Article

Women's Participation in Leadership Roles in a Single Canadian Paramedic Service

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Abstract: Introduction: Like other public safety professions, paramedicine has historically been a male-dominated occupation, both in the demography of its workforce and in its organizational culture. Although women are increasingly choosing paramedicine as a career, participation in leadership roles remains limited. Drawing on data from a recent comprehensive mental health survey, we describe the proportion of women in leadership in a single, large, urban paramedic service in Ontario, Canada. **Methods:** We distributed an in-person, paper-based survey during the fall 2019 - winter 2020 Continuing Medical Education (CME) sessions. Participating paramedics completed a demographic questionnaire alongside a battery of mental health screening tools. We assessed the demography of the workforce and explored differences in employment classification, provider level (e.g., primary vs. advanced care), and participation in formal leadership roles along self-reported gender lines. **Results:** Out of 607 paramedics attending CME, we received 600 completed surveys, with 11 excluded for missing data, leaving 589 for analysis and a 97% response rate. Women comprised 40% of the active-duty paramedic workforce, with an average of 8 years of experience. Compared to men, women were more than twice as likely to have a university degree (Odds Ratio [OR] 2.02), but almost half as likely to practice at the Advanced Care Paramedic level (OR 0.61), and somewhat less likely to be employed full-time (OR 0.77). Women were nearly 70% less likely to hold a leadership role in the service compared to men (OR 0.36), occupying just 20% of leadership positions. **Conclusion:** Although paramedicine is witnessing an encouraging shift in the demography of its workforce with greater participation from women, there is still work to be done, particularly in leadership. Future research should focus on identifying and ameliorating barriers to career advancement among women and other historically underrepresented people.

Keywords: Emergency Medical Services; paramedics; gender; diversity

Clinician's Capsule

- What is known about the topic?

Diversity among healthcare providers is increasingly recognized as an important determinant of health equity; however, like other public safety professions, paramedicine has historically been a male-dominated profession.

- What did this study ask?

This study sought to describe the demography of a single paramedic service in Ontario and assess women's participation in leadership roles.

- What did this study find?

Despite making up 40% of the workforce and having comparable levels of experience but higher rates of university education, women were less likely to practice at the advanced care paramedic level or hold a current leadership role.

 doi:10.20944/preprints202212.0056.v1

- Why does this study matter to clinicians?

In order to be attuned to the health and social needs of the population, healthcare organizations – including paramedic services – need to be demographically reflective of the communities they serve.

1. Introduction

There is growing recognition of the importance of a diverse healthcare workforce as a means of promoting health equity (1). In order to be attuned to the health and social needs of patients, healthcare institutions need to be demographically reflective of the communities they serve (2). Paramedics are an important part of Canada's healthcare infrastructure, with a role that is growing in both scope and complexity, but the profession has historically been masculine, both in its demography and in its organizational culture (2) - in part, because of its origins in public safety.

Recent studies on the Emergency Medical Services (EMS) workforce in the United States (US) have shown that although the proportion of women and racial or ethnic minorities is increasing (3), participation in leadership roles remains low (2) - pointing to a 'leaky pipeline' effect. Focusing on gender specifically, women are estimated to make up less than 25% of EMS personnel providing care in the US (4). In Canada, the proportion of women in the Public Safety Professions (PSP) – an umbrella term that includes paramedics alongside police officers, firefighters, corrections workers, and security and intelligence officers, among others – is estimated at around 30% (5), but disaggregated data is not available. Although anecdotally, more women are choosing paramedicine as a career, participation in leadership lags, with one gray literature estimate suggesting that women hold just 5% of supervisory or managerial positions in Canada (6).

Unfortunately, women face a multitude of barriers to career advancement broadly and may face additional challenges within the public safety professions. In contrast to recent investigations in the United States (3, 7), demographic data on the paramedic workforce in Canada is sparse. Therefore, as part of a larger mental health study, our objective was to describe the gender distribution of a single paramedic service and assess women's participation in leadership roles.

2. Methods

Overview & Setting

A detailed accounting of the methods for this study has been described in an earlier publication (8). In brief, the data were drawn from an in-person mental health survey conducted during compulsory Continuing Medical Education (CME) sessions in a single paramedic service in Ontario, Canada. At the time of data collection, the service employed 714 paramedics who responded to an average of 130,000 emergency calls per year, making the service the second largest in the province by staffing and caseload.

Ethics approval was provided by the Hamilton Integrated Research Ethics Board (HiREB protocol 7595). All participants provided informed consent.

Data Collection

As part of a larger investigation into the prevalence and risk factors for mental illness, paramedics attending CME completed a paper-based demographic questionnaire alongside a battery of clinically validated screening tools for various mental disorder symptom clusters. The demographic questionnaire inquired about the participant's gender, age, highest education completed (e.g., college diploma, undergraduate degree, graduate degree), years of experience, employment (e.g., part vs. full-time), provider classification (Primary vs. Advanced Care Paramedic [P/ACP]) and current role within the service. Response options for gender included man, woman, transgender, or non-binary, with definitions and descriptive language drawn from guidelines advanced by the Canadian Institutes of Health Research.

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 5 December 2022 doi:10.20944/preprints202212.0056.v1

Analysis

We used descriptive statistics to report on the demography of the workforce. Group differences were assessed using Analysis of Variance (ANOVA) and chi-square tests for continuous and categorical data, respectively. We defined a 'leadership role' as a current assignment in a superintendent (supervisor), commander (manager), or senior administration (e.g., department head, deputy chief) position; later collapsed to a dichotomous leadership variable. Entry-to-practice education for paramedics in Ontario requires applicants to have completed a (typically) two-year community college diploma program. Meanwhile, supervisory positions often prefer a university degree. We were therefore specifically interested in educational attainment and participation in leadership roles stratified by gender.

3. Results

Between September 2019 through February 2020, a total of 607 paramedics attended CME. We received 600 completed surveys, of which 11 were excluded for incomplete data, leaving a final sample of 589 participants and a response rate of 97%.

Demographic data are presented in Table 1. In total, 60% of participants were men, with an average age of 34.5 (+/- 8.2) years and an average of 9.3 (+/- 0.4) years of experience. A small number (not reported to preserve anonymity) provided another, non-binary gender.

Table 1. Detailed participant demographics. SD = Standard Deviation. *Counts <5 not reported to preserve anonymity.

Parameter	Men		Women		Sig.
	Mean	SD	Mean	SD	
Age (years)	35.2	8.5	33.6	7.5	0.21
Experience (years)	9.8	7.6	8.4	6.9	0.23
Education	**N**	**%**	**N**	**%**	
College Certificate	27	7.6%	13	5.6%	
College Diploma	196	55.4%	93	40.1%	
Undergraduate Degree	125	35.3%	117	50.4%	<0.001
Professional Degree	-*	0.6%	-*	1.7%	
Graduate Degree	-*	1.1%	5	2.2%	
Any University	131	37%	126	54.3%	<0.001
Employment Classification					
Part-Time or Temporary Contract	109	30.8%	85	36.6%	0.148
Full-Time	244	68.9%	147	63.4%	
Clinical Certification					
Primary Care Paramedic	226	63.8%	174	74.1%	0.009
Advanced Care Paramedic	128	36.2%	60	25.9%	
Role in Service					
Regular / Front-Line	327	92.4%	223	96.1%	
Rapid Response Unit	46	13%	22	9.5%	0.006
Tactical	16	4.5%	-*	0.4%	
Community Paramedicine	-*	0.3%	-*	1.3%	
Peer Support Team	16	4.5%	13	5.6%	0.554
Leadership Role					
Any Leadership Position	24	7.3%	6	2.6%	0.024

Compared with men, women were somewhat younger (33.6 vs. 35.1, p=0.02), had marginally less experience (8.4 vs. 9.7 years, p=0.02), were more likely to have completed university education (54% vs. 37%, Odds Ratio [OR] 2.02, 95% Compatibility Interval [CI] 1.45-2.83, p<0.001), but less likely to practice at the ACP certification (26% vs. 36%, OR 0.61, 95% CI 0.42-0.88, p=0.009). Our analysis also suggested women were less likely to

 doi:10.20944/preprints202212.0056.v1

work full-time (59% vs. 63%, OR 0.77, 95% CI 0.54-1.09) but the test did not reach significance at the 5% threshold (p=0.14).

Members in leadership positions accounted for 5% of survey participants. Compared with the workforce as a whole, participants in leadership positions were older (45 vs. 33 years, p<0.001), more experienced (20 vs. 8 years, p<0.001), roughly as likely to have a university degree (40% vs. 44%, OR 0.85, 95% CI 0.40-1.79, p=0.662), but mostly male, with men (N=24) holding 80% of leadership roles. Compared to men, women were nearly 70% less likely to hold a leadership role (OR 0.36, 95% CI 0.14-0.90, p=0.02).

4. Discussion

Although we found a larger proportion of women paramedics than has been reported in similar estimates in the US (2-4, 7) or among public safety personnel in Canada (5), our analysis points toward an underrepresentation in leadership positions. Despite women making up 40% of the active-duty paramedic workforce and being more likely to hold an undergraduate (50% vs. 35%), professional (1.7% vs. 0.5%), or graduate (2% vs. 1%) degree, women's participation in supervisory and management roles was considerably less than that of men.

Having women in leadership roles contributes to greater diversity of thought, strengthening an organization's capacity to solve complex problems. Women often deploy transformational and collaborative approaches to leadership, and having women leaders has been shown to improve productivity, contribute to organizational resilience – particularly during times of crisis – and enhance the health of the workforce (9). On the other hand, underrepresentation of women in leadership is problematic for several reasons. From a workforce health perspective, experiences of inequity can be devastating to the organizational culture of a workplace. For example, a recent study of 1.4 million *Glassdoor* reviews found that a toxic corporate culture was the single largest predictor of attrition, with gender inequality being one of the most influential factors of an outgoing employee's assessment of the company (10).

Women face a number of widely recognized barriers to assuming leadership roles including a lack of visible role models and mentors; disproportionate responsibilities in the home; exclusion (perceived or real) from social and networking events; sexual harassment and discrimination; and gender biases that disadvantage leadership styles more typically associated with women (9). In particular, the lack of visible role models makes it literally and metaphorically harder for women to 'see themselves' in leadership roles - a phenomenon that has been widely documented (9). In paramedicine, women undoubtedly face many of the same barriers, however, there may well be additional challenges to overcome. Future research should focus on building a better understanding of the demography of the paramedic workforce in Canada and identifying barriers to career advancement for women and other historically underrepresented people that may be unique to paramedicine. In that respect, participatory action and qualitative research approaches have much potential both to shed light on the problem and develop creative solutions.

Limitations

Our findings should be interpreted within the context of certain limitations. First, our survey excluded 107 paramedics on leave during the CME sessions, including some in leadership roles. Second, we did not collect data on race or ethnicity in the survey for reasons that have been explained elsewhere (8). This necessarily limits the scope of our analysis specifically to gender but should not be taken to suggest that race, ethnicity, and other identity dimensions are less relevant or important. Finally, we also acknowledge that our data is now two years old and limited to a single site. More recent data from multiple sites – ideally on a national scale – would be helpful.

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5. Conclusion

Despite comprising 40% of the active-duty paramedic workforce, having comparable experience and higher rates of university education, women were underrepresented in paramedic service leadership in our setting. Our findings should invite further, action-oriented research on the topic in Canada.

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