Studying the impact of women on osteopathic physician workforce predictions

MARTHA A. SIMPSON, DO, RN
MICHAEL A. WEISER, BFA

Women have been entering the physician workforce in ever-increasing numbers since the 1970s, and women are expected to reach numeric parity with men early in the next century. In an effort to predict changes in the physician workforce, analysts have relied primarily on data collected in the allopathic medical profession. Documented differences in practice characteristics between osteopathic and allopathic physicians make current workforce projections—based heavily on assumptions rooted in the allopathic medical profession—nonrepresentative of the osteopathic medical profession. The authors attempt to identify the impact of increasing numbers of women physicians on the osteopathic medical profession. They trace the historical presence of women in medicine and explore speculations concerning the continued growth in the numbers and percentage of women in medicine. The authors analyze data from the 1992 AOA census in search of identifiable trends in practice location and specialty choice based on gender, marital status, and dual–osteopathic physician couples. Finally, they discuss the need for complete and accurate data collection for the profession as data-driven workforce policy decisions ultimately affect the entire profession.

(Key words: Women, workforce, practice characteristics, gender)

During the past 25 years, women have entered the medical profession in ever-increasing numbers. Their presence in the field is being felt in greater measure as the proportion of women physicians swells. As the face of the medical profession continues to change, what impact will the growing number of osteopathic women physicians have on the profile of the profession's workforce?

Although men account for more than 80% of all physicians today, current numbers and trends indicate that the gap between women and men in the medical profession will narrow significantly in the early decades of the 21st century. In 1994, osteopathic female physicians represented 17% of all osteopathic physicians and, in 1993, allopathic women physicians represented 19% of their profession.[1,2] These percentages have grown dramatically during the last quarter century and point toward numeric parity with male physicians in the not-too-distant future. Current projections call for women to make up 30% of the medical profession in 2010 and to reach 40% to 50% by 2030.[1,3] In support of these numbers and trends, women represented 38.1% of all medical school graduates for 1993–1994; they also accounted for 42.2% of first-year enrollment and 40.3% of total enrollment in all medical schools for 1993–1994.[1]

As women gain numeric parity with men in the medical profession, what will the leveling of these percentages mean to the profession as a whole? Variables such as practice location, specialty versus generalist practice, practice characteristics, acceptance of child-rearing responsibilities, and the impact of dual-physician families may all affect the future physician workforce. Little information has been gathered to date on dual-career physician couples, but numbers indicate that there may be more than 1000 dual-career osteopathic physician couples currently in practice or postgraduate training. Our preliminary attempts to analyze existing data for the osteopathic medical profession show little difference in variables like practice location and specialty choice based on gender, but raises tantalizing questions about the dual–osteopathic physician couples. Complete and accurate data collection is essential to future attempts to quantify the impact of increas-

From Ohio University College of Osteopathic Medicine, where Dr Simpson is an assistant professor of family medicine, and Mr Weiser is a health policy writer.

This study was conducted by Dr Simpson during the 1994–1995 year as part of the AOA's certificate program in health policy.

Correspondence to Martha A. Simpson, DO, RN, Ohio University College of Osteopathic Medicine, Grosvenor Hall, Athens, OH 45701-2979.

ing numbers of women physicians on the osteopathic medical profession. Physician workforce projections need reliable data about male/female practice patterns, and any relevant difference in those patterns must be considered in future projections. As healthcare delivery systems undergo the most dramatic changes this century, national policy decisions affecting funding for graduate medical education and physician reimbursement are being based on workforce projections.

History of women in medicine

Medicine has historically been a male-dominated profession and, as such, the presence of women in medicine and the problems that women physicians have encountered over their history in the field have been inadequately covered by historians. An accurate history of women in medicine, much like the problem of gender discrimination, has been largely ignored until recently. Mary Roth Walsh[4] suggests that from the very beginning, the unwillingness to address patterns of gender discrimination allowed the leaders of medicine to ignore the problem. Similarly, the problem of accurately recording the history of women in medicine has resulted from an unwillingness of historians to recognize the contribution of women in medicine.

Early in the 1800s, patterns of discrimination against women in medicine and commonly held misconceptions concerning the limitations of women's abilities were evidenced by an educational double standard placing greater demands on women. During this period, a majority of male physicians were trained through apprenticeships. Surviving records show that 73% of the physicians had not graduated from college and still, as men, they were able to set up practice. In contrast, women were forced to gain a "formal" education in order to be recognized as trained physicians by their male counterparts.[4]

The "honor" of being the "first woman doctor" belongs to Elizabeth Blackwell by virtue of her being the first woman to receive a medical degree in 1848.[4] Harriot Hunt was, in fact, the first woman to practice medicine in the United States, and her story demonstrates the double standard applied to women. Both Harriot and her sister Sarah Hunt were trained through an apprenticeship with a husband-and-wife medical team. They began their practice as "female physicians" in Boston in 1835, 13 years ahead of Blackwell.[4] And yet, they have never been acknowledged as the first women physicians in the United States. Harriot Hunt's autobiography addresses the problems of women being shut out of medical schools and being denied access to formal training. Apart from the Hunt sisters, women were widely denied the opportunity to become physicians through apprenticeships, although it was the norm for male physicians of the time.[4]

Women's place in medicine grew as the 19th century progressed and was becoming fairly well established in America in the late 1800s. This "golden age" for female physicians in America, witnessed by relatively large numbers of women gaining access to medical schools, made the United States a leader in the advancement of women in medicine during the mid- to late-1880s. In the early 1890s, women were being admitted to some 40 medical colleges across the country with enrollments of 10% or more.[4]

By the beginning of the 20th century, because women were still not admitted to a great number of medical colleges, there were 17 separate women's medical colleges. As the first decade of the 20th century neared an end, however, 14 of those colleges had closed. Although the Flexner report[5] of 1910 has been cited as a reason for the decline of women's medical colleges, the trend of closings had begun and ended before that report was published. More likely, as women found themselves being admitted to the larger, male-dominated schools in the late 19th and early 20th centuries, the belief in the need for separate islands of feminism in medicine began to subside. But, as one problem appeared to recede, other barriers to women in medicine were waiting to be erected.[4]

As women's medical schools closed or merged into larger medical colleges, the numbers of female students, as well as the number of female faculty, began to diminish and disappear. Of the 70 women enrolled in the New York Infirmary of Medicine in 1900, only 10 remained in 1903 after the Infirmary had been absorbed into the Cornell University Medical College in 1899. In response to a survey conducted in 1917, the dean of the Cornell Medical College admitted that a deliberate policy to limit the number of female medical students had been adopted at that time. One facet of that policy was to require that women take the first 2 years of medical education at the Ithaca campus in Upstate New York, some 250 miles from New York City. Equally disturbing was the disappearance of the Infirmary's female faculty after the merger and the fact that 12 years later not a single woman had been appointed to the Cornell faculty.[4] The Cornell fiasco was typical of the experience of women physicians in the years surrounding the publication of the Flexner report.

The belief that women were essentially unfit for the medical profession, the belief that women were incapable of rising to the demand for professionalism in medicine, and a fear of increased competition contributed to the prejudice against women in medicine. As the profession moved to meet Flexner's call for increased standards, women actually benefited from the professionalization of medicine. Up to this point, women faced numerous unwritten laws and customs that limited their ability to practice medicine. The defining of standards allowed

women to finally see the obstacles to be overcome. If a woman was denied access to a medical society or refused a license, she could raise the cry of injustice based on known standards. Of the three remaining women's medical schools operating at the time of the Flexner report, a review of examination records reveals a 4.9% fail rate for female students between 1901 and 1903. The rest of the US medical schools had a fail rate of 16.3%, which would seem to refute the premise that women were incapable of pursuing careers in medicine.[4]

Even after Flexner's report, women could not gain admittance to more than half the medical schools in the United States, and they continued to face covert discrimination in the way of an unwritten quota system that limited the number of female medical students. Northwestern University Medical School opened its doors to women in 1926 in order not to offend their patron, Mrs Montgomery Ward. But, the school limited the number of women in each class to four, the number necessary for a complete dissecting team. Even if a woman could gain admittance to medical school, the chances of completing her postgraduate training were distressingly slim. The 1921 *American Medical Directory*[6] lists only 40 of the 482 schools approved for internships as open to women. Therefore, at the time, 92% of the available hospitals did not train women, regardless of a woman's medical school record. Actions of this type kept women from gaining any appreciable ground through the mid-20th century. Characteristic of the situation across the country, the dwindling numbers of women in medical school during this period resulted in fewer women physicians in Boston in 1950 than in 1890.[4]

The low numbers of women being admitted and graduated from medical schools continued until the 1970s. With the rise of the feminist movement and affirmative action programs, medical schools began to revise their admission policies. With a greater expectation of acceptance, women began applying to medical schools in increasing numbers. The period from 1970 to 1994 saw a steady increase in the numbers of female physicians and first-year enrollments of women in medical schools.

Table 1
Trend of Female Representation in the Osteopathic Medical Profession*

Year	No of schools	Total No. of graduates	Female graduates	
			Total No.	%
1968	5	427	8	1.9
1970	6	472	11	2.3
1972	7	649	18	2.8
1974	9	702	44	6.3
1976	11	908	84	9.3
1978	14	1004	163	16.2
1980	14	1151	202	17.6
1982	15	1317	261	19.8
1984	15	1474	344	23.3
1986	15	1593	412	25.9
1988	15	1609	491	30.5
1990	15	1534	458	29.9
1992	15	1606	533	33.2

*Adapted from American Association of Colleges of Osteopathic Medicine: *Annual Statistical Report.* Rockville, Md, American Association of Colleges of Osteopathic Medicine, 1994.

History of women in osteopathic medicine

In 1893, the American School of Osteopathy graduated its first class, of which 17 (77%) were men and 5 (23%) were women. At a time when women were generally not accepted into allopathic medical schools, the osteopathic medical profession eagerly advertised for women students. Andrew Taylor Still believed that women were ideally suited to the healing professions, and that the "science of osteopathy should particularly appeal to intelligent and ambitious women who desire a noble life work."[7,8] Early school catalogs indicate that women were "admitted on the same terms as men....[T]hat there shall be no distinction as to sex, and that all shall have the same opportunities, and be held to the same requirements."[9] By 1908, 566 (35.5%) of all osteopathic physicians were women.[8] Women accounted for a significant percentage of graduates until the 1920s. In 1923, women made up 50% of the students, but by 1928, women accounted for only 12.5%. Except for a brief surge in women's enrollment during the late 1930s and World War II, women's enrollment continued to decline through the 1950s.[8]

It was not until the women's movement began in the 1960s that female enrollment began to increase. The next 10 years saw increased growth both in the number and proportion of female graduates. New schools opened. More women applied and a higher percentage were accepted as students. Women represented 16.2% of the graduates in 1978, whereas men, for the first time since World War II, represented significantly less than 90% of the gradu-

Table 2
Practice Characteristics of Osteopathic Physicians According to Gender and Marital Status—1992 Survey*

Category	GP/FP,† %	Non-GP/FP, %
All DOs	46.8	53.2
Female DOs	48.1	51.9
Married	50.7	49.3
Single	40.0	60.0
Male DOs	46.6	53.4
Married	46.2	53.8
Single	42.6	57.4

*Adapted from 1992 American Osteopathic Association Biographical Records.
†GP/FP = General practice/family practice.

Table 3
Practice Locations of Osteopathic Physicians According to Gender and Marital Status—1992 Survey*

Category	Non-MSA,† %	MSA, %
All DOs	16.6	83.4
Female DOs	12.3	87.7
Married	16.5	83.5
Single	13.7	86.3
Male DOs	17.4	82.6
Married	19.6	80.4
Single	15.2	84.8

*Adapted from 1992 American Osteopathic Association Biographical Records.
†Non-MSA = Non–metropolitan statistical area; MSA = metropolitan statistical area.

ates of colleges of osteopathic medicine. This trend has continued into the early 1990s. In 1992, 33.2% of the graduates were women (*Table 1*). In spring 1995, 631 women (33.9%) and 1230 men graduated from osteopathic medical schools. Because the most significant growth in the number of female DOs has been in the past 10 years, the real impact on practicing physicians has yet to be felt. Many of the female graduates are still in postgraduate training programs or the early years of medical practice. Currently, women compose 15.7% of the osteopathic medical profession.

A recent article in *JAMA* by Richard A. Cooper, MD,[3] identifies the increase in female physicians as one of the most profound changes occurring in the physician workforce. The Council on Graduate Medical Education (COGME), essentially agreeing with this contention, devoted its *Fifth Report* to the topic of women and medicine.[1] The increased national and international attention on women's health concerns and the growth of women in the medical profession guided COGME's effort to improve the quality of healthcare for women and to encourage the promotion of equity in the status of female physicians. As female physicians continue to move toward a numeric parity with male physicians, the issues of specialty selection, site of practice, practice characteristics, and family characteristics and children become potentially important variables in physician workforce projections.

Specialty selection among women has been shown to "cluster" around five specialties. Women represent 60% of the specialists in pediatrics, psychiatry, family practice, internal medicine, and obstetrics-gynecology, and, based on current student residency choices,[1] this trend is likely to continue in the near future. Although some analysts view women's specialty choice as a result of their more altruistic motives for entering the profession, it is also likely that male gatekeepers to the profession

steer women toward these more "nurturing," but lower-paying, specialties. This trend has the potentially negative outcome of continuing to channel women into the less lucrative, less prestigious medical areas while men continue to occupy the more highly valued subspecialties.[1]

Nearly two thirds of *all* female physicians today are located in office-based practices. In 1970, women were fairly equally represented in office-based and hospital-based practices. But, since 1970, the number of women in office-based practice has increased sevenfold, from 9217 to 65,429. Additionally, women are more likely than men to be salaried employees. Only about half of all female physicians are self-employed in either solo, partnership, or group practice, whereas nearly three fourths of all male physicians are self-employed. This trend has resulted in female physicians having less autonomy and less income-earning potential than their male counterparts. It is unclear whether these differences were due to preferences or a continued lack of opportunity for women through the 1980s. Ironically, women may be more employable in the future based on their primary care focus, office-based practice focus, and history of preference for salaried positions.[1]

On average, current numbers suggest that female physicians work slightly fewer hours per week and will work about 1 less year over their professional lives than do male physicians. It has also been documented that they spend slightly more time with each patient than do male physicians.[1] As women physicians gain numeric parity with men around 2030, it is anticipated that the overall work effort in the medical profession will be reduced by approximately 6%. It is anticipated that this reduction will affect the primary care disciplines disproportionately.[3]

A recent survey undertaken by the Michigan State Medical Society Young Physicians Section of physicians 40 years and younger in Michigan shows that there is a growing emphasis on family among both male and female respondents. "A priority for young female and male physicians alike is a life balanced between work, family, and personal needs."[10] If this is indeed a trend for both men and women in the medical profession, then the issues of family and children may impact both men and women physicians in similar ways and have an effect on future workforce projections.

Evaluation of practice location and specialty choice among women osteopathic physicians

To assess the relationship of gender, marital status, specialty choice, and practice location among female osteopathic physicians, the following study reviewed and analyzed the 1992 American Osteopathic Association Biographical Records. The 1992 data profile was used because it was the most current year available. Retired, foreign, and disabled DOs were excluded. Federal and postdoctoral DOs were included.

The 1992 survey gave the respondent several choices for marital status. The cells were collapsed into "married" and "single." *Single* was defined as "single, divorced, and legally separated." To the question on marital status, the response rate was 58.3%, with 47.8% responding as married and 10.5% as single. The survey also asked if the respondent who was married had a spouse who was a DO. The makeup of the nonresponder group was not verified, thereby rendering statistical evaluation unreliable. It was thought that raw numbers could be used and possible trends identified.

The standard census survey also gives practice location—metropolitan statistical area (MSA) versus non–metropolitan statistical area (non-MSA) and practice specialty—general practice or family practice (GP/FP vs Non-GP/non-FP). The information regarding specialty choice and practice location was obtained through specialty and state societies on the survey nonresponders, yielding virtually a 100% response rate.

The subgroup of DOs married to a DO was also analyzed for practice location and specialty choice. The dual-career couples were compared with married physicians not married to a DO regarding specialty choice and practice location.

Data

In 1992, 15.7% of the osteopathic physicians were female. Overall 48.1% of the women were general or family practitioners (GP/FP). This is slightly higher than the total distribution of osteopathic physicians of 46.87% in general or family practice. When the segment of women who responded to the question of marital status is evaluated, 50% of the married women, but only 40% of the single women, are GPs/FPs. The male responses showed that 46.2% of the married and 42.6% of the single men were GPs/FPs (*Table 2*).

Practice location was also evaluated for trends among women, men, and marital status. Non-metropolitan statistical area is listed as the practice location for 16.56% of all osteopathic physicians. Of the female osteopathic physicians, 12.3% practice in non-MSAs. Men are slightly more likely to practice in non-MSAs, with 17.4% of the men locating there. When these numbers were evaluated for marital status, 16.5% of the female responders were married and practicing in a non-MSA, while 19.6% of the married male respondents practiced in a non-MSA. Of the respondents determined to be single, 13.7% of the women and 15.2% of the men practiced in a non-MSA (*Table 3*).

Approximately 500 DO/DO couples were iden-

tified. This 1992 survey was the first time that any attempt had been made by the AOA to identify these couples. Of the DOs with known marital status, 30% of the married women and 4% of the married men were DOs married to a DO. This gives an overall rate of 7% among DOs. If the nonrespondent group were comparable to the respondent group, there could be an additional 500 DO/DO couples. Evaluation of husband-wife DO/DO teams revealed they were more likely to be GPs/FPs (55.1%) than non-GPs/FPs (44.9%). Overall, 17% of the DO/DO couples practice in a non-MSA. (Data adapted from 1992 AOA Data Files.)

Results

Little practice variation exists between women and men based on the limited available data on osteopathic physicians. The use of the existing data is limited by the poor response rate and the relatively small numbers of women osteopathic physicians. Female osteopathic physicians do not differ from male physicians in their choice of specialty (GP/FP vs non-GP/FP) or practice location (MSA vs non-MSA) when evaluated as a group. When both women and men are categorized according to marital status, single men and women are less likely to practice in non-MSAs than either married men or women. Overall, women are slightly more likely to be GPs/FPs than osteopathic physicians in general, but single women tend to *not* be GPs/FPs as frequently as married female physicians. Dual osteopathic-physician couples are more likely to be GPs/FPs than are married physicians whose spouses are not DOs. Interestingly, women were less likely than men to answer the questions on marital status in the 1992 AOA survey.

Policy implications

The policy implications of the findings reported here are as follows:

- These early findings need to be evaluated over time because of the high number of nonresponders and the high number of women still in training programs, which are usually located in MSAs. Continued collection and evaluation of data are needed to identify trends that may develop as more women enter the medical workforce. Basing workforce predictions on current trends is risky at best. It is impossible to determine the future impact of women physicians on the osteopathic medical profession until their numbers reach critical mass; until that time, any perceived trends must be interpreted with caution.
- Projections that have been made on workforce issues center on the belief that men's practice patterns will remain constant in the wake of women approaching numeric parity with men. Assumptions of this sort are dangerous and point to a perpetuation of the contention that men exemplify the norm in medicine and women represent a deviation from that norm. Any attempt to analyze data and make reliable workforce projections necessitates an understanding that the basic paradigms governing the medical profession are in a period of dramatic change.
- Dual-career couples need to be identified and surveyed to determine problems that are unique to them. The dual-career couple needs to be followed up to quantify this phenomenon as it relates to the physician workforce after the turn of the century.
- The AOA survey needs to be changed to improve the response to the questions on marital status and all others to ensure an adequate response rate to provide statistically significant data. We cannot generalize the impact of changes on the osteopathic workforce using data collected in studies conducted by the allopathic medical profession because the osteopathic physician workforce has clearly demonstrated differences in specialty choice and practice location.

Comment

The osteopathic medical profession must acknowledge the importance of furnishing well-documented data in support of policy decisions if it is to influence the debate on physician workforce issues. The poor response rate traditionally accepted cannot continue in this information age, where decisions that determine our future viability are data-driven.

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