

Women in Radiology in the United States: 1982 Survey of Their Professional Practices

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In 1982, the American Association of Women Radiologists surveyed women radiologists practicing in the United States to acquire information concerning their training, practice patterns, lifestyles, and opinions about employment equity. This report summarizes the resulting data from 336 responses to the 1,700 questionnaires that were distributed. As would be expected with the increasing number of women currently graduating from medical school, women radiologists responding to the questionnaire are younger than the group of radiologists as a whole. However, geographic distribution and percentage of board certification (96%) are comparable for the two groups. Data from the survey indicate that at least 61% of women radiologists are involved in private practice and 39% in academic radiology. For all radiologists, the respective figures are 82% and 18%. Most women responding to the survey believed that their income was comparable to that of men in similar positions. On the other hand, 56% of respondents perceived inequities in the ability of women radiologists to secure desirable jobs.

In the academic year 1939–1940, 253 women accounted for 5.0% of the graduates of medical schools in the United States. Three decades later, in the academic year 1969–70, 700 women accounted for 8.4% of the graduates of these schools [1]. During the 1970s, there was a dramatic rise in the numbers of women enrolled in and graduating from our medical schools, and the Medical Student Information System of the Association of American Medical Colleges (AAMC) indicates that women made up 4,007 (25%) of the 16,012 graduating members of the class of 1982 (Turner K, personal communication).

According to a 1982 report of the American College of Radiology (ACR) Committee on Manpower ("Manpower III") [2], 2093 (about 12%) of the assumed 18,000 radiologists in the United States and Puerto Rico were women. With the current increase in the number of women graduating from medical school and entering residency training programs, it follows that the percentage of women in radiology is likely to rise dramatically in the next several decades. To learn more about both the experiences of women physicians now practicing radiology and the future opportunities for women currently training in that specialty, the American Association of Women Radiologists (AAWR) conducted a survey of women radiologists in the spring of 1982. It sought both demographic information about their practices and their opinions about the equities of their opportunities. We report the data and some thoughts about their implications.

Materials and Methods

We devised a four-page questionnaire (see Appendix) to acquire data on women practicing radiology in the United States. Information concerning training in radiology, current practice of radiology, and selected personal data was sought. In addition, opinions concerning equity of salary and ability to secure desirable jobs relative to male colleagues were requested.

We distributed questionnaires to all women physicians who could be identified as being involved in the practice of radiology (total 1700). Names and addresses were obtained from

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TABLE 1: Age Distribution of Radiologists

Age (years)	1982 AAWR Survey (%)	1982 ACR Manpower Survey (%)
Under 40	60	36
40-49	25	34
50-59	11	22
60+	4	8

TABLE 2: Geographic Distribution of Radiologists

Location of States	1982 AAWR Survey (%), n = 329	1978 ACR Data (%), n = 14,269
Middle Atlantic	24	20
East North Central	14	13
Pacific	14	18
South Atlantic	12	16
New England	12	8
West South Central	8	9
East South Central	7	5
West North Central	6	7
Mountain	3	5

a master list of women radiologists supplied by the American Medical Association (AMA) and by reviewing the rosters of the ACR and the Radiological Society of North America for typically female names. Our results are based on data from 336 questionnaires, which excludes responses from women involved in residency and fellowship training but includes women physicians involved in the practice of diagnostic and therapeutic radiology and nuclear medicine. These 336 responses represent a 20% return of the initial distribution of 1700 questionnaires. If the American Medical Association's 1981 figure of 2093 is used for the total number of women practicing radiology in our country [2], this sample of 336 represents 16% of that group. However, not all respondents answered every question in the survey, so in some instances, the results are based on fewer than 336 data.

Results

Table 1 shows the ages of women radiologists compared with recent data from the ACR for both men and women radiologists [2]. As a correlative finding, 77% of the respondents to the AAWR survey stated that they had completed their training in the years 1970-1982. Thus, as a group, women radiologists are younger than their male colleagues. Table 2 documents the geographic distribution of respondents to the survey according to the United States Census Divisions. This table also includes 1978 data for the geographic distribution of all radiologists reported in "Manpower III" [2].

Concerning board certification, 303 (96%) of 314 respondents are certified by the American Board of Radiology (ABR). This figure is comparable to that of 97% board-certified for radiologists studied in the ACR report "Manpower III" [2]. Of 298 women in the AAWR survey, 30 (10%) are certified by the American Board of Nuclear Medicine (ABNM). Twenty-seven women stated that they are certified by both the ABR and the ABNM. Fifty-eight percent stated that their ABR category of certification is diagnostic radiology; the second largest group (19%) is those certified in general radiology.

TABLE 3: 1982 AAWR Survey: Private Practice of Radiology

Practice	%, n = 205
Community/general hospital < 200 beds	13
Community/general hospital 200-499 beds	20
Community/general hospital > 500 beds	6
University-affiliated hospital	27
Office practice	12
Combined hospital/office practice	20
Retired	2

TABLE 4: Academic Radiology Appointment Level: Women vs. Men in Radiology

Academic Appointment	1982 AAWR Survey (%), n = 205	1981 AAMC Women (%), n = 333	1981 AAMC Men (%), n = 2407
Instructor	17	21	11
Assistant professor	52	51	39
Associate professor	23	21	24
Professor	8	7	26

Table 3 outlines the types of private practice in which 205 women radiologists are engaged. Of 165 women who responded concerning solo vs. group practice, 18% are involved in the former and 82% the latter. This is comparable to the 1980 study reported in "Manpower III" [2] where 15.1% of radiologists are in solo practice and 73.8% are in group practice. Since some women are engaged in a combination of both academic and private practice radiology and answered questions on both areas, it is not possible to formulate an accurate figure concerning the number of women radiologists in academic vs. private practice. If all women practicing in both academic and private practice are classified in the private practice category, then 61% are involved in private practice and 39% are involved in academic radiology. The current estimate of distribution between academic and private practice radiology for all radiologists is 18% and 82%, respectively (Riemenscheider PA, personal communication).

Table 4 summarizes and compares data concerning the level of appointment of women and men in academic radiology from both this AAWR survey and from the 1981 AAMC Faculty Roster data (Turner K, personal communication). Concerning tenure status, of 116 respondents, 42% of the academic radiologists were on a tenure track, 30% on a nontenure track, and 17% did not know whether they were on a tenure or nontenure track. Eleven percent stated that there is no tenure track at their institution. From the answers of 182 respondents, average percentages in allocation of time in academic radiology were: patient care, 56.1%; teaching, 26.3%; research, 9.3%; and administration, 7.0%.

It is of interest to include part of the personal data acquired on woman radiologists in this survey as it reflects, to some extent, "extracurricular" responsibilities. Of the respondents, 76% are married, 9% are divorced, 14% are single, and 1% are widowed. Of those women who are married, 11% are married to radiologists and 42% are married to other physicians. Of the remaining 46%, most are married to men with

professional careers. Of the married or divorced women, 75% have children (an average of 2.07 children per household). Concerning household help, 9% of the respondents employ live-in housekeepers. Full-time help is employed by 11% of the women and part-time help is employed by 41% of the women. A surprising 39% go without household help, and 50% of this group have children. Despite the aforementioned facts, of the 329 women replying to a question concerning time commitment to radiology, 82% work full-time and 18% part-time, with 14% part-time by choice.

Two questions in the AAWR survey were designed to elicit the opinions of the respondents concerning discrimination in the areas of financial remuneration of women radiologists and the ability of women radiologists to secure desirable jobs in their particular state.

Of the 336 women who answered the question concerning financial remuneration, 64% believed that their income was comparable to that of men in similar positions with the same academic rank or seniority and time commitment. Twenty-six percent of the respondents did not have adequate data to answer the question, and 10% believed that their income was not comparable to that of men in similar positions.

Although the minority of women perceived inequities in financial remuneration, the majority perceived inequities in the ability of women radiologists to secure desirable jobs. Of the 326 women answering this question, 56% perceived inequities, 31% did not perceive inequities, and 13% did not know. In their comments on possible job discrimination, many women indicated that the "possibility" of pregnancy and the demands of child rearing were often stated as impediments to employment. In general, the comments also reflected that jobs are much more difficult to obtain in private practice than in academic radiology and that subspecialty training helps women to compete more successfully with men.

Discussion

As the increasing percentage of women now graduating from United States medical schools complete their residency training, all specialties, including radiology, should anticipate a growing number of young women among their ranks. Indeed, one of the conclusions of "Manpower III" [2] was that "females constitute a significant and apparently growing proportion of radiologists and attention is required to identify and resolve any difficulties which interfere with the effective use of the knowledge, skill, and experience of the female radiologists." That this resource of expertise is not currently being used to its fullest is reflected in data recently compiled by Gooding [3] in her article "The Status of Women Radiologists: Membership on Editorial Boards and Participation in Upper Echelons of Radiologic Societies." She found that, even with consideration of the present ratio of female to male radiologists, women are vastly underrepresented in the categories studied.

One of the first steps in better integrating women into the practice of radiology is to acquire data with respect to their training, type of practice, and personal responsibilities. This survey is an attempt to begin collecting such data. Since

questionnaires were sent to all women physicians who could be identified as currently practicing radiology, a random sample was not sought. Whether the 336 respondents to this survey are well representative of women radiologists as a whole is a question that is impossible to answer. Several factors may have influenced whether or not responses to the questionnaire were returned. For example, perhaps those who are most interested in women's concerns or those who wished to express a perceived act of discrimination were more likely to respond. In addition to this sampling problem, the study suffers from the lack of similar data on a comparable group of male radiologists. Where possible, such data have been included from other sources.

Since, during the last decade, women have made up increasingly larger percentages of the graduating classes of our medical schools, it is expected that women radiologists would tend to be younger than radiologists as a whole. The information in table 1 verifies this. In addition, there is no reason to expect that the geographic distribution of women radiologists should be different from that of their male colleagues. Again the survey tends to confirm this assumption, with only relatively minor differences (table 2). It is also of interest to see from the survey data that board certification of the women respondents is comparable in percentage to that of the radiologists studied in "Manpower III" [2].

This survey conservatively estimates that 61% of practicing women radiologists are in private practice and 39% are in academic radiology. Comparison percentages for both men and women from the 1982 ACR manpower survey [2] are 82% and 18%, respectively. A possible explanation of the larger numbers of women in academic radiology is that they prefer the salaried positions that this field offers. However, salaried positions are also available in private practice. Could the difference be related to less discrimination or more "equal opportunity employers" in the academic sphere? Other possibilities are that academic groups are more flexible in their work arrangements or that women radiologists are more interested in teaching or research than their male colleagues. A significant factor could be personal financial constraints. Since 76% of respondents to this survey are married and, therefore, are likely to be second wage earners in a family unit, the pressure to find a more lucrative position in private practice may be much less than for their male colleagues.

Of those women radiologists who are in academic radiology, larger percentages than their male counterparts are at the lowest rank of instructor, while still fewer are at the highest rank of professor. This may, in large part, be because women in radiology are, as a group, younger than their male colleagues. In addition, it has been frequently cited that women tend to rise more slowly in the academic ranks because of the pressure of their personal responsibilities, such as family and home. The fact that 17% of 116 of our respondents did not know what type of tenure track they are on is surprising and indicates a certain degree of naivete on the part of women radiologists that may certainly affect their rate of progression on the academic ladder. On the other hand, it has not been disproven that this difference in academic rank is, at least in part, based on discriminatory practices.

It is encouraging that 64% of respondents to the AAWR

survey believed that their income was comparable to that of their male colleagues and that only 10% did not. Twenty-six percent, or greater than a quarter of the respondents, did not have adequate data to answer the question.

Finally, it is of concern that 56% of the respondents perceived inequities in the ability of women radiologists to secure desirable jobs in the field of radiology. Such a "perception" is always difficult to prove, and the recent data acquired by the ACR Committee on Manpower would tend to refute it [2]. "Manpower III" data indicate that female radiologists, compared with all radiologists certified in 1976-1979, were equal concerning number of job offers, geographic and practice satisfaction, and percentage whose first practice was their first choice.

This area of perceived inequity should probably be studied further using matched groups of men and women finishing their training in radiology. Certainly one should hope that, as larger numbers of women come into radiology with skills in all its subspecialties, whatever inequities that might now exist will disappear, even in the face of increasing competition for the available jobs.

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Appendix

American Association of Women Radiologists Questionnaire 1982

I. Personal Data

- A. Name _____
Address _____

Telephone Number _____ (Home)
_____ (Work)
- B. Age _____
- C. Marital Status
Single _____ Divorced _____ Live-in _____
Married _____ Widowed _____
- D. Number of persons in your household _____
- E. Number of children _____
- F. Ages of children _____, _____, _____, _____, _____

- G. Husband's occupation
Radiologist _____ Other physician _____
Other (please specify) _____
- H. Do you have household help?
Live-in _____ Part time _____
Full time _____ None _____

II. Training in Radiology

- A. What year did you complete your residency training in Radiology? _____
- B. Have you been certified by the American Board of Radiology? _____
- C. Have you been certified by the American Board of Nuclear Medicine? _____
- D. Do you have any other board certification? If so, please specify. _____
- E. If you are certified by the American Board of Radiology or Nuclear Medicine, please check the category in which you are certified.
General Radiology _____
Diagnostic Radiology _____
Diagnostic Radiology with competence in Nuclear Medicine _____
Nuclear Medicine _____
Therapeutic Radiology _____

III. Present Practice of Radiology

- Private Practice of Radiology*
- A. If you are engaged in the private practice of Radiology, please check the one category which best describes your practice.
Community or general hospital, less than 200 beds _____
Community or general hospital, 200-499 beds _____
Community or general hospital, 500 or more beds _____
University-affiliated hospital _____
Office practice _____
Combined hospital/office practice _____
- B. Are you involved in solo or group practice?
Solo private practice _____
Group private practice (please specify number in group) _____
- C. What is your status in the group?
Full partner _____
Progressing toward full partnership in the usual fashion _____
Salaried _____

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Academic Radiology

A. If you are engaged in the academic practice of Radiology, please check your level of appointment.

Instructor _____ Associate Professor _____
Assistant Professor _____ Full Professor _____

B. How long have you been at your present rank? _____

C. Do you hold any dual appointments? _____ If so, please specify the other department _____

D. Are you on a tenure or non-tenure track?

Tenure track _____ No tenure track at this institution _____
Non-tenure track _____ Don't know _____

E. If you are engaged in the academic practice of Radiology, please check your area of expertise below (check more than one if applicable)

Chest _____ Neuroradiology _____
Bone _____ Pediatric radiology _____
Gastrointestinal _____ Nuclear Medicine _____
Head and neck _____ Ultrasound _____
Cardiovascular _____ Computed tomography _____
General angiography _____ General radiology _____
Radiation therapy _____ Other _____

F. If you are engaged in the academic practice of Radiology, please note below the percentage of time spent in each of the following:

Research _____ Patient care _____
Teaching _____ Administration _____

IV. Other Professional Data

A. What is your time commitment to the practice of Radiology?

Full time _____ Part time _____
Part time by choice (specify hours) _____

B. Do you take night call?

Weekday evenings _____ Weekends _____
Weekday evenings and weekends _____

C. What is your yearly income from the practice of Radiology?

Under \$20,000 _____ \$65,000-80,000 _____
\$20,000-35,000 _____ \$80,000-95,000 _____
\$35,000-50,000 _____ \$95,000-110,000 _____
\$50,000-65,000 _____ Over \$110,000 _____

D. Is your income comparable to that of men in similar positions and with the same academic rank, seniority, and time commitment?

Yes _____ No _____ Don't know _____

Comments _____

E. Do you perceive inequities in the ability of women radiologists to secure desirable jobs in your state?

Yes _____ No _____

Comments _____

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