

Leadership Disparities in State Governmental Public Health Workforce: Examining the Influence of Gender

Theresa Chapple-McGruder, PhD, MPH; Zipatly V. Mendoza, MPH; Gandarvaka Miles, PhD, MPH; Renata Hilson, PhD, MPH; Jacqueline Wiltshire, PhD, MPH; Jocelyn Wilder, MPH, MS; Leila Heidari, MPH; Brian C. Castrucci, MA, DrPH; Elizabeth Gould, DrPH

ABSTRACT

Objective: To determine the extent to which gender disparities exist in either obtaining a leadership position or pay equity among those with leadership positions in state governmental public health agencies.

Design: Utilizing the 2014 Public Health Workforce Interests and Needs Survey, a nationally representative cross-sectional study of state governmental public health agency employees, the characteristics of the state governmental public health agency leadership were described. We estimated the odds of being a manager or an executive leader and the odds of leaders earning greater than \$95 000 annually for women compared with men using polytomous multinomial regression and logistic regression models, respectively.

Setting and Participants: The Public Health Workforce Interests and Needs Survey was conducted via electronic survey at 37 state health departments. This study utilized only those respondents who listed their current position as a supervisory position ($n = 3237$).

Main Outcome Measures: Leadership position and high-earning leadership were the 2 main outcome measures explored. Leadership position was defined as a 3-level ordinal variable: supervisor, manager, or executive leader. High-earning leadership was defined as a member of leadership earning \$95 000 or greater.

Results: Women accounted for 72.0% of the overall state governmental public health agency workforce and 67.1% of leadership positions. Women experienced lower odds (odds ratio = 0.55, 95% confidence interval: 0.39-0.78) of holding executive leadership positions than men and lower odds (odds ratio = 0.64, 95% confidence interval: 0.50-0.81) of earning an annual salary greater than \$95 000.

Conclusion: While women were represented in similar proportions in the general workforce as in leadership positions, gender disparities still existed within leadership positions. Increased effort is needed to ensure that opportunities exist for women in executive leadership positions and in pay equity. With public health's commitment to social justice and the benefits of diversity to an agency's policies and programs, it is important to ensure that women's voices are equally represented at all levels of leadership.

KEY WORDS: gender disparities, governmental public health workforce leadership, salary

Author Affiliations: de Beaumont Foundation, Bethesda, Maryland (Dr Chapple-McGruder and Castrucci, and, Ms Heidari); Mel & Enid Zuckerman College of Public Health, Division of Public Health Practice and Translational Research, The University of Arizona, Phoenix, Arizona (Ms Mendoza); Booz Allen Hamilton, Inc, Norfolk, Virginia (Dr Miles); Strategy & Evaluation, Kaiser Foundation Health Plan of Georgia, Atlanta, Georgia (Dr Hilson); Department of Health Policy and Management, College of Public Health, University of South Florida, Tampa, Florida (Dr Wiltshire); Department of Epidemiology, University of Illinois at Chicago, School of Public Health, Chicago, Illinois (Ms Wilder); and State/Territorial Development and Engagement, Association of State and Territorial Health Officials, Arlington, Virginia (Dr Gould).

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Public health not only acknowledges but studies the importance of lived experience in terms of its impact on health.¹ In the United States, lived experiences vary on the basis of race, ethnicity, gender, and other components that constitute diversity.² These varying experiences result in disproportionate

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Correspondence: Theresa Chapple-McGruder, PhD, MPH, Association of Maternal & Child Health Programs, 1825 K St, NW, Suite 250, Washington, DC 20006 (tchapple-mcgruder@amchp.org).

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impacts among populations in terms of the burden of disease.³⁻⁷ By emphasizing collective responsibility and action, public health takes a social justice approach to addressing health disparities, stressing equitable access to lived experiences that determine good health, such as education, income, and healthy environments.^{1,8} While a focus on social justice is commonly applied to the programs, interventions, and activities within public health systems,¹ it is not clear that this is equally true in the hiring, promotion, and compensation practices affecting the state governmental public health agency workforce.

Previous studies have explored the distribution of the state governmental public health agency workforce as compared with the US population and have found that women were overrepresented in the state governmental public health agency workforce. In 2014, women accounted for slightly more than half of the US population and more than 70% of the state governmental public health agency workforce.^{9,10} However, there are no published studies that examine the gender distribution of the state governmental public health agency workforce among its various levels of management. The importance of highlighting, cultivating, and encouraging gender diversity within leadership positions in the state governmental public health agency workforce is 2-fold. First, those in leadership positions shape programs and policies; thus, diversity within leadership brings forth diversity of ideas aimed at solving pressing public health issues.² Second, research has shown that institutions with women leaders are more likely to work collaboratively with others, which has been found to be vital for governmental public health agencies.¹¹⁻¹³

Compensation differences between different genders is another area of inquiry when evaluating equity in governmental public health leadership. The Equal Pay Act and Title VII of the Civil Rights Act of 1964 have contributed to narrowing gender-based salary disparities in many professions. Yet, inequity persists, even in female-dominated industries such as public health.^{14,15} In 2014, the only national study of earning patterns among the state governmental public health agency workforce identified a gender wage gap, with women earning 90 to 95 cents on the dollar compared with men. That study also stated that the wage gap widened substantially for women in leadership positions.¹⁶ While that study provided insight into the existence of a gender gap in pay, it does not provide any additional insight into salary inequities among employees in leadership positions. Many factors contribute to the gender wage gap and promotion, such as education, experience, occupation, and family responsibilities,¹⁷⁻²¹ but key human resources strategies and policies can be

implemented to recruit, retain, and promote talented women.^{18,19,21,22}

This article seeks to fill this significant gap in the literature on gender disparities in state governmental public health agency leadership positions. Using data from the 2014 Public Health Workforce Interests and Needs Survey (PH WINS), this article explores the extent of disparities in representation and compensation by gender among those in leadership positions at state governmental public health agencies.

Methods

Sample

The PH WINS was a cross-sectional study designed to characterize and assess the perspectives and training needs of the state and local governmental public health agency workforce. The data collection and analytic methods of PH WINS have been previously described.²³ In brief, PH WINS employed a complex sampling design consisting of 3 sampling frames: (1) a nationally representative sample of permanent employees from the central offices of 37 state health departments; (2) employees of local health departments participating in the Big City Health Coalition (ie, local departments in large, urban areas); and (3) employees of local health departments in 7 states (Arkansas, Georgia, Mississippi, South Carolina, Vermont, Washington, and Wisconsin). Data were collected via a Web-based survey administered to health department staff between September and December 2014. The present study utilized survey data from the nationally representative sample, which resulted in responses from more than 10 000 state governmental public health agency employees. The analytic sample was restricted to full-time employees holding a leadership position within a state governmental public health agency ($n = 3237$).

Measures

The PH WINS respondents reported on their demographic characteristics including gender, race and Hispanic/Latino ethnicity, educational attainment, and experience in the public health workforce such as tenure in current position and tenure in management positions. Gender was self-selected and defined as male or female. Respondents were assigned to 1 of 5 groupings of adjacent US Department of Health & Human Services region on the basis of their state of employment.

Leadership position was coded in 2 different ways in the analysis. When leadership position was used as an outcome of interest, it was treated as a 3-level ordinal variable—supervisor, manager, or executive

leader. A supervisor was defined as a person responsible for employees' performance appraisals and approval of their leave but did not supervise other supervisors; a manager, someone who oversaw 1 or more supervisors; and an executive leader, someone who reported being a member of the senior executive service or equivalent. When leadership position was used as an explanatory variable, it was coded as a dichotomous variable by combining the 2 highest levels of leadership (upper management [manager or executive-level leader] vs supervisor).

The distribution of annual salary and wages was examined for each participating state to identify leadership with incomes falling within the highest quintiles. The incomes of "high earners" fell into the \$95 000 category or greater for 33 out of 37 states. Therefore, "high-earning leadership" was defined as those being in a leadership position and earning \$95 000 or greater annually.

Statistical analysis

We described the characteristics of the state governmental public health agency leadership using χ^2 tests to identify differences across genders. Polytomous multinomial regression models were constructed to assess the associations among gender and leadership status. Models were controlled for potential confounders, variables were assessed for collinearity, and model fit was assessed to determine the final model. Variables were kept in the model if significant at a *P* value of less than .1, utilizing a manual backward elimination approach. Logistic regression models were constructed to assess gender differences in the odds of receiving annual earnings within the top quintile. An approach similar to the model selection process for the multinomial regression model was applied in building the logistic regression model.

Robust standard errors were calculated using balanced repeated weighting to account for PH WINS' complex sampling design. All analyses were conducted in STATA v 14.0. The PH WINS was approved by the Chesapeake Institutional Review Board.

Results

About 20% of PH WINS respondents described themselves as holding a leadership position at a state governmental public health agency. Leadership was inclusive of supervisors (49.2%), managers (39.5%), and those in executive leadership roles (11.4%). More than 60% of the leadership in state governmental public health agencies had fewer than 5 years in their current position. About 30% of those in leadership positions held bachelor's degrees and about 40% held master's degrees. Among leaders with master's

degrees, 63% had degrees that were not in public health or a clinical area. Fifteen percent of leadership held doctoral degrees; however, 56% of those degrees were in non-public health and nonclinical areas such as doctor of education, doctor of law, and doctor of business management.

Gender differences

Women accounted for 67.1% of all public health leaders. However, when examining the breakdown of gender by leadership position, women were underrepresented at the executive leadership level (Table 1). A greater percentage of women in leadership positions held a master's degree than men (44.2% vs 31.9%). However, compared with women, a greater proportion of men in leadership positions held doctoral degrees (20.7% vs 12.9%) or bachelor's degrees (37.4% vs 27.2%). When adjusting for education and number of years in management, women had a 45% lower odds of holding executive leadership positions than men, odds ratio = 0.55 (95% confidence interval: 0.39-0.78) (Table 2).

Gender disparities were also found when examining predictors of pay differentials. Women in leadership positions were 36% less likely (odds ratio = 0.64, 95% confidence interval: 0.50-0.81) than men in leadership positions to earn annual salaries of \$95 000 or more, even after controlling for factors known to be associated with salary, such as race, education, number of years in management, and geographical region within the United States (Table 3).

TABLE 1
Gender Differences Among Leadership Positions (N = 3237) in State Governmental Public Health Agencies, Public Health Workforce Interests and Needs Survey 2014^a

Predictor Variables	Gender, % (95% CI)	
	Male	Female
Total	32.3 (29.7-35.0)	67.1 (64.4-69.8)
Leadership		
Supervisor	30.6 (26.7-34.9)	69.4 (65.1-73.3)
Manager	31.2 (27.2-35.5)	68.8 (64.4-72.8)
Executive	45.3 (39.9-50.9)	54.7 (49.1-60.1)
Income		
Non—high-income earners	29.5 (27.1-32.0)	70.5 (68.0-72.9)
High-income earners	40.1 (36.0-46.1)	59.1 (53.9-64.0)

Abbreviation: CI, confidence interval.

^aLeadership: Supervisor—person responsible for employees' performance appraisals and approval of their leave but did not supervise other supervisors. Manager—oversaw 1 or more supervisors. Executive leader—member of the senior executive service or equivalent.

TABLE 2
Gender Differences by Leadership Positions (N = 3237) in State Governmental Public Health Workers, Public Health Workforce Interests and Needs Survey 2014^a

Covariates	Managers		Executive Leaders	
	AOR	95% CI	AOR	95% CI
Gender				
Female	0.99	0.72-1.35	0.55^b	0.39-0.78^b
Male	Reference	Reference	Reference	Reference

Abbreviations: AOR, adjusted odds ratio; CI, confidence interval.

^a Multinomial logistic regression model employed—supervisors were the comparison group. Results adjusted for race, education, and number of years in management.

^b Statistically significant at an alpha = .05.

Discussion

Despite the social justice agenda at the forefront of public health practice,⁸ among the leadership of the state governmental public health agency workforce, traditional gender disparities persist. In response to the Institute of Medicine's report, "Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care," the US Department of Health & Human Services introduced an inclusive disparities action plan with 1 of the 5 major goals of strengthening the infrastructure and workforce of the nation's health and human services. The plan calls for the support of diversity, including gender diversity, within the public health workforce as a way to further decrease health disparities.^{3,5} Adoption of this plan and diversity plans at a state level could better integrate social justice and human resource agendas in governmental public health to address gender disparities in leadership positions.^{1,3,8}

While an overwhelming majority of the state governmental public health agency workforce was composed of women and two-thirds of its leadership were women, women were underrepresented in executive positions and, among leaders, have greater odds of receiving less compensation. These findings

are consistent with studies from the nursing field, another predominately female health field. Researchers note that female nurses make \$155 000 less than male nurses over their career, and women nurses in management positions make nearly \$4000 less than men annually.¹⁴ This gap reflects a larger societal issue where women continue to be underrepresented in leadership roles and earn less on the dollar than men.^{15,16} A study even found that agencies with primarily female-dominated occupations such as health tend to pay lower wages than agencies with primarily male-dominated positions.¹⁹ Although gender wage gaps are narrowing, it remains surprising that pay disparities continue to exist in female-dominated fields.

Across all fields, researchers have noted that the female-to-male wage gap has decreased over time from a ratio of 0.61 in 1960 to a ratio of 0.79 in 2014.²⁴ The fastest rate of decline was from 1980 to 2000 and explained by gains in marketable skills and education by women. Since the year 2000, women have surpassed men on most measurable marketable skills and in education; however, advances in wage parity are slowing.^{19,24}

While there is little information available to explain gender roles in state governmental public health agencies in terms of career advancements, studies from the public sector have indicated that work-life satisfaction policies are contributing factors for retention and promotions.¹⁹ Dissatisfaction with pay also impacts retention, which is an effect greatest on executive-level employees in the public sector.²⁵ In addition, strong networks among men are used for promotions.²⁶ The lack of work-life satisfaction policies and cultural support, such as social networks, places women at a disadvantage because of the predominance of men in executive-level positions despite public health being a female-oriented field. To mitigate these disadvantages, employers can adopt human resources practices to promote equal advancement opportunities such as conducting regular uniform performance evaluations, pay transparency, flexible work hours, leadership development, networking, and mentoring.^{17,19,21,26,27}

Mitigating disparities by gender will take commitment. Strategies that equip women in the state governmental public health agency workforce with tools, knowledge, and social networks to compete for executive level positions are necessary to ensure the diverse voice and perspectives needed to reduce gender disparities, which could potentially effect health improvements for all.¹⁴

Limitations

This study was subject to at least 4 known limitations. The main limitation of this study was the

TABLE 3
Gender Differences Among High-Earning Leadership (N = 3237) in State Governmental Public Health Workers, Public Health Workforce Interests and Needs Survey 2014^a

Covariates	AOR	95% CI
Gender		
Female	0.64	0.50-0.81
Male	Reference	Reference

Abbreviations: AOR, adjusted odds ratio; CI, confidence interval.

^a Results adjusted for race, education, number of years in management, and geographical region.

Implications for Policy & Practice

- This is the first study to explore gender disparities in leadership positions and salary among the state governmental public health agency workforce.
- Generally, when viewed in the aggregate, women were well represented in leadership positions of public health agencies. However, exploration of differences among leadership finds that women still struggle for representation at the highest levels of leadership.
- With public health's commitment to social justice and the benefits of diversity to an agency's policies and programs, it is important to ensure that women's voices are equally represented at all levels of leadership. State governmental public health agencies should make efforts to implement human resources practices that reduce representation and compensation disparities among women in leadership positions.
- Human resources practices and cultural changes such as uniform performance evaluations, pay transparency, flexible work hours, leadership development, networking, and mentoring are essential to prepare women to negotiate salaries that are comparable with men and for executive-level positions.

self-reported nature of the data, which may have led to misclassification bias. Respondents may have misclassified themselves as members of the executive leadership team, even though they held position titles that were not indicative of executive leadership. Also, only 5% (18 of 369 of respondents) in the executive leader category reported being state health officers. Therefore, these findings are more reflective of the executive leadership team. The state executive health officials' responses may be conflated with the overall executive leadership team responses.

This study was also limited by its inability to account for the methods by which people in executive leadership positions obtained those positions. Interventions may differ if executive leadership positions were appointed or merit-based positions. That information may have helped in interpreting salary differential as well. This study was also limited, in part, by the lack of participation from 13 states (Alabama, Colorado, Florida, Hawaii, Idaho, Iowa, Kentucky, Maine, Montana, Nevada, New Hampshire, New Mexico, and Oregon). This limitation was known during the design phase and addressed by the robust sampling scheme. However, some impact on representativeness and total number of responses is to be noted. Finally, some survey respondents questioned the amount of anonymity that their responses may have as a result of the level of detail of the

demographic section. This resulted in a greater number of missing responses from demographic fields and may also account for the misclassification previously described. This may have impacted the study's ability to adequately explore income among public health leadership.

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