

Annotated Bibliography: Academic Medicine

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Ash, A. S., Carr, P. L., Goldstein, R., & Friedman, R. H. (2004). Compensation and advancement of women in academic medicine: Is there equity? *Annals of Internal Medicine*, 141, 205-212, W43-W44.

A 1995/1996 survey of 1814 full-time medical school faculty in 24 schools found sex differences in achievement of full professorship and in salary (for physicians only) via linear and logistic regression analyses that used as predictors physician status, department type, minority status, chair or chief, school, years of seniority, hours worked per week, and number of career publications. For the full professor analysis, only faculty with at least 10 years of seniority (n = 864) were included; each additional year of seniority was worth less to women than to men. At all levels of productivity, women are less likely than men to be full professors. Underrepresented minority faculty were less likely to be full professors. Female physicians earned less than male physicians, nonphysicians earned less than physicians, underrepresented minorities earned less than whites.

Baker, L. C. (1996). Differences in earnings between male and female physicians. *The New England Journal of Medicine*, 334, 960-964.

For physicians below the age of 45, with 2-5 years of experience, there no income disparity once one adjusts for: a) *hours worked per week* – men work 62, women work 51, b) *specialty* – men work in more remunerative specialties than women (in 4 highest-paying fields [radiology, general surgery, anesthesiology, subspecialty surgery], 27% of men practice, 14% of women; in 3 lowest-paying fields [general practice, pediatrics, general internal medicine], 42% of men practice, 55% of women), c) *practice setting* – men work in more remunerative settings, and d), *miscellaneous factors* – AMA membership, marital status, etc.

For physicians with 6-9 years of experience, women make 96% of men's income even after adjustments. For physicians with 10 or more years of experience, women make 85% of men's income even after adjustments.

Benz, E. J., Jr., Clayton, C. P., & Costa, S. T. (1998). Increasing academic internal medicine's investment in female faculty. *American Journal of Medicine*, 105, 459-463.

How medical schools can improve the status of female faculty.

Cain, J. M., Schulkin, J., Parisi, V., Power, M. L., Holzman, G. B., & Williams, S. (2001). Effects of perceptions and mentorship on pursuing a career in academic medicine in obstetrics and gynecology. *Academic Medicine*, 76, 628-634.

A 1998 survey of residents (n=4659) and fellows (n=811) in obstetrics and gynecology found sex differences among first-year residents in likelihood of pursuing a career in academic medicine, with 80 % of women considering such a career compared to 72 % of men. By the fourth year, however, interest in both groups had dropped to 66%. Serious sex differences in residents' perception of recruitment, career advice, and supervisors' attitudes were also apparent. Although a large minority of each sex (45 % of men and 42 % of women) perceived no gender bias in faculty recruiting, 17 % of men compared to 45 % of women saw bias in favor of men, while 38 % of men and 13 % of women saw bias in favor of women. A majority of each sex (64 % of men and 58 % of women) saw no bias in career advice, but 10 % of men and 34 % of women thought men were more likely to receive helpful career advice, while 26 % of men and 8 % of women thought women were more likely to receive helpful career advice. Most men saw no gender bias in supervisors' attitudes (63 %), as did a substantial minority of women (46 %). The sexes agreed that, if condescension was displayed by supervisors, it was more likely to be displayed toward a woman (27 % of men and 50 % of women agreed). A majority of nonwhite residents (60 %) thought whites were more actively recruited for faculty positions, while most whites (56 %) thought that there was no bias.

Carnes, M. & Bland, C. (2007). A challenge to academic health centers and the National Institutes of Health to prevent unintended gender bias in the selection of clinical and translational science award leaders. *Academic Medicine*, 82, 202–206.

Only 3 of the first 24 of NIH's Clinical and Translational Science Awards (CTSAs) went to women. This has a ripple effect: since women are the main investigators of women's health, the failure to fund women also represents failure of a commitment to women's health.

Carnes, M., Geller, S., Fine, E., Sheridan, J., & Handelsman, J. (2005). NIH Director's Pioneer Awards: Could the selection process be biased against women? *Journal of Women's Health*, 14, 684–691.

Improvements in the selection process for Pioneer Awards resulted in an immediate increase in the percentage of awards going to women. In the process used for the first set of NIH Director's Pioneer Awards in 2004, the percentage of women in the three phases of the process declined from about 20 % of initial applicants to 13 % of those whose dossiers went to external review to 10 % of those selected for an interview to 0 % of those who received an award. The basis on which judges made their determination is not known, but after changes in the procedures, there was an immediate increase in the percentage of women awardees to 46 % in 2005.

From the abstract concerning features of the first competition which worked against the selection of women: (1) time pressure placed on evaluators, (2) absence of face-to-face discussion about applicants, (3) ambiguity of performance criteria, given the novelty of the award, combined with an emphasis on subjective assessment of leadership, potential achievements rather than actual accomplishments, and risk taking, (4) emphasis on self-promotion, (5) weight given to letters of recommendation, and (6) the need for

finalists to make a formal, in-person presentation in which the individual and not his or her science was the focus of evaluation

VVV addition: The percentage of women subsequently declined to a low of 17 % in 2007, rebounding to 25 % in 2008 (0/9 in 2004, 6/13 in 2005, 4/13 in 2006, 2/12 in 2007, and 4/16 in 2008). Of the 31 NIH New Innovator Awards in 2007, 12 went to women (39 %); of the 35 awards in 2008, 11 went to women (31 %). Evaluators of prestigious awards may make unintentional errors of judgment.

Carnes, M., Morrissey, C., & Geller, S. E. (2008). Women's health and women's leadership in academic medicine: Hitting the same glass ceiling? *Journal of Women's Health, 17*, 1453-1462.

An analysis of the connection between women scientists' success in academic medicine and women's health initiatives. Gender schemas have a negative influence both on women's advancement and women's health: women are not taken seriously as leaders or as people whose health matters. Since women are the main scientists working on women's health, the small number of women academic leaders, heads of institutes at NIH, members of important editorial boards, and heads of important centers results in less attention to women's health. Gender bias in reporting of results, generally the result of ignoring or downplaying sex differences and highlighting and overgeneralizing the results from men, can lead to incorrect medical recommendations for women. NIH does not adequately fund research on women's health.

Carr, P. L., Ash, A. S., Friedman, R. H., Scaramucci, A., Barnett, R. C., Szalacha, L., Palepu, A., & Moskowitz, M. M. (1998). Relation of family responsibilities and gender to the productivity and career satisfaction of medical faculty. *Annals of Internal Medicine, 129*, 532-538.

A 1995 survey of 1963 medical school faculty at 24 medical schools, with three age groups (< 40, 40-49, > 50), measured aspirations, attitudes, institutional support, perceptions of obstacles to advancement, time spent on child care, and productivity.

To measure aspirations and goals, the researchers used 5-point scales, where 5 indicated great aspiration or agreement. Among faculty with children, women had lower aspirations than men to be department chair (although neither group had much: 1.9 for women, 2.4 for men) or full professor (although the numerical difference was small: 3.8 compared to 4.0). Women more strongly than men endorsed the statement that nonprofessional goals were as important as professional goals (4.1 compared to 3.7). For faculty without children, women and men were equally uninterested in being department chair (1.9 compared to 2.1) and equally interested in becoming full professor (3.8 for both). But childless women gave more importance to their nonprofessional life than did childless men (3.9 compared to 3.6).

Among faculty with children, women were less likely than men to receive research funding from their institution (46.5 % compared to 57 %) and had less secretarial assistance. Women also reported less career satisfaction than men (5.9 on a 10-point scale compared to 6.6). For faculty without children, there were no sex

differences in research funding from the institution (51 % for both) and no sex differences in career satisfaction (5.9 for women and 6.1 for men).

Among faculty with children, women reported spending more time on child care responsibilities (22 hours/week) than did men (14 hours/week). At rates ranging from double to triple the rates for men, women reported as problematic meetings outside of normal weekday times, absence of a parental leave policy, absence of other family leave policy, absence of on-site child care, and absence of emergency child care. Among faculty without children, women did not find meetings more of a problem than did men, but they did find the absence of family leave policies much more of a problem.

Data on productivity largely mirror previous studies. Women with children do not publish less than women without children. Career publications (means adjusted for school, specialty, race, year of first faculty appointment, age, and marital status) for women with children numbered 18.3 and for men with children numbered 29.3 (a significant difference); for faculty without children, the comparison was 17.6 for women and 20.5 for men (not significant).

Carr, P. L., Ash, A. S., Friedman, R. H., Szalacha, L., Barnett, R. C., Palepu, A., & Moskowitz, M. M. (2000). Faculty perceptions of gender discrimination and sexual harassment in academic medicine. *Annals of Internal Medicine*, 132, 889-896.

A 1995 survey of 1963 medical school faculty at 24 medical schools, with three age groups (< 40, 40-49, > 50), found sex differences in experiences of discrimination and harassment. With respect to gender bias, 60 % of women compared to 9 % of men reported experiencing it. With respect to harassment (defined as experiencing unwanted sexual advances, subtle bribery to engage in sexual behavior, threats to engage in sexual behavior, or coercive advances), 29 % of women compared to 3 % of men reported experiencing it.

Fried, L. P., Francomano, C. A., MacDonald, S. M., Wagner, E. M., Stokes, E. J., Carbone, K. M., Bias, W. B., Newman, M. M., & Stobo, J. D. (1996). Career development for women in academic medicine: Multiple interventions in a department of medicine. *Journal of the American Medical Association*, 276, 898-905.

The Johns Hopkins University Department of Medicine successfully developed a program to advance women from assistant professor to associate professor.

Geller, S.E., Adams, M.G., & Carnes, M. (2006). Adherence to federal guidelines for reporting of sex and race/ethnicity in clinical trials. *Journal of Women's Health*, 15, 1123-1131.

Federal guidelines are not adhered to in reporting of sex comparisons in clinical trials. An analysis of 69 papers published in 2004 in major journals, the research of which was federally funded, found that even in studies that enrolled both men and women, women were underrepresented. From the abstract: [women were] on average 37% of the [sample in the 46 clinical studies] and only 24% of the sample when analysis

was restricted to drug trials. Eighty-seven percent of the studies did not report any outcomes by sex or include sex as a covariate in modeling. Among all 69 studies, 18% did not break down sample sizes by racial and ethnic groups, and 87% did not provide any analysis by racial or ethnic groups. Only 5 studies indicated that the generalizability of their results may be limited by lack of diversity among those studied.

Jagsi, R., Guancial, E.A., Worobey, C.C., Henault, L.E., Chang, Y., Starr, R., Tarbell, N.J., & Hylek, E.M. (2006). The “gender gap” in authorship of academic medical literature—A 35-year perspective. *New England Journal of Medicine*, 355, 281–287.

From 1970 to 2004, the percentage of women first and senior authors increased substantially in all journals (most in obstetrics and pediatrics and least in surgery), as did the percentage of guest editorials in JAMA and NEJM. But women are still a minority of first and senior authors and guest contributors.

McMurray, J.E., Linzer, M., Konrad, T.R., Douglas, J., Shugerman, R., & Nelson, K. for the SGIM Career Satisfaction Study Group. (2000). The work lives of women physicians: Results from the Physician Work Life Study. *Journal of General Internal Medicine*, 15, 372–380.

A survey of over 2000 nonsurgical physicians found, after various controls, that women averaged \$22K less than men in income. Women experienced less satisfaction in many areas than did men, but more satisfaction with their specialty and their relationships with patients and colleagues.

Nonnemaker, L. (2000). Women physicians in academic medicine. *New England Journal of Medicine*, 342, 399–405.

How many associate or full professors "should" there be, given the number of assistant or associate professors? Via cohort data of medical school graduates from 1979 to 1993, Nonnemaker shows that at both the associate and full level, more women would be expected than are present, even controlling for specialty. Income figures show advantages for women over men in pediatrics and family medicine; those advantages do not carry over to promotion where, in almost every specialty where there are enough numbers for a meaningful comparison, men are advantaged relative to women.

Trix, F. & Psenka, C. Exploring the color of glass: letters of recommendation for female and male medical faculty. (2003). *Discourse and Society*, 14, 191–220.

Letters of recommendation for successful female and male medical faculty showed differences in terms used to describe them and in the length of letters. Letters for females were shorter than those for males; included more phrases expressing doubts about the candidate; used more "grindstone" adjectives; mentioned their sex more often; were more likely to include only minimal information; mentioned their personal life more often. Letters for males, compared to letters for females, included more repetition of standout words like "outstanding", "excellent", and "superb"; included more references to research, skills and abilities, and career; included fewer references to training and

teaching; mentioned their publications, vita, patients, and colleagues more often. Letter writers are at risk of underselling the abilities and qualifications of the women they write for and of overselling the abilities and qualifications of the men they write for.

Valian, V. (1998). *Why so slow? The advancement of women*. Cambridge, MA: M.I.T. Press. (Paperback published 1999.)

A still-current analysis of the reasons behind women's slow advancement in the professions. Integrates research from social psychology, developmental psychology, cognitive psychology, economics, and neuroscience.

Valian, V. (2007). Women in science – and elsewhere. In S. J. Ceci & W. Williams (Eds.), *Why aren't more women in science? Top gender researchers debate the evidence* (Ch. 1, pp 27-37). Washington, DC: American Psychological Association.

How to understand the status of women in science. Includes sex comparisons on math and a discussion of the relation between ability and effort.

Vidaver, R.M., Lafleur, B., Tong, C., Bradshaw, R., & Marts, S. A. (2000). Women subjects in NIH-funded clinical research literature: Lack of progress in both representation and analysis by sex. *Journal of Women's Health & Gender Based Medicine*, 9, 495–504. See correction in *Journal of Women's Health & Gender-Based Medicine*, 2000, 9, 1041-1043.

Despite NIH's requirement of equal representation of men and women as participants in clinical research (absent compelling reasons for non-equality), sex comparisons are not appropriately reported. NIH-funded studies published in *New England Journal of Medicine*, the *Journal of the American Medical Association*, the *Journal of the National Cancer Institute*, and *Circulation*, from the years 1993, 1995, 1997, and 1998, included women as subjects 85% to 90% of the time, but did not uniformly report results by sex. Among all published studies, reports by sex were only included 33% to just under 50% of the time.

Resources

www.hunter.cuny.edu/gendertutorial (funded by a grant from the National Science Foundation)

Tutorials for Change: Gender Schemas and Science Careers: 4 tutorials in the form of slides with voice-over narration.

- Tutorial 1, *Sex disparities in rank and salary*
- Tutorial 2, *Gender schemas and our evaluations of others*
- Tutorial 3, *Gender Schemas and our evaluations of ourselves*
- Tutorial 4, *Remedies: What you can do*

<http://www.hunter.cuny.edu/genderequity> (partially funded by the National Science Foundation)

see especially www.hunter.cuny.edu/genderequity/equitymaterials.html

Resources for creating gender equity in institutions and organizations; documents range from 1 to 11 pages.

- *Creating equity*. Background and reasons people doubt that there is a gender equity problem in the professions, especially academia.
- *Sex disparities in advancement and income*. Recent data showing that there has been progress in equity but that the progress is largely confined to entry level salaries and ranks.
- *Benefits of ensuring gender equity*. Although gender equity requires a commitment of resources, there are benefits to the institution for establishing and maintaining equity.
- *Analyzing and correcting visible gender equity problems*. A list of problems that are relatively easy to detect and possible solutions to them.
- *Analyzing and correcting hidden gender equity problems*. A list of problems that are harder to detect and possible solutions to them.
- *Individual action for gender equity*. Ways to help your colleagues and yourself.
- *Gender, power, and influence*. Background and suggestions.
- *Annotated bibliography*. Relevant research articles and books with summaries of their conclusions and implications.
- *Annotated Bibliography: Academic medicine*. Relevant research articles and books with summaries of their conclusions and implications for academic medicine.