

E. Ioannidou^{1*}, R.N. D'Souza²,
and M.J. MacDougall³

¹Dental Clinical Research Center, University of Connecticut Health Center, Farmington, USA; ²University of Utah, School of Dentistry, Salt Lake City, USA; and ³Institute of Oral Health Research, School of Dentistry, University of Alabama at Birmingham, USA; *corresponding author, ioannidou@uchc.edu

J Dent Res 93(1):5-7, 2014

KEY WORDS: gender gap, dental academia, faculty retention, academic leadership, salary inequality, tenure policy.

The need for women in academia to unite was seen in 1881, when Professors Marion Talbot and Ellen Richards founded the American Association of University Women. During this “Progressive Era”, women suffragists fought for and gained the right to vote, first in New Zealand (1893) and later in the United States (1920). As this first wave of feminism grew, it was highlighted by French philosopher Simone de Beauvoir in her book *Second Sex*, on gender inequality in a patriarchic society (Beauvoir, 1949). Betty Friedan’s *The Feminine Mystique* sparked the second wave of feminism, presenting the needs of women trapped in a life that they did not necessarily choose (Friedan, 1963). These movements culminated with The Equal Pay Act (1963) and The Equal Rights Amendment (1972), denouncing pay and sex discrimination for women, currently ratified in 35 U.S. states (113th Congress Joint Resolution 10, 2013).

These advances led to the Women in Science and Technology Equal Opportunity Act, ensuring that “men and women have equal opportunity in education, training, and employment in scientific and technical fields” (Carter, 1980) and resulting in increased numbers of female investigators funded by the National Science Foundation (24%) and the National Institutes of Health (27%) (NSF, 2012; NIH, 2012). While these social and civil achievements improved the status of women in academia, there are several career challenges remaining related to an increasingly complex work environment.

Although the Council of Graduate Education report shows that women are earning more doctoral degrees (52.4%) than men (Allum *et al.*, 2012), women are still held back in achieving successful careers in academics (Shen, 2013). The “Beyond Bias and Barriers” report (National Research Council, 2007)

Gender Equity in Dental Academics: Gains and Unmet Challenges

clearly demonstrated that women are less likely to achieve tenure in academic institutions and are often expected to meet higher standards than their male counterparts. Generally, tenure policies lack flexibility for women during their junior faculty/childbearing years (Marchant *et al.*, 2007). Departmental climates have also been shown to influence higher attrition rates among women since they tend to be less satisfied with their jobs and thus are more likely to quit (Nesbitt *et al.*, 2003). Consequently, the conflicts between personal and professional life develop and strongly affect women in terms of faculty promotion and retention, with 40% of women more likely to exit the tenure track for adjunct positions (National Research Council, 2007).

When examining global gender issues, the World Economic Forum (Hausmann *et al.*, 2008) measured the gender gap according to 4 distinct criteria: economic participation and opportunity, educational attainment, political empowerment, and health and survival. The Nordic countries are on the top of the list, confirming their consistent gender equality priorities, with the United States ranked 27th, showing modest improvements in wage inequality and political empowerment (Hausmann *et al.*, 2008). These results correlate with the European Union data on gender and research funding (European Commission, 2009), where the Nordic countries are considered proactive, with policies that secure women’s participation in research by encouraging grant applications from women, increasing numbers of women on review boards, and promoting funding transparency. Unlike the United States, the European Commission has been mandating 40% women participation on advisory boards for research funding programs (Vernos, 2013), striving to eliminate bias and enhance the funding success of women academicians in all 27 countries.

Despite the Equal Pay Act, salary inequality between men and women has been recognized across all fields and academic appointment levels (West and Curtis, 2006), with women medical scientists earning 80% of male median wages (Goldberg Dey and Hill, 2007). This pay gap, established as early as one year post-bachelor’s degree, widens by 10 years post-degree (69%)

DOI: 10.1177/0022034513510178

Received June 3, 2013; Last revision August 30, 2013; Accepted September 29, 2013

© International & American Associations for Dental Research

Table. Guaranteed Annual Salary of Full-time Faculty by Primary Appointment and Gender in 2008-2009 and 2010-2011

Rank	Women 2008-2009		Men 2008-2009		Δ (WS-MS) 2008-2009	Women 2010-2011		Men 2010-2011		Δ (WS-MS) 2010-2011
	Faculty #	Mean Salary	Faculty #	Mean Salary		Faculty #	Mean Salary	Faculty #	Mean Salary	
Dean	14	\$222,440	37	\$260,939	-\$38,499	11	\$273,125	38	\$366,568	-\$93,443
Associate Dean	46	\$156,171	137	\$163,021	-\$6,850	52	\$209,075	139	\$240,242	-\$31,168
Clinic Director	50	\$112,236	102	\$121,549	-\$9,313	52	\$160,943	118	\$199,887	-\$38,944
Department Chair (Basic Science)	9	\$166,375	22	\$175,360	-\$8,985	7	\$209,115	14	\$211,921	-\$2,806
Department Chair (Clinical Science)	39	\$137,893	169	\$152,675	-\$14,782	37	\$206,337	181	\$233,540	-\$27,203
Department Chair (Research)	5	\$180,215	14	\$178,647	\$1,568	5	\$195,675	16	\$238,807	-\$43,132

The approximate ratio of male to female faculty is 3:1. WS, mean women's salary; MS, mean men's salary; Δ (WS-MS), the calculated difference between women's and men's mean salaries. The Table highlights the increase in salary gap between women and men in dental academia. Source: American Dental Education Association Dental School Faculty Salary, 2008-2009 and 2010-2011.

and it is consistent for the level of education: Master's degree (76%), professional degree (72%), and doctoral degree (80%) (Goldberg Dey and Hill, 2007). Among dental faculty, men are consistently compensated at a higher level than women (ADEA, 2011, 2013) (Table). In an examination of the mean salaries for women vs. men in senior dental school positions, where men hold positions at a 3:1 ratio over women, the differentials currently range from \$2,806 to \$93,443 (Table). The comparative Table shows that the salary gap between women and men has not only not improved in the past two years but has also widened (ADEA, 2011, 2013).

Since social models have changed and continue to evolve, it is hoped that women will not have to face dilemmas in balancing careers with child-rearing (Ledford *et al.*, 2013). "As more women lean in their careers, more men lean in their families" (Sandberg, 2013). To increase women's participation in academic leadership, paid maternity/paternity leave and a delayed 'tenure clock', as well as consideration and selection of women as finalists for leadership positions, the presence of women on research committees and scientific review and editorial boards, should not be just mandates but an institutional strategic priority. Clearly, issues facing women in academia are multiple and complex, influenced by many personal/perceptual as well as social or state/federal barriers to equality.

Recent evidence showed that several dental schools did not offer paid maternity or paternity leave (3.1%), an automatically delayed 'tenure clock' with childbirth or adoption (13.3%), dual career appointments (21.9%), and mandatory representation on search committees (15.6%) (Dannels *et al.*, 2009). Analysis of these data stresses the need for critical institutional policies that will promote the career advancement of women in dental academics.

Today, there are numerous leadership programs preparing women academicians for better navigation of the labyrinth of academic life and to meet their fullest potential, such as the American Dental Education Association Leadership Institute and Executive Leadership in Academic Medicine (ELAM). Both programs have been successfully promoting the career

advancement of women, with currently 15.3% of U.S. dental school deans being women, of whom 60% were ELAM graduates (ADA, 2013). Moreover, over the past decades, the number of women dental students has increased from 23.80% in the early 1980s to 46.6% in 2010 (Gonzalez *et al.*, 2011), resulting in increased enrollment of women in advanced education programs (40.2%) (ADA, 2012) and increased participation in dental academia (ADEA, 2013). Further, Drs. Martha Somerman and Isabel Garcia currently serve as the Director and Deputy Director, respectively, of the National Institute of Dental and Craniofacial Research (NIDCR), demonstrating the presence of women in dental research and leadership at the national level.

In 2011, the International Association for Dental Research (IADR) established the "Women in Science" Network with a mission to focus on women's issues related to career development and health research. The network's goals are to examine dental academia policies and benefits related to key issues, such as recruitment and retention, promotion and tenure, salary, and childcare, as well as mentorship of junior women faculty and graduate trainees. The Women in Science Network is supportive of our academic institutions developing, encouraging, empowering, and equally promoting faculty regardless of their gender. The network, currently with 181 active and student members, has an active presence in every American Association for Dental Research (AADR) and International Association for Dental Research (IADR) meeting, organizing symposia and workshops with a focus on increasing women's participation in dental academia, holding business and brainstorming meetings, as well as mentoring graduate students and junior faculty. Dr. Marie Nylen provided a legacy for change through her leadership as the first female president of both the AADR (1979-1980) and the IADR (1981-1982). Since the mid-1990s, the role of women in leadership positions in IADR/AADR has expanded, with 7 out of 15 female IADR presidents (46.7%) and 6 out of 16 female AADR Presidents (37.5%) – excellent statistics for progressive organizations that continue to foster the development of women scientists, clinicians, and educators for future leadership roles.

ACKNOWLEDGMENT

The authors received no financial support and declare no potential conflicts of interest with respect to the authorship and/or publication of this article.

REFERENCES

- 113th Congress Joint Resolution 10 (2013). A joint resolution proposing an amendment to the Constitution of the United States relative to equal rights for men and women. URL accessed on 10/3/2013 at: <http://beta.congress.gov/bill/113th-congress/senate-joint-resolution/10>.
- ADA (2012). Survey of Advanced Dental Education Programs, Enrollment and Graduates. URL accessed on 10/3/2013 at: http://www.cgsnet.org/ckfinder/userfiles/files/GEDReport_2012.pdf.
- ADA (2013). Dental School List. In: American Dental Association. URL accessed on 10/3/2013 at: <http://www.ada.org/267.aspx>.
- ADEA (2011). American Dental Education Association Faculty Salary Report: Guaranteed Annual Salary 2008-2009, Total Compensation 2008-2009. URL accessed on 10/3/2013 at: <http://www.adea.org/publications/library/ADEAsurveysreports/Pages/default.aspx>.
- ADEA (2013). Dental School Faculty Salary Executive Summary and Tables, Guaranteed Annual Salary: 2010-2011, Total Compensation: 2010-2011. URL accessed on 10/3/2013 at: <http://www.adea.org/publications/library/ADEAsurveysreports/Pages/default.aspx>.
- Allum JR, Bell NE, Sowell RS (2012). Graduate Enrollment and Degrees: 2001-2011. Washington, DC: Council of Graduate Schools. URL accessed on 10/3/2013 at: <http://www.cgsnet.org/graduate-enrollment-and-degrees-2001-2011>.
- Beauvoir S (1949). *Le Deuxieme Sexe (The Second Sex)*. New York, NY: Vintage Books.
- Carter J (1980). National Science Foundation Authorization and Science and Technology Equal Opportunities Act Statement on Signing S. 568 into Law. URL accessed on 10/3/2013 at: <http://www.presidency.ucsb.edu/ws/?pid=44400 - axzz2gahlHqT>.
- Dannels SA, McLaughlin JM, Gleason KA, Dolan TA, McDade SA, Richman RC, *et al.* (2009). Dental school deans' perceptions of the organizational culture and impact of the ELAM program on the culture and advancement of women faculty. *J Dent Educ* 73:676-688.
- European Commission (2009). The gender challenge in research funding: Assessing the European national scenes. Directorate-General for Research, Science, Economy and Society. Brussels, Belgium. URL accessed on 10/3/2013 at: http://ec.europa.eu/research/science-society/document_library/pdf_06/gender-challenge-in-research-funding_en.pdf.
- Friedan B (1963). *The feminine mystique*. New York, NY: W.W. Norton.
- Goldberg Dey J, Hill C (2007). Behind the pay gap. In: American Association of University Women Educational Foundation. Washington, DC: AAUW. URL accessed on 10/3/2013 at: <http://www.aauw.org/files/2013/02/Behind-the-Pay-Gap.pdf>.
- Gonzalez G, Anderson E, Novak KF, Valachovic RW (2011). U.S. dental school applicants and enrollees, 2009 entering class. *J Dent Educ* 75:1133-1157.
- Hausmann R, Tyson LD, Zahidi S (2008). *The Global Gender Gap Report*. Geneva, Switzerland. URL accessed on 10/3/2013 at: http://www3.weforum.org/docs/WEF_GenderGap_Report_2012.pdf.
- Ledford H, Petherick A, Abbott A, Nordling L (2013). From the frontline: 30 something science. *Nature* 495:28-31.
- Marchant A, Bhattacharya A, Carnes M (2007). Can the language of tenure criteria influence women's academic advancement? *J Women's Health (Larchmt)* 16:998-1003.
- National Research Council (2007). Beyond bias and barriers: fulfilling the potential of women in academic science and engineering. URL accessed on 10/3/2013 at: http://www.nap.edu/catalog.php?record_id=11741.
- Nesbitt PE, Inglehart MR, Sinkford JC (2003). Work environment perceptions of full-time dental educators: does gender matter? *J Dent Educ* 67:916-924.
- NIH (2012). NIH Data Book. URL accessed on 10/3/2013 at: <http://report.nih.gov/NIHDataBook/>.
- NSF (2012). Report to the National Science Board. In: National Science Foundation. URL accessed on 10/3/2013 at: <http://www.nsf.gov/nsb/publications/2012/nsb1228.pdf>.
- Sandberg S (2013). *Lean in: women, work, and the will to lead*. New York, NY: Alfred A. Knopf.
- Shen H (2013). Inequality quantified: mind the gender gap. *Nature* 495:22-24.
- Vernos I (2013). Quotas are questionable. *Nature* 495:39.
- West MS, Curtis JW (2006). AAUP Faculty Gender Equity Indicators. URL accessed on 10/3/2013 at: <http://www.aauw.org/NR/rdonlyres/63396944-44BE-4ABA-9815-5792D93856F1/0/AAUPGenderEquityIndicators2006.pdf>.