



Women in Academic Medicine: Possibilities for a New Paradigm

Gabrielle Kane
University of Toronto

Abstract:

Historically, women have had difficulty training to be doctors and then practicing their profession. Now they are able to make career choices about their type of specialty and whether to enter academic or private practice. Within the academic system, however, women are less likely than men to be promoted and be represented in positions of leadership and power. This paper explores some of the factors that act as barriers to academic success, including the 'time lag' effect, issues of child and family responsibility and some exclusionary practices of gender discrimination. Solutions are discussed in terms of natural evolution (with monitoring), and active intervention to implement a career paradigm that accounts for gender differences.

Introduction:

The purpose of this article is to demonstrate that women in medicine are under-represented in positions of power and leadership in their academic fields, and then to explore possible reasons for this, and speculate on ways to overcome the obstacles to success. This line of inquiry was prompted by my observation of a marked gender imbalance at a medical education conference that coincided with the inauguration of a new medical education program at a Canadian university. Most members of the audience and participants at this event were middle-aged women with respectable scholarly track records and a vast accumulation of experience in medical education.

This was in stark contrast to the academic leaders on the podium, all but one of whom were men. However, women have advanced their numbers in medicine over the past generation and now make up half of the graduates from Canadian medical schools (Kazimirski, 1997). One quarter of medical school faculty consists of women (Association of American Medical Colleges, 1997) but they are concentrated at the junior ranks and still are not represented in the higher echelons of the university.

This article is based on a review of medical literature that focuses on women in academic medicine and is grounded in my perspective as a female physician. My background in medicine over the past 27 years has been diverse. It includes several types of general practice that were mostly expedient employment to maintain competence and earn money while I raised a family, a common pattern in the 1970s. I was fortunate enough to have the opportunity to return to university in my 40s for further postgraduate training and to be appointed to a faculty position. These experiences have naturally influenced my interpretations and shaped my personal framework.

The demographic information is derived from statistics provided by the American Association of Medical Colleges (AAMC), the Association of Canadian Medical Schools (ACMS) and the Canadian Medical Association (CMA). The Canadian information that is available pertains mainly to women in all types of medical practice rather than in academic practice in particular. The publicly available Canadian academic information is 10 years old; the results of a more recent survey are confidential (personal communication, ACMS office). Many American statistics and studies are generalizable to Canada because the medical education systems are similar, with the exception of data about tenure, which rarely applies to clinicians in Canada.

In this article, I consider only the concerns of academic women clinicians, or doctors with direct responsibility for patient care within a university system. This excludes physicians without a clinical practice who specialize in the basic sciences and medical humanities, and who normally research and teach junior undergraduates in a preclinical university setting.

There is evidence from the United States (Carr, Noble, Friedman, Moskowitz & Kasiz, (1993) that financial remuneration is less for women than for men. In Canada, funding is almost entirely public; evidence of financial inequity for salaries on a rank-by-rank basis is not available, and this issue will not be addressed in this article.

According to a survey done by Wear and Bickel (1996), most women in academic medicine support a classic liberal form of feminism. A majority of their respondents agreed with the statement that “feminism is an educational, social, and economic

movement that works through the legal system to improve the quality of women's lives; the intent is not to dissolve gender differences but to rid society of gender inequality." Of those interviewed, only 28% identified with broader definitions of feminism that included other issues of inequality. This may reflect a lack of exposure to current feminist theory or the conservative nature of the medical profession.

Medicine uses a problem-based approach to disease diagnosis and management. Symptoms and signs are elicited by history and physical examination. Accordingly, this article covers historical perspectives, educational and career choices, and the current status of women in academic medicine. In the medical setting, the history is then followed by a differential diagnosis, when the possible pathological issues in diseases are identified. In this article, the issues that may contribute to the lack of representation of women in positions of power and leadership in academic medicine are diagnosed as 'time lag' effect, family issues and exclusionary practices of gender bias. These issues are discussed and the article concludes with some suggestions for therapy and prognosis.

Background: Historical Perspective

The history of women in medicine in North America provides important background information. The early suffragettes provided the first wave of feminism in medicine. Their pioneering struggles have been romanticized by the stories describing James Miranda Barry and Mary Walker practicing medicine disguised as men. The first woman physician to graduate in the U.S. was Elizabeth Blackwell in 1847 (Dickstein, 1996). Canada lagged behind. No woman was allowed to train in Canada until the 1880s. Because of their exclusion from Canadian mainstream schools, Jennie Trout and Emily Howard Stowe had to train in the U.S. (Duffin, 1996) at small medical schools that accepted only women. These schools became more numerous in the U.S. by the turn of the century. However, the Flexner Report for the Carnegie Foundation in 1910 outlined more rigorous standards for medical colleges and a control on overproduction of doctors, resulting in closure of many smaller schools, including all of the separate schools for women except for the Women's Medical College of Pennsylvania (Dickstein, 1996).

According to Bonner (1998), Flexner himself felt that women should have access to the great teaching hospitals on the same terms as men, and he wrote in the 1910 report that women's efforts for educational opportunity were 'predestined to success'. Women were accepted into other medical schools in North America in small numbers (5% or less) that were based on unspoken quotas. Because scholastic entry standards for women were so much higher, these women were usually at the top of their class. Societal expectations that women fulfill the duties of nurse/midwife or helper/mother remained strong and were difficult to overcome. Typically, women who entered male dominated professions during this era had mothers with high levels of education and strong parental support, possibly with a 'substitute son' syndrome (Dickstein, 1996).

The shortage of men in World War II eased the medical school restrictions slightly, allowing an increase in the enrolment of women to 6% of each entering class. This changed little until the second wave of feminism, women's liberation, started in the late 1960s. Between the 1970s and 1990s the number of women applying and admitted to medical school increased dramatically. In 1950, 6% of medical graduates in Canada were women; this doubled to 12% in 1970, then almost doubled again to 22% in 1975

(Association of Canadian Medical Colleges, 1987). Restrictions on women's entry into medical schools in both Canada and the U.S. were eventually dropped with the introduction of equal opportunity legislation. Over the past 20 years there have been dramatic changes in the pattern and status of women in the workforce throughout Western society, as well as profound societal changes. The changes demonstrated in medicine parallel those in many other professions (AAMC, 1997).

The numbers of women in medicine continue to increase in the 1990s. In the U.S., 42% of medical students are now women (AAMC, 1997). However, 51% of students entering Canadian medical schools in 1993 were women and this percentage graduated in 1997. Over a quarter of currently practicing Canadian physicians are women; assuming that women continue to be half of medical graduates and that 65 remains the retirement age, by the year 2025 almost half of Canadian physicians will be women (Canadian Medical Association, 1996).

Post-Graduate Choices

Admission to medical school is only the first hurdle to clear for a career in medicine. It is followed by training and successful certification in a specialty. In Canada, postgraduate training is now mandatory for licensure for all types of medical practice, including family practice; in the past, a one year internship in a teaching hospital and success at the Medical Council of Canada licensing examinations were all that were necessary for general practice. Certain postgraduate choices, such as primary care paediatrics, family practice, obstetrics and gynecology have now commonly become identified as 'women's areas', like the traditional careers of nursing and midwifery. Over the past three years, more women than men have entered these training programs (Cohen, 1997). Psychiatry, dermatology and pathology also have high proportions (30 to 35%) of women.

The most important determinant of career choice for women medical students appears to be the flexibility of training and practice (Redman, Saltman, Straton, Young & Paul, 1994). Training in family medicine is short – two years – and can lead to a flexible style of practice. Some female students consider career choices at an early stage in their training to accommodate their future desire to have a family, although over half a group of both male and female final year students reported that having time for their family was an important consideration in choosing a career (Field & Lennox, 1996). Although the life-style of an obstetrician is not at all accommodating, in 1994 obstetrics had more women than men trainees. This choice may reflect market forces and the preference of many gynecology patients to be attended by women physicians. Thus it appears that women doctors are sufficiently interested and attracted to the specialty despite the compromise in their life-style. Other surgical specialties continue to have small numbers of women.

Practice Choices

After certification in a specialty, or sub-specialty, physicians must then decide whether to enter private or academic practice. In the former, they will make more money, have greater autonomy and mobility, but command less prestige. An academic career is associated with intellectual challenge, research and teaching opportunities. To compete for an academic career, further training and credentialing may

be needed; candidates must have the potential to be academically productive and display some outstanding research – laboratory or clinical – ability. Teaching or administrative skills rarely carry weight at this point as it is assumed that the candidates still lack experience in these fields.

Once appointed to a university position, the faculty member is subject to departmental reviews, external reviews and promotion expectations. Academic rank at entry is usually at the level of lecturer or assistant professor, depending on additional graduate qualifications and departmental policy. A tenure track is rarely an option for clinicians in Canadian medical schools. It is reserved for non-clinicians in the basic sciences who are salaried by the university. In the clinical stream, billing the provincial health plans for fee-for-service patient care generates money for salaries, support and academic ventures. Usually, this income is signed over to university departmental ‘group-practices’ for income sharing based on academic rank and productivity. Grants and endowments cover research. When stipends are given from the university, they are usually small, for example, \$10,000 per annum for an associate professor of surgery in the University of Toronto, but most appointments are for status only. Senior administrators have almost no clinical income and are salaried by the university, often supplemented by ‘the group’. Their salaries are public knowledge, and reflect the prestige of their positions. It is interesting to note that the Dean of the medical faculty at the University of Toronto earns more money than the President of the University. Academic work also involves university and affiliated hospital administrative duties. Success is indicated by productivity, measured by publications and grants, and rewarded by promotion and appointment to positions of leadership.

The Status of Women in Academic Medicine

Women do choose academic careers, although not in proportion to their representation in the profession. According to the AAMC (1997), 26% of medical school faculty are women. The 1987 figures from the AAMC showed that 12% of physicians with full-time academic appointments were women at a time when 17% of all physicians were women. Furthermore, women physician faculty members are younger as a group than their male colleagues, reflecting the increased proportion of women in the younger age cohorts. In 1986-87, two-thirds of the women, but only 40% of the men, were less than 45 years old (AAMC, 1987). More recent Canadian figures are not yet available but have previously paralleled AAMC information.

Over the years, women have gained absolute, but not proportionate, numbers with men. Currently the percentage of women faculty in North American medical colleges holding full professor rank is 10%, and for associate professor rank it is 20%. The respective figures for male faculty are 30% and 25%. These proportions have not changed in over 15 years (AAMC, 1997). It is more difficult to gather information on the numbers of women occupying positions of leadership. The AAMC Faculty Roster of 1993 and figures from 1997 (AAMC) show that only 4% of chairs of departments are women (compared to 2.5% in (1983); none of these are in internal medicine and surgery. Only 4 of 126 deans of North American medical schools are women. The University of Toronto is typical. The dean, both vice deans and three of the four associate deans are male. There are 32 departmental chairs; 6 of these – anatomy, occupational therapy, speech pathology, health administration, physical therapy and rehabilitation science – are

occupied by 5 women (one woman holds two chairs). None of the five are clinical physicians.

In summary, women are now well-represented in the profession, especially among recent graduates, although not in all specialties. Many choose to enter academia. Are the barriers to career development and promotion there any more difficult for women to overcome than for men?

Differential Diagnosis

There are several, multidimensional reasons why women are under-represented in positions of seniority and leadership in academic medicine. The discrepancy could be due only to a 'time lag' phenomenon, in that there may not be enough women of seniority yet to occupy these positions. For those who have children, perhaps childbearing and academic ambitions are mutually exclusive. However, not all women have children and they still encounter barriers. It may be that women are excluded by a patriarchal hierarchy. In a system where the number of publications is more important than their quality, women in medicine and throughout science have lower publication rates than men (Long, Allison & McGinnis, 1993). Most recently, Barnett, Carr, Boisnier, Ash, Friedman, Moskowitz, & Szalacha (1998) examined the intrinsic motivation and publication rates without finding any gender differences.

Time Lag Effect

Have women simply entered the profession in North America too recently to have risen to senior levels? Between 1970 and 1992 the number of women faculty members increased by 130% and men by 52% in the same period (AAMC, 1993). The fact that this influx of women is relatively recent may contribute to the gender differences in senior academic ranks.

Researchers have performed cohort studies and have collected longitudinal data on promotion. According to the data collected on academic progress, women spend longer periods at lower ranks. For example, one study by Tesch, Wood, Helwig and Nattinger (1995) showed that after 11 years as faculty, only 59% of women had made the rank of associate or full professor, compared to 83% of men, and 5% of women versus 23% of men were full professors. The women also had fewer academic resources at appointment. They worked slightly fewer hours per week than the men and had published less, but even when this was accounted for in the analysis, women were still less likely to be promoted. There was no gender difference in attrition rate, and the data on number of children were not associated with rank achieved. Similarly, in their 1987 cohort AAMC study of 1976 appointees, Bickel and Whiting (1991) found that 12% of the men but only 3% of the women had been promoted to full professor. Levinson and Weiner (1991) prepared an American College of Physicians report in which they corrected the data for age and date of faculty appointment by examining cohorts when comparing gender differences in promotion rates. They showed that while women faculty have made some progress up the academic ladder, they remain disproportionately under-represented.

However, Nickerson, Bennett, Estes and Shea (1990) claim that medical academic women at Columbia University have already broken through the 'glass ceiling' that limits the advancement of women beyond the junior ranks. These faculty members did not have any time lag to promotion. One cannot say how generalizable this study population is, but

it does provide some encouraging evidence that advancement is possible. It should be noted that despite these achievements, half of the same population of women medical faculty in Columbia University reported in a later study that they had been subject to gender discrimination in promotions and had not had the same professional opportunities as men (Bennett & Nickerson, 1992). Many believed that sexist comments and attitudes were common in the environment. Almost all had experienced conflicts between professional and personal demands.

When considering studies that were written earlier in the decade, it is important to realize that the proportion of women in the profession is changing rapidly. According to the CMA statistics for 1986 to 1996, the proportion of women physicians in the 35-44 and 45-54 year old groups almost doubled to 34.2% and 20% respectively.

Family Issues

Are child bearing and academic ambitions mutually exclusive? Is this a humane expectation? Academic medicine is temporally inflexible and demands long hours, both during training (at least 80 hours per week, including up-all-night call) and in staff positions (60 to 70 hours). It is difficult to accommodate domestic demands with this lifestyle.

Physicians typically have left high school at age 18, completed their undergraduate degree at 23 years, obtained their MD at 27 years and then have spent at least five years in postgraduate training. This brings those on a fast straightforward track to the age of 32. For a doctoral degree or a fellowship for travel or research, extra time must be factored in to include extra training or education, for example for a subspecialty or a master's degree. At this point, if accepted for an academic position, the physician requires a few years of maximal productivity to become established and successful. Assuming this stage is only five years, a woman faculty member is typically at least 37 years old. If she has planned not to have a family until this point, she is already past her optimal years for fertility and faces higher obstetrical and neonatal risks. Maternity leave and the additional responsibilities of having a baby make the pressures of residency and examinations even more difficult.

These scenarios suggest that an academic career is not possible if a woman wants to have children. It can be assumed that a significant number of women choose more flexible career options for that reason. However, despite these conflicting commitments, the majority of women in academic medicine do have children and almost half of these women start their families before their training is complete. A study of academic women physicians under 50 years of age showed that 63% of the respondents – mean age 38 – were mothers, with an average of 1.9 children (Levinson, Tolle & Lewis, 1989). Approximately half of them had their first child after completion of training, at a mean age of 30.6 years, which was 7.3 years later than the mean age of the general population. They took very little time off for maternity leave, a median of six weeks post-partum. Most (72%) took no time off before delivery and similarly, 83% were back at work within 12 weeks. However, most of the respondents felt that they would like to have taken a longer leave of absence. Almost all breast-fed their babies and worked full-time. Seventy percent were married, 60% to physicians, and 60% of these physicians were academics. Only 5.4% of the study population were full professors and

19.5% were associate professors. These women were the survivors in the system. According to Eisenberg (1989), the playing field is hardly level if only superwomen, rather than most women, can satisfy the needs of their families and meet their professional goals. The aforementioned study does not describe the support, in terms of childcare and domestic help, to which they may have had access. No study has tracked the course of women who would have preferred an academic career but did not apply or had to quit because they perceived that they were unable to combine it with family responsibilities.

The women academic faculty members in the Levinson, Tolle and Lewis study (1989) believed that family or child-rearing responsibilities are a cause of slower academic progress. Should biology prevent women from having the same opportunities as men? Women in other professions are able to take maternity leave and job share; they can even stop the tenure clock in other academic positions without penalty. The child bearing/rearing period of a woman's life is relatively short. Even if a woman does not realize her full academic potential until the age of 40, she can still contribute 25 productive years to the institution that employs her.

Are Women Excluded by a Patriarchal Hierarchy?

The culture of medicine has been shaped and reinforced by the historical exclusion of women from medicine. Patriarchy is deeply embedded. The model of a doctor has been male for centuries; women physicians were not wanted, but midwives and nurses were. Pioneering women disguised themselves as men to work in their profession. Despite advances in numbers, inequities are still perpetuated by discursive practices that have been legitimized by acceptance and habit. Women can enter the profession, but are encouraged to enter community-based practices. They have limited access to academia and positions of leadership. This is where the power is in medicine. These leaders make decisions that extend throughout the profession by means of influence and example and by shaping future generations.

The senior echelon of academic medicine is an established old boys' club. Interestingly, many medical school functions take place in clubs where women cannot become members. Mahowald (1996) has described the medical academy as a much more patriarchal and conservative system than the humanities, and as less supportive of social and family needs than other academic fields. It is not a meritocracy. Sponsorship, contacts and networking are as important in academic medicine as they are in business and politics. Only a secure leader can afford to take a chance to mentor and sponsor someone perceived by the members to be an outsider. It is therefore very difficult for anyone, let alone a woman, to break into the system. Selection and search committees naturally function within a 'comfort zone' that fits the traditional look of a leader and this can lead to bias. Leadership qualities are described as 'aggressive, tenacious, powerful and self-sufficient'. However, when these adjectives are applied to women they become 'strident, nasty, emasculating and stubborn' words of contempt and derision (Conley, 1993). Gender bias has a spectrum and can range from unconscious slights to deliberate exploitation; the former category is probably more common in this context. Micro-inequities that can erode self-confidence and esteem include outmoded expectations and assumptions about women. They are often beyond the control of policy making.

Therapeutic Options
Evolution: Conservative Therapy

As younger cohorts of female practitioners gain seniority, there will be gradual changes, and pressure will be exerted from the increasing numbers of new female graduates. The present generation of male deans and chairs typically has full-time wives to support their career advancement and shelter them from life's activities and demands. This pattern is unlikely to persist in subsequent generations, as the future leaders of either gender are more likely to have partners pursuing their own career ambitions.

According to Conley (1993), the top echelon at any academic institution sets the tone for its workplace and educational environment. If those in positions of leadership condone gender discrimination, it is emulated and perpetuated. Power and stereotypes reinforce each other. The converse also holds true: good role modeling by those in power can positively influence future leaders. However, mere statement of politically correct policies will not camouflage an inherent lack of true commitment.

The American College of Physicians has suggested the introduction of a formal monitoring process to evaluate the effectiveness of these gender equality policies. The Royal College of Physicians and Surgeons of Canada (RCPSC) has established an equity commission to address these issues. It will be interesting to follow these initiatives to see if they will produce suggestions of practical help by identifying and reporting a problem. However, this passive approach will be slow to yield results.

Gender equity is the opposite of gender bias. Attempts to bring it into mainstream medicine by creating watchdogs are helpful but not adequate. More active intervention is necessary. Monitoring progress does provide reinforcement by recognizing appropriate behaviour with publicity. However, intervention may be needed to overcome prejudices, which cannot simply disappear. The system can be motivated by public accountability, the appearance of doing the right thing, the fear of lawsuits, or even the avoidance of ridicule. There must also be recognition that, while some men may well feel threatened and want to protect their power base, there are many potentially supportive men who remain unaware of the extent of gender inequities as well as men who actively support advancement of women.

Active Therapeutic Intervention

Increasing the number of women physicians who hold positions of power in academic institutions is vital to the progress of women in academic medicine. They are needed as a voice in policy setting and role modeling. However, when political correctness requires that all committees have token female representation, this forces women faculty into more committee work than their male colleagues because of their smaller numbers. Women faculty thus risk burnout (Nadelson, 1989). Women should be adequately rewarded for this effort. For example, their contributions must be considered academic ventures and be recognized as merit for promotion. Appointing more women allows responsibilities to be shared. Thus, affirmative action would appear to help to offset the prevailing pattern of discrimination (Eisenberg, 1989) but would be distasteful to women

candidates who would rather be appointed on their own merits. Therefore, intervention may result in a backlash phenomenon.

Educational intervention programs can have success. A faculty development initiative undertaken to raise awareness of gender related issues at Johns Hopkins from 1990 through 1995 was documented by Friel, Francomano, McDonald, Wagner, Stokes and Carbone (1996). Responding to the results of a survey, the medical school ran workshops on eradicating gender bias and on multi-faceted interventions to develop academic medical careers for women. Subsequently, the number of women associate professors increased from 4 to 26 in five years. There was also an increase in retention of junior faculty and both men and women reported an improvement in the academic environment.

Women can also learn to 'play the game' by the existing rules. The AAMC and the Canadian Medical Association run professional development seminars for women interested in a leadership style with which male managers are comfortable. This will give women acceptance and visibility and thus may create opportunity for the larger cohort of women to follow. However, there is a danger that this may merely perpetuate the patriarchal mode of management.

Mentoring

Women trainees considering an academic career need the support, guidance and sponsorship of a mentor to help them succeed. This liaison should be facilitated by the postgraduate training programs and introductions made through program directors, who should also monitor the effectiveness of the pairing. This is important because it has been shown that junior faculty with mentors publish more articles, have increased employment opportunities, feel more confident in their abilities and experience greater satisfaction in their careers than those without mentors (Levinson & Weiner, 1991). Unfortunately, no comparable information is available about men without mentors.

Mentoring can be done by either sex. Various reports about the influence of gender of the mentor suggest that same sex mentoring may not be any more useful than a mentor of the opposite sex. The mentor's experience, rank and power influence career sponsorship. However, having female, lower ranking mentors is associated with a personally satisfying relationship (Ochberg, Barton & West, 1989).

Support

Just admitting more women into academia is not enough to ensure equality. Steps are needed to provide a more humane environment. There are several practical measures that could be developed to optimize support for women and their partners, especially in the early stages of their career. There could be greater flexibility and the development of a 'slow track' in promotion procedures. Part-time work could be legitimized and job-sharing arrangements fostered. This could be an attractive alternative to laying off faculty at times of economic downsizing, which disproportionately affects those of the lower ranks. It is also possible that some men may want to use this opportunity to develop other interests, endeavours and responsibilities.

There should be provision of time and opportunity for childbearing and rearing, which should not be penalized, but should instead be recognized as part of normal life for men and women. Childbearing and rearing are not necessarily gender-specific, although women have traditionally tended to carry these responsibilities. In an ideal world, there should be parental leave for both genders, as well as high quality, flexible child care near training centres. Fathers should be permitted and encouraged to participate in child rearing. With women as 46% of the work force, this problem of accommodating child rearing extends throughout society.

However, the round-the-clock nature of clinical medicine is unique to medicine. Shift work does not allow for continuity of care and requires greater numbers of staff. Part-time and flexible hours are difficult to integrate into the complex scheduling model. Full-time colleagues become resentful when they carry a heavier burden of the workload. The relative affluence of women doctors in established practices or dual income families means that they can better afford childcare and tolerate decreased income than most women in society. These may not be viable options for junior doctors, who are not well paid and who usually have a high load of education debt. Within the profession, an attitudinal change to family responsibilities is long overdue and can only result in a healthier society, consistent with the goals of providers of health care.

Questions and Conclusions

Academic physicians are a valuable resource. They shape student learning, contribute to medical knowledge through research and provide high quality medical care. However, the many roles and expectations are often in conflict, especially in times of increasing workloads and diminishing resources. Patient care, research, teaching, administration and leadership all compete for time that should be used for family and lifestyle. Can one person, regardless of gender, reasonably achieve all these goals? What outcomes and performance indicators are we measuring to define success? We have an archaic, rigid system that was developed to reflect the realities of men's careers. A paradigm shift in academic medicine could produce a new model for productive and satisfying academic careers that would benefit physicians of both genders.

References

- Association of American Medical Colleges. (1993). *Faculty Roster System. Report #43*. Washington DC: AAMC.
- Association of American Medical Colleges. (1997). *Increasing women's leadership in academic medicine* [online]. Available: <http://aamcinfo.aamc.org> [Access date unknown].
- Association of Canadian Medical Colleges. (1987). *Canadian medical education, statistics*. Ottawa: AAMC.
- Barnett, R. C., Carr, P., Boisnier, A. D., Ash, A., Friedman, R. H., Moskowitz, M. A., & Szalacha, L. (1998). Relationships of gender and career motivation to medical faculty members production of academic publications. *Academic Medicine, 73*(2), 180-186.
- Bennett, N. M., & Nickerson, K. G. (1992). Women in academic medicine: Perceived obstacles to advancement. *Journal of the American Medical Association, 267*(4), 115-118.
- Bickel, J., & Whiting, B. (1991). Comparing the representation and promotion of men and women faculty at U.S. medical schools. *Academic Medicine, 66*, 497.
- Bonner, T.N. (1998). Searching for Abraham Flexner. *Academic Medicine, 73*(2), 160-166.
- Canadian Medical Association. (1996). Women in medicine: The Canadian experience. *CMA News, 6*(2), 7.
- Carr, P., Noble, J., Friedman, R. H., Moskowitz, M. A., & Kasiz, L. E. (1993). Comparing the status of women and men in academic medicine. *Annals of Internal Medicine, 119*(9), 908-913.
- Cohen, M. (1997). Cracking the glass ceiling. *Canadian Medical Association Journal, 157*, 1713-4.
- Conley, F. K. (1993). Toward a more perfect world: Eliminating sexual discrimination in academic medicine. *New England Journal of Medicine, 328*, 352.
- Dickstein, L. J. (1996). Overview of women physicians in the United States. In D. Wear (Ed.), *Women in medical education: An anthology of experience* (pp. 3-9). Albany, NY: SUNY Press.
- Duffin, J. (1996). Lighting candles, making sparks, and remembering not to forget. In D. Wear (Ed.), *Women in medical education: An anthology of experience* (pp. 33-45). Albany, NY: SUNY Press.

- Eisenberg, C. (1989). Medicine is no longer a man's profession, or, When the men's club goes coed, it's time to change the regs. *New England Journal of Medicine*, 321(22), 1542-1544.
- Field, D., & Lennox, A. (1996). Gender in medicine: The views of first and fifth year medical students. *Medical Education*, 30(4), 246-252.
- Kazimirski, J. C. (1997). Carpe diem. *Canadian Medical Association News*, 7(2), 2.
- Levinson, W., Tolle, S., & Lewis, C. (1989). Women in academic medicine: Combining career and family. *New England Journal of Medicine*, 321(22), 1511-1517.
- Levinson, W., & Weiner, J. (1991). Promotion and tenure of women and minorities on medical school faculties. *Annals of Internal Medicine*, 114(1), 63-68.
- Long, J. S., Allison, P. D., & McGinnis, R. (1993). Rank advancement in academic careers: Sex differences and the effect of productivity. *American Sociological Review*, 58, 703-722.
- Mahowald, M. B. (1996). A feminist in the medical academy. In D. Wear (Ed.), *Women in medical education: An anthology of experience* (pp. 47-58). Albany, NY: SUNY Press.
- Nadelson, C. C. (1989). Professional issues for women. *Psychiatric Clinics of America*, 12(1), 25-33.
- Nickerson, K., Bennett, N., Estes, D., & Shea, S. (1990). The status of women at one academic center: Breaking through the glass ceiling. *Journal of the American Medical Association*, 264(14), 1813-1817.
- Ochberg, R. L., Barton, G. M., & West, A. N. (1989). Women physicians and their mentors. *Journal of American Medical Women's Association*, 44, 123-6.
- Redman, S., Saltman, D., Straton, J., Joung, B., & Paul, C. (1994). Determinants of career choices among women and men medical students and interns. *Medical Education*, 28(5), 361-371.
- Tesch, B., Wood, H. M., Helwig, A. L., & Nattinger, A. B. (1995). Promotion of women physicians in academic medicine: Glass ceiling or sticky floor? *Journal of the American Medical Association*, 273(13), 1022-1025.
- Wear, D. & Bickel, J. (1996). Women's programs at medical schools and feminism: What is the intersection? In D. Wear (Ed.), *Women in medical education: An anthology of experience* (pp. 21-29). Albany, NY: SUNY Press.