correct gender-based career obstacles took place during 5 years in a single department of medicine, which led to a significant increase in the retention and promotion of junior female faculty members.

Although it may not be possible to directly extrapolate findings among otolaryngologists to all medical practitioners, the surgical subspecialties, including otolaryngology, have become increasingly popular among medical students. Competition for residency positions is among the most difficult, as illustrated by the 2002 Accreditation Council for Graduate Medical Education match in otolaryngology, in which 40% of those who registered secured residency spots. Therefore, students who match in otolaryngology represent a successful and talented medical school population. Overall, our study revealed that otolaryngologists of both sexes work hard and are happy with their professional and personal lives. However, close scrutiny of the gender-based differences reveals some important findings that have implications for the future of women in surgery. The personal price of a career in surgery, like other professional careers, appears to be higher for a woman. We found women more likely to remain unmarried or divorced and have fewer or no children compared with their male colleagues. Although we did not examine any direct association between career responsibilities and family demographics, women more commonly noted that their career compromised their family life and that their family life interfered with their career. Therefore, our observed gender differences in divorce rates and number of children may reflect the personal challenges women face. On the other hand, women perceive sexual harassment and discrimination on the basis of their gender throughout training and professional practice more than men. If a woman otolaryngologist has a family, her career may be limited by the job concerns of her spouse (ie, less flexibility in relocating) and the responsibilities of running a household. Women are less likely to be successful otolaryngologists as defined by several objective variables, including salary. Presently, there are no female chairs of otolaryngology departments in this country.

Despite the potential obstacles to a surgical career, the number of women entering surgery appears to be increasing. Although women constituted 6.6% of practicing otolaryngologists at the time of our study, 14% of otolaryngology trainees are women.⁴² Changes can be made in the culture of surgery to address these concerns, including implementing more flexible work opportunities such as job sharing, allowing for later starting times in the operating room, and scheduling conferences to avoid early morning and evening hours to optimize family time for working parents. If a high priority is placed on the inclusion of women in surgical training programs and on academic faculties, concrete measures should be implemented to recruit and retain talented women.

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