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https://doi.org/10.1007/s12630-020-01735-z

REPORTS OF ORIGINAL INVESTIGATIONS

Women anesthesiologists' journeys to academic leadership: a constructivist grounded theory-inspired study

Les parcours des femmes anesthésiologistes avant d'atteindre le leadership académique : une étude inspirée de la théorie ancrée constructiviste

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Received: 25 November 2019 / Revised: 11 March 2020 / Accepted: 2 June 2020

Abstract

Background *Women continue to be underrepresented in academic anesthesiology, especially in leadership positions. Possible reasons for this gender disparity include family responsibilities, inadequate mentorship, lack of desire for leadership, the leaky pipeline effect (i.e., attrition of women physicians over the course of their career trajectories), and discrimination. Our objective was to understand the lived experiences of Canadian anesthesiologists in leadership positions.*

Methods *In this constructivist grounded theory-inspired study, we used purposeful sampling to identify women anesthesiologists in leadership positions at one Canadian institution. Each participant underwent a one-on-one semi-structured interview of 40-60 min in length, sampling until theoretical saturation was reached. We included questions about the participant's practice setting, influences on their career, and advice the participant would provide to other women in leadership. We used an iterative approach to theoretical sampling and data analysis. The audio-recorded semi-structured interviews were transcribed and coded. NVivo12 was used for open and axial coding, and cross-referencing.*

Results *Eight women anesthesiologists were recruited and interviewed. Our iterative process identified four interconnected themes: difficulty internalizing a leadership identity, identifying systemic barriers and biases, dissonance between agentic traits and communal social gender roles, and mentorship as shaping lived experiences. Participants consistently expressed experiencing discrimination, articulated barriers related to family responsibilities and ingrained societal expectations, and discussed how typical leadership traits are applied differently to women and men. Women perceived themselves as more compassionate and communicative than men. Despite these traits, these women have expressed barriers to obtaining mentorship.*

Conclusion *We identified consistent interconnected themes among the experiences of our sample of women anesthesiologists in academic leadership and found that*

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s12630-020-01735-z) contains supplementary material, which is available to authorized users.

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Published online: 08 June 2020

academic anesthesiology is a gendered profession as experienced by these women leaders. Further research should focus on strategies to remove barriers to participation in academic anesthesiology for women.

Résumé

Contexte *Les femmes continuent d'être sous-représentées en anesthésiologie académique, et tout particulièrement dans les positions de leadership. Parmi les raisons expliquant cette disparité entre les sexes, citons les responsabilités familiales, un mentorat inadapté, le manque de désir de leadership, l'effet de tuyau percé (soit l'attrition des femmes médecins au cours de leur parcours professionnel) et la discrimination. Notre objectif était de comprendre les expériences vécues par les anesthésiologistes canadiennes en position de leadership.*

Méthode *Dans cette étude inspirée de la théorie ancrée constructiviste ('constructivist grounded theory'), nous avons utilisé un échantillonnage ciblé afin d'identifier les femmes anesthésiologistes en position de leadership dans un établissement canadien. Chaque participante a pris part à un entretien semi-structuré privé de 40-60 minutes, soit jusqu'à atteindre une saturation théorique. Nous avons inclus des questions concernant le cadre de pratique des participantes, les influences sur leur carrière, et les conseils qu'elles donneraient à d'autres femmes en position de leadership. Nous avons utilisé une approche itérative pour l'échantillonnage théorique et l'analyse de données. Un enregistrement sonore des entretiens semi-structurés a été réalisé pour être ensuite retranscrit et codé. Le progiciel NVivo12 a été utilisé pour le codage ouvert et axial ainsi que pour le référencement croisé.*

Résultats *Huit femmes anesthésiologistes ont été recrutées et interviewées. Notre processus itératif nous a permis d'identifier quatre thèmes interconnectés : la difficulté d'internaliser une identité de leader, l'identification d'obstacles et de biais systémiques, la dissonance entre l'agentivité individuelle et les rôles de genre socialement construits, et le mentorat en tant que formatif des expériences vécues. Les participantes ont toutes exprimé ressentir de la discrimination, elles ont articulé des obstacles liés aux responsabilités familiales et aux attentes sociétales enracinées, et ont expliqué comment les caractéristiques typiques de leadership étaient appliquées différemment selon le sexe. Les femmes se percevaient comme étant plus empathiques et communicatives que les hommes. Malgré ces traits de caractère, ces femmes ont exprimé qu'il existait des obstacles à l'obtention de mentorat.*

Conclusion *Nous avons identifié plusieurs thèmes interconnectés récurrents parmi les expériences de notre échantillonnage de femmes anesthésiologistes dans des positions de leadership académique et observé que l'anesthésiologie en milieu académique est une profession genrée, comme l'ont ressenti ces femmes leaders. Les recherches futures devraient mettre l'accent sur des stratégies visant à déjouer les obstacles à la participation des femmes en anesthésiologie académique.*

Keywords Gender equity · leadership · implicit bias · qualitative research · feminist · gender discrimination · anesthesiology

Despite increasing numbers of practicing women anesthesiologists, women remain poorly represented in academic medicine. In anesthesiology, women remain underrepresented in authorship,[1-3] on editorial boards,[2-4] and in presidential roles at the Canadian Anesthesiologists' Society.[5] Specifically, gender bias, lack of representation of leadership, lack of mentoring, gender pay gaps, gender disparity in research funding and resources, disparity in award recognition, and hiring remain a gendered phenomenon (e.g., women are deemed less competent and less hireable than men) have been highlighted.[6,7] The reasons behind the leaky pipeline[8] (i.e., attrition of women physicians over the course of their career trajectories) in relation to women anesthesiologists is not well understood. Explanations for this gender disparity in academic medicine include family responsibilities,[9] inadequate mentorship,[10] or lack of desire for leadership.[11] In other fields, even when adjusted for part-time work, maternity leave, and productivity, women are less likely to be promoted.[12,13] Another proposed issue is gender discrimination.[14]

In academic medicine, research regarding concerns in medical culture and the gender climate have been explored. Disparity in leadership, compensation, and work-life balance were themes in previous research.[15] Self-silencing (i.e., avoiding disagreement with leaders who do not tolerate dissent), work-life balance, and dual identities were themes in another study.[16] Interestingly, women find it difficult to identify gender biases, which may be attributed to the everyday practices that normalize such behaviours.[17]

Nevertheless, the methodologies used thus far to study gender equity in anesthesiology specifically are based on quantitative research, looking for a universal and generalizable truth. These methodologies are inadequate to capture the full essences of women's experiences and sense of self. In addition, many studies homogenize all women's experiences and incorrectly assume that all women experience different circumstances in a similar fashion. Therefore, qualitative methodologies and

theoretical frameworks add valuable insights when studying gender equity in anesthesiology.

This study sought to address a knowledge gap around the complex relationship between gender and leadership by exploring how women anesthesiologists problematized their journey towards academic leadership positions. We also aimed to identify potential opportunities and challenges facing women during their careers and to provide methods of mitigating pervasive individual and systemic biases. We therefore interviewed women anesthesiologists in leadership positions at a single Canadian academic institution and used a constructivist grounded theory-inspired methodology for theory construction.

Methods

This research study used a constructivist grounded theory-inspired methodology. Grounded theory is a qualitative methodology that is used to construct theory that is grounded in participants' experiences.[18] A constructivist grounded theory is used to broaden and expand socially-constructed phenomena in a manner that co-constructs knowledge (i.e., between the researcher and the participants).[19] We use the term "inspired" as it does not follow the classical constructivist grounded theory methodology for coding. Rather than the team initially coding the data, being reflexive of all of our own subjectivities together, one author (G.R.L.) independently coded the data. The categories and emergent themes were subsequently brought to another author (A.M.F.) with one of the transcripts. This is the deviation of a classical constructivist grounded theory methodology, hence we called it a constructivist grounded theory-inspired methodology. We employed a social constructionist epistemology to acknowledge multiple interpretations of realities and truth by way of people's social interactions within an environment.[20] This study was approved by our institutional research ethics board (18-5733.0.1; approved 5 October 2018); all participants provided written informed consent.

Reflexivity

The team was reflexive (i.e., prior subjectivities, that is, belief systems, positions, experiences, attitudes, and world views that may influence the research process and data interpretation) throughout the entire research process, including assembling a research team that reflects the various perspectives of the study (i.e., woman anesthesiologist, woman surgeon, qualitative research experts aligning with a constructionist epistemology and how all of our subjectivities and prior experiences have informed the study at each research stage). Reflexivity refers to how we consider our own subjectivities (e.g., social location; social constructs; prior lived experiences; academic, clinical, and administrative positions; etc.) in different contexts and remain self-aware of how these may impact the research at all stages.[21] To interpret the social world, researchers draw on their own values, experiences, and concepts.[22]

One author (G.R.L.) previously positioned himself in an objectionist epistemology (i.e., that there is one universal truth that is generalizable) but has since had an epistemic shift, aligning with constructionism (i.e., that knowledge is co-constructed), depending on the context (i.e., different epistemology depending whether in the clinical realm or in equity-related research). He performed the semi-structured interviews, and as a colleague to the interviewed women, he created memos to remain reflexively aware of how his own subjectivities were impacting his thought process and how power operated. The other authors (A.M.F. and T.C.) are women in leadership positions in academic medicine. Both have led previous gender-related research.

Study population

Women anesthesiologists in leadership positions (whether it clinical, academic, or administrative) were identified from an academic anesthesiology department in Canada. To protect the confidentiality of the participants, we have not included demographic data. An invitation to participate was sent by email with the primary investigator's (G.R.L.) contact information. Any woman anesthesiologist in a leadership position for more than or equal to ten years was eligible to participate. Women with no academic experience were excluded, except one woman with less than ten years of experience; she was included to confirm or disconfirm the emerging theory.

Data collection

The semi-structured interview guide (eAppendix 1, available as Electronic Supplementary Material [ESM]) was adapted from prior research in surgery[23] as well as via a consultative process between the researchers; we subsequently tailored the interview guide with the help of a qualitative research expert with knowledge in equity theory. Using purposive sampling (i.e., non-probability sampling based on the researcher's own judgement of which participants will provide rich, in-depth descriptions of the phenomenon being studied),[19] one of the authors (G.R.L.) conducted one-on-one semi-structured interviews with women in leadership positions at various stages of their academic career. The semi-structured interviews were approximately

40-60 min long. The general topics that were discussed included: general description of the participant's practice, the influences that shaped the participant's career choice, the participant's experiences in practice, and leadership. As we developed and redeveloped our theoretical understanding, we sampled one woman with minimal leadership experience and two other women with multiple axes of subordination (i.e., other social constructs than just gender; e.g., a black woman has two axes of subordination: gender and race) as confirmatory cases. Interviews occurred concurrently with data collection and analysis for three iterations (i.e., as we developed and redeveloped our emerging theory, we continued to collect further data, reanalyzed the data, and continued to redevelop our emerging theory for three cycles) until theoretical saturation (i.e., when no new data stimulates a novel theoretical deep understanding) was reached.[19] The semi-structured interviews were audio recorded, transcribed professionally, and de-identified for analysis.

Data analysis

Preliminary analysis of the semi-structured interviews occurred concurrently with data collection in an iterative process, allowing us to iteratively adjust the interview guide to effectively explore emergent themes. One author (G.R.L.) read each transcript in full, with initial open and axial coding of the data. Subsequently, a thematic analysis of the categories was inductively conducted to uncover emergent themes.[19] The categories as well as the emergent themes were subsequently reviewed by another author (A.M.F.) and are summarized in eAppendix 2 (available as ESM). Using constant comparative analysis, preliminary categories were recognized during data collection.[24] Subsequently, we aggregated and abstracted our data to construct a theory. The team approach to data analysis enhanced credibility (i.e., how close the study results are representative of the participants' world views) of the results.[25] As we developed and redeveloped codes at each stage of our analysis, we documented our decisions through memo taking to enhance confirmability (i.e., the degree that other researchers can corroborate the results).[25] We applied the final coding architecture to each data set using NVivo12 software (QSR International). To establish trustworthiness,[25] we performed member checking (i.e., participant validation of the research findings) to establish credibility and to ensure that our theory was an accurate representation.

Results

Eight women anesthesiologists were interviewed; seven had more than ten years of leadership experience and one had less than ten years of leadership experience. All eight women were from a single Canadian anesthesiology academic institution. Our iterative process identified four interconnecting themes: i) *difficulty in internalizing a leadership identity;* ii) *identifying systemic barriers and biases;* iii) *dissonance between agentic traits and communal social gender roles; and* iv) *mentorship as shaping lived experiences.*

Theme 1: Difficulty in internalizing a leadership identity

Women anesthesiologists experience both internal conflicts and external systemic barriers. The women in this study consistently described the underrepresentation, underappreciation, and underestimation of women. They attribute this underrepresentation to a deeply ingrained societal phenomenon that remains perpetuated by themselves and by others:

> *"That's a deep societal thing. That women tend to underestimate themselves." (Participant 106)*

Many women attributed this to imposter syndrome, lack of self-confidence, and inaction on their own part:

> *"Self-imposed barriers and external barriers. Self-imposed being the biggest—'I don't think I can take that role. I don't think I should take that role. I don't think I have the right stuff for that role.' " (Participant 103)*

Women perceive this to be unique to women because of being socialized in a masculine world, where men are in positions of leadership, where men are provided with more opportunities, and where men are given preferential treatment for certain positions. Men are socialized into internalizing leadership qualities. Despite their difficulty in internalizing a leadership identity, many women in the study described leadership qualities such as giving direction and having vision:

> *"I think a vision. You've got to know where you want to go and have the energy and ability to share that vision so that other people feel it's part of their mission. But also understand their mission so they can integrate it into a clear picture of where the team needs to go." (Participant 103)*

They discuss how members of the team should adopt a leader's vision and internalize it as their mission, but also that leaders should listen to women and men to work together in the same direction with the same goals in mind.

Theme 2: Identifying systemic barriers and biases

The women in this study articulated experiencing discrimination and prejudice, which ultimately results in identifying systemic barriers and biases. They described that men had preconceived notions of who they wanted for leadership positions.

> *"They come with their intrinsic biases." (Participant 101)*

These women also recognize that implicit bias plays a role in achieving gender equity, and that despite many men articulating a need for gender equity, discrimination persists:

> *"…[T]he people who are choosing leaders choose themselves as they sit at the table, they speak the words that they want to have diversity, inclusion but they don't accept that they have implicit bias." (Participant 107)*

These women went on to describe the barriers as being physical, emotional, institutional, and inter-personal. In addition to favouritism, homophily (i.e., certain group having ties and giving preferential treatment to similar people; e.g., men giving preferential treatment to other men) persists:

> *"I think men are often considered first before women for leadership positions." (Participant 104)*

Often enough, the men already in leadership positions appoint other men. Other times, women who are already in leadership positions may lose their position, and the position is appointed to a man:

> *"[W]ithout even the bat of an eye, or a thought to it, the decision was taken that the person…[for the leadership position], was a white man… I got an email that…'we restructured.'…There was no conversation, no search, no looking at credentials or criteria or what one has done in the role. It was just, the man got the job." (Participant 107)*

These women acknowledge that implicit and explicit biases exist, but people need to remain cognizant of these biases so that they do not impede women from obtaining leadership positions for which they are more than qualified.

These women also described many of their barriers being related to family responsibilities and parental leave:

> *"I think it is harder for women because… we are usually the mother and we do have to sometimes be out of our career to care [for] our children and having our children because we biologically deliver them. I think that still puts us at risk for discrimination - for not having a fair perspective for what our productivity has been over time…" (Participant 107)*

These women describe how taking parental leave disadvantages them, that academic institutions then question their lack of academic productivity during parental leave. They see this as a conflict, feeling a moral and ethical obligation to raising families as well as remaining academically productive:

> *"[T]here is a conflict between having families and raising children, being pregnant, breastfeeding, having small children at a time at an age, a chronological age when you are actually ready to go for those leadership positions [and] should be applying for those roles." (Participant 101)*

This lack of academic productivity therefore also delays their academic promotion:

> *"I think there's a pause in women's career with young children—it's impossible to keep on the same trajectory as men, even if they have the same aged kids at home…So we take the hit on that one, but yeah, and so when you look at that, sort of, contest for promotion, it's easier to meet the metrics if you're a man, I think." (Participant 108)*

These women perceive that it is easier for men to progress through academic promotion much more readily than women do.

Theme 3: Dissonance between agentic traits and communal social gender roles

Women experience internal conflicts and systemic barriers. There is a dissonance between the expectations for women in leadership positions needing to exhibit both agentic traits (typically socialized male traits) and communal traits (typically socialized female traits). These women also discuss that when women display the same agentic traits that men do, they are perceived as problematic:

> *"Well those who want to spin it will say an aggressive woman is a bully and whatever. In fact, in decision-making that's their problem. I think those conversations go on. [Y]ou have to…say 'this is the right decision' and yeah, people are going to spin it for their own purposes. The need to make decisions is the same whether you're male or female." (Participant 102)*

The women in this study want to bring forth that the agentic traits should not be gender-dependent and that leadership qualities are independent of the subject's gender. They discuss how feminine traits make women appear weaker and softer whereas masculine traits make women appear rigid and harsh:

> *"If that same behaviour—aggression is the wrong word—that same competitiveness is seen in a male, it is considered attractive, especially for leadership positions. That same competitiveness is considered bitchiness in a female. Have I been called a bitch? On multiple occasions. I've been called worse than that." (Participant 104)*

Despite agentic traits in women being frowned upon, these women see that a strong voice in the operating room has an advantage to patient safety:

> *"For our specialty, being a strong female, or having a strong presence in the operating room as a female is actually crucial for patient safety…" (Participant 105)*

Despite the dissonance between agentic traits and communal roles, these women also discuss how these generalizations are perpetuated and that there are exceptions to the rule:

> *"The traditional, classic behaviour is…what I am thinking of? Women like to shop more than men, men like cars more than women. Men like to drive more than women. These are all generalizations which clearly there are lots of exceptions, but a lot of these generalizations have some truth base to them which is why they are, why they exist." (Participant 105)*

These women have come to appreciate that agentic traits have been socialized to be more masculine traits than feminine traits, and this socialized phenomenon may have effects on their career trajectories.

Theme 4: Mentorship as shaping lived experiences

The women in this study expressed mentorship as being situational, where they migrate to different mentors for different purposes:

> *"Again a [mentor] is not somebody that is all encompassing that you have to use them as a [mentor] for every single aspect of your life." (Participant 106)*

The women in this study also describe that visibility of women in leadership positions is crucial for trainees to see and envision themselves in that position:

> *"I think there should be enough women in leadership positions so that the medical students and the residents can identify with others than just the males who are in the leadership position, and could see someone like themselves in the future." (Participant 108)*

What these women express is the lack of social circles outside of the professional realm; they express how men tend to have less formal environments where they can receive mentorship:

> *"And I think there is still a locker-room mentality for a lot of…men that they can reach out to each other because of their relationships they have beyond the usual network of mentoring that allows them to open doors that we can't." (Participant 107)*

These women are able to identify with other women:

> *"Just by virtue of the fact that they are right there in the workforce working. I can identify with women better than I can identify with men. And if they can do it, so can I." (Participant 101)*

Women and men in leadership positions acted, and continue to act, as mentors and motivators for the women in this study.

Discussion

Although mounting evidence has shown that women are underrepresented in academic anesthesiology,[1,4,5] the barriers and enablers of leadership among women is less understood. After interviewing a sample of women anesthesiologists using a constructivist grounded theory-inspired methodology, we identified four interconnecting themes: i) *difficulty in internalizing a leadership identity;* ii) *identifying systemic barriers and biases;* iii) *dissonance between agentic traits and communal social gender roles; and* iv) *mentorship as shaping lived experiences.* The dissonance between agentic traits and communal gender roles partially exist because of socialization, based on systemic barriers and biases that exist within academia. These factors contribute to women having difficulty in internalizing a leadership identity. Interestingly, the theme of difficulty of internalizing a leadership identity is a paradox in that all of these women are identified as leaders in their field. Social identity theory may provide a plausible explanation for this paradox. Briefly speaking, social

identity theory posits that a woman's self-concept (i.e., sense of who she is) comes from her perceived membership within a social group (i.e., her social location).[26] Therefore, occupying a leadership position that was historically occupied by men with systemic biases acting on these women may result in their difficulty in internalizing a leadership identity. Nevertheless, mentorship may be key in diminishing this self-doubt.

These women's accounts suggest that academic anesthesiology remains a gendered profession, particularly in senior leadership positions. Participants consistently expressed experiencing discrimination, barriers related to family responsibilities and ingrained societal expectations, and how typical leadership traits are applied differently to men and women. Women perceived themselves as more compassionate and communicative than men. Despite these traits, these women have expressed barriers to obtaining mentorship. Our results are informative when developing strategies to address gender disparities in academic anesthesiology.

Previous research looking at women's faculty experiences in academic medicine revealed some similarities such as barriers and gender role expectations[16] as well as family responsibilities.[15] Others have identified how difficult it is for women chief executive officers to identify gender bias as the everyday practices make it hard for women to point out gender bias.[17]

Previous research suggests that anesthesiologists experience maternal discrimination (based on parental leave, breast feeding, or pregnancy)[27] most frequently out of medical and surgical specialties.[27] Women anesthesiologists remain underrepresented in authorship compared with men and compared with the proportion of practicing Canadian anesthesiologists that are women,[1-3] on editorial boards,[2-4] and at presidential positions of national societies.[5] Unlike the surgical literature,[23] the women in our study were more forthcoming in identifying inequities, possibly reflecting a discontinuity a period of greater acceptance in acknowledging issues around discrimination and diversity.

We identified a common theme in that the women in our study had difficulty in internalizing a leadership identity. We theorize that these women's internal conflicts may result from years of socialization, where the dominant discourses surround heteronormative masculinity, which may impact the way they perceive themselves[28] (participants did not explicitly state that the heteronormativity resulted in their experiences); one woman explained: *"self-imposed barriers and socialized external barriers…I see the women don't see themselves as being in those acknowledged roles. That's the biggest problem. They are doing the work but they don't appreciate that the work should be acknowledged and that it has value in their life. That's one of the biggest differences. I see the men coming forward too early. I see the women come way too late and then even when you point it out—'I can't be bothered'"* (Participant 103). A leadership identity is socialized and co-constructed in institutions, and when women are provided the opportunity to grant and claim leader identities via social interactions, women internalize an identity as a leader.[29] Previous authors have suggested that women at all career stages should be provided the opportunity to participate in activities that help create and sustain positive identities, especially in paternalistic environments, to internalize a leadership identity.[29] Without these opportunities, women may underestimate their leadership capabilities and may underestimate themselves. Despite women attaining leadership positions, this self-underestimation may be continuously experienced, feeling they are not qualified for the position, leading to "imposter syndrome." Imposter syndrome refers to doubting one's accomplishments, the lack of confidence and the feeling of not deserving the accolades achieved.[30] Mentorship can help diminish imposter syndrome by normalizing it, by informing the individual with imposter syndrome that the majority of people suffer from similar issues.[31] Mentors can also provide help in showing that these women have the accolades to take on leadership roles. Once women are able to see their successes, they may believe in themselves and affirm that they can successfully take on leadership roles.

The women in our study also reported a conflict between leadership traits and those imposed by communal social gender roles. Assertive qualities are normal for men in leadership positions but are often not viewed positively in women.[32] It is believed that if women possess these similar qualities, they are labelled as troublesome and as ranting, creating an *otherness* that emphasizes their femininity.[32] Women who adopt masculine leadership styles (e.g., agentic behaviours, authoritative) are perceived as being competent at the expense of being likeable and receive more negative evaluations than those who adopt more feminine leadership styles (e.g., nurturing).[33] Role congruity theory predicts that women who are in leadership positions experience prejudice because of a conflict between their descriptive and prescriptive gendered social role and stereotypic leadership role.[34] Nevertheless, according to role congruity theory, the leadership context matters and can be instrumental in reducing incongruity. Similar to many social institutions, hospitals and the medical profession are built on a heteronormative,[35] binarist (i.e., man or woman) system which is, in part, upheld through gendered language. Institutions such as universities and hospitals can play a

key role in changing the culture and acceptability of women in leadership roles.

Although our study has several strengths including the use of a qualitative methodology to describe detailed experiences, our results should be interpreted in the context of the study limitations. We utilized a constructivist grounded theory-inspired methodology; we deviated from traditional constructivist grounded theory in that only one member of the team (G.R.L.) performed the open and axial coding. Therefore, we did not bring in the different perspectives of the team members within the analysis portion; however, the one member of the team (G.R.L.) remained reflexive throughout the entire process to reflect how his own subjectivities may have influenced his interpretation of seeing the experiences that these women articulated. Furthermore, this study relies solely on semi-structured interviews; therefore, participants could have selected certain narratives that they recalled and wished to express. Another limitation deals with protecting these women's identity, respecting confidentiality, and not supplying sociodemographic data for these women. While these findings can be generalized to the participant and context from which it was studied, the degree of transferability is limited in that the participants were all from a single Canadian academic institution.

Ways of tackling pervasive systemic biases are multifactorial. People need to use professional titles when introducing women (i.e., call them doctor)[36]; faculty development and training on implicit bias so that physicians can be aware of their own implicit biases; being a mentor, a coach, and a sponsor; and ensure that women and all other socially-marginalized people are represented in academia and that their voices are heard.[37] Furthermore, when writing letters of recommendation, we need to be aware of not writing gendered letters (e.g., stating that a woman is kind or sweet and not commenting on her cognitive and technical skills) and careful of the narrative language used.[37] These gendered narratives may contribute to women's difficulty in internalizing a leadership identity as this gendered language is used at all stages of a woman's career, thereby potentially perpetuating systemic biases.

A roadmap to navigating the system into leadership positions in academic anesthesiology includes having privileged individuals acknowledge their privilege and use their privilege to dismantle the systemic issues that perpetuate marginalization and oppression. Privilege may be underappreciated in groups that are not socially marginalized. Nevertheless, being reflective and appreciating that not everyone has an equal and equitable opportunity such as oneself is one method of recognizing privilege. Further exposure to the struggles endured by socially marginalized people is valuable to mitigate blind spots. In a previous study, perceived organizational climate, faculty role modeling, and increasing exposure to diversity reduced implicit bias during medical training.[38] Moreover, departmental diversity directors can contribute an equity lens to departmental executive councils to ensure equitable processes and opportunities.[39]

Conclusions

We identified consistent themes among the experiences of women in academic anesthesiology and found that academic anesthesiology is a gendered profession as experienced by these women leaders. Despite public discourses around gender equity, covert rather than overt forms of gender discrimination remain,[23] and this is supported by the experiences of our participants. We identified potential areas for intervention, including modification of the institutional environment and effective mentorship to allow women to internalize leadership identities. Specifically, mentors, sponsors, and coaches of aspiring women leaders can reiterate that women are equally and fully qualified for leadership positions, have the accolades and credentials for leadership positions, and can help sponsor women to diminish the systemic constraints. Similarly, conflict between the expected traits of leaders and women could be reduced through increased awareness and visibility of women in leadership. We will disseminate the results from this study on our departmental website to raise awareness for women, allies, men, and trainees as well as celebrate our local women leaders. Further research should focus on strategies to remove barriers to participation in academic anesthesiology for women. Recognizing privilege is important as privilege helps some people while impeding others; mitigating privilege may therefore create a more equal and equitable environment allowing women to attain leadership positions.

Women and men in leadership positions should reinforce that women are equally trained and skilled for leadership positions, thereby diminishing the difficulty in internalizing a leadership identity. Women and men in leadership positions should actively mentor, sponsor, and coach women at all stages.

Acknowledgements The authors thank the Department of Anesthesiology and Pain Medicine associates at the University Health Network for providing academic time. The authors would also like to thank Dr. Fiona Webster for her motivation, support, and the numerous conversations in shaping this research project. We also thank Ms. Melanie Hammond for her support and for the numerous conversations in shaping the manuscript.

Author contributions All authors abide by ICMJE criteria for authorship. *Gianni R. Lorello* was involved in the study conceptualization; study design; data acquisition; data analysis; drafting of manuscript; manuscript critical revision for intellectual content; obtaining funding; administrative, technical, and material support; and study supervision. *Alana M. Flexman* was involved in project conceptualization; critical manuscript revision for intellectual content; obtaining funding; and administrative, technical, and material support. *Tulin Cil* was involved in project conceptualization; critical manuscript revision for intellectual content; and administrative, technical, and material support.

Disclosures There are no conflicts of interest to declare. Dr. Alana Flexman received an honorarium, unrelated to the content of this article, from Hospira in 2012.

Funding statement Vancouver Acute Department of Anesthesiology and Perioperative Care operational research funds.

Editorial responsibility This submission was handled by Dr. Gregory L. Bryson, Deputy Editor-in-Chief, *Canadian Journal of Anesthesia.*

References

1. *Flexman AM*, *Parmar A*, *Lorello GR*. Representation of female authors in the Canadian Journal of Anesthesia: a retrospective analysis of articles between 1954 and 2017. Can J Anesth 2019; 66: 495-502.
2. *Miller J*, *Chuba E*, *Deiner S*, *DeMaria S Jr*, *Katz D*. Trends in authorship in anesthesiology journals. Anesth Analg 2018; 129: 306-10.
3. *Galley HF*, *Colvin LA*. Next on the agenda: gender. Br J Anaesth 2013; 111: 139-42.
4. *Lorello GR*, *Parmar A*, *Flexman AM*. Representation of women on the editorial board of the Canadian Journal of Anesthesia: a retrospective analysis from 1954 to 2018. Can J Anesth 2019; 66: 989-90.
5. *Lorello GR*, *Flexman AM*. 75 years of leadership in the Canadian Anesthesiologists' Society: a gender analysis. Can J Anesth 2019; 66: 843-4.
6. *Bosco L*, *Lorello GR*, *Flexman AM*, *Hastie MJ*. Women in anaesthesia: a scoping review. Br J Anaesth 2020; 124: e134-47.
7. *Moss-Racusin CA*, *Dovidio JF*, *Brescoll VL*, *Graham MJ*, *Handelsman J*. Science faculty's subtle gender biases favor male students. Proc Natl Acad USA 2012; 109: 16474-9.
8. *Sexton KW*, *Hocking KM*, *Wise E*, *et al*. Women in academic surgery: the pipeline is busted. J Surg Educ 2012; 69: 84-90.
9. *Straehley CJ*, *Longo P*. Family issues affecting women in medicine, particularly women surgeons. Am J Surg 2006; 192: 695-8.
10. *Colletti LM*, *Mulholland MW*, *Sonnad SS*. Perceived obstacles to career success for women in academic surgery. Arch Surg 2000; 135: 972-7.
11. *Wright AL*, *Schwindt LA*, *Bassford TL*, *et al*. Gender differences in academic advancement: patterns, causes, and potential solutions in one US college of medicine. Acad Med 2003; 78: 500-8.
12. *Nonnemaker L*. Women physicians in academic medicine: new insights from cohort studies. N Engl J Med 2000; 342: 399-405.
13. *Yedidia MJ*, *Bickel J*. Why aren't there more women leaders in academic medicine? The views of clinical department chairs. Acad Med 2001; 76: 453.
14. *Zhuge Y*, *Kaufman J*, *Simeone DM*, *Chen H*, *Velazquez OC*. Is there still a glass ceiling for women in academic surgery? Ann Surg 2011; 253: 637-43.
15. *Carr PL*, *Gunn CM*, *Kaplan SA*, *Raj A*, *Freund KM*. Inadequate progress for women in academic medicine: findings from the national faculty study. J Womens Health 2015; 24: 190-9.
16. *Pololi LH*, *Jones SJ*. Women faculty: an analysis of their experiences in academic medicine and their coping strategies. Gender Med 2010; 7: 438-50.
17. *Soklaridis S*, *Kuper A*, *Whitehead CR*, *Ferguson G*, *Taylor VH*, *Zahn C*. Gender bias in hospital leadership: a qualitative study on the experiences of women CEOs. J Health Organ Manag 2017; 31: 253-68.
18. *Strauss A, Corbin JM*. Basics of Qualitative Research. SAGE Publications; 1998.
19. *Charmaz K*. Constructing Grounded Theory. London, England: SAGE; 2006.
20. *Crotty M.* The Foundations of Social Research. Meaning and Perspective in the Research Process. Thousand Oaks, CA: SAGE; 1998.
21. *Charmaz K*. Special invited paper: Continuities, contradictions, and critical inquiry in grounded theory. Int J Qual Methods 2017. https://doi.org/10.1177/1609406917719350.
22. *Wright S*, *O'Brien BC*, *Nimmon L*, *Law M*, *Mylopoulos M*. Research design considerations. J Grad Med Educ 2016; 8: 97-8.
23. *Webster F*, *Rice K*, *Christian J*, *et al*. The erasure of gender in academic surgery: a qualitative study. Am J Surg 2016; 212: 559-65.
24. *Glaser BG*. Basics of Grounded Theory Analysis: Emergence vs Forcing. Mill Valley: Sociology Press; 1992 .
25. *Lincoln YS, Guba EG*. Naturalistic Inquiry. SAGE Publishing; 1985.
26. *Turner JC*, *Oakes PJ*. The significance of the social identity concept for social psychology with reference to individualism, interactionism and social influence. Br J Social Psychol 1986; 25: 237-52.
27. *Adesoye T*, *Mangurian C*, *Choo EK*, *et al*. Perceived discrimination experienced by physician mothers and desired workplace changes: a cross-sectional survey. JAMA Intern Med 2017; 177: 1033-6.
28. *Sambuco D*, *Dabrowska A*, *DeCastro R*, *Stewart A*, *Ubel PA*, *Jagsi R*. Negotiation in academic medicine: narratives of faculty researchers and their mentors. Acad Med 2013; 88: 505-11.
29. *DeRue DS*, *Ashford SJ*. Who will lead and who will follow? a social process of leadership identity construction in organizations. Acad Manage Rev 2010; 35: 627-47.
30. *Sharman RO.* Imposter syndrome: when you feel like you're faking it. Am Nurse Today 2013; 8: No 5.
31. *Clance PR*. The Impostor Phenomenon: Overcoming the Fear that Haunts your Success. Peachtree Pub Ltd; 1985.
32. *Ferguson TW*. Female leadership and role congruity within the clergy: communal leaders experience no gender differences yet agentic women continue to suffer backlash. Sex Roles 2018; 78: 409-22.
33. *Berg LD*. Gender equity as 'boundary object': … or the same old sex and power in geography all over again? (focus: equity for women in geography). Can Geogr 2002; 46: 248-54.
34. *Eagly AH*, *Johannesen-Schmidt MC*, *van Engen ML*. Transformational, transactional, and laissez- faire leadership styles: a meta-analysis comparing women and men. Psychol Bull 2003; 129: 569-91.
35. *Huffer L*. Foucault and queer theory. *In*: Downing L (Ed.). After Foucault. Cambridge University Press; 2018: 93-106.

36. *Files JA*, *Mayer AP*, *Ko MG*, *et al*. Speaker introductions at internal medicine grand rounds: forms of address reveal gender bias. J Womens Health (Larchmt) 2017; 26: 413-9.
37. *Geagea A*, *Mehta S*. Advancing women in academic medicine: ten strategies to use every day. Can J Anesth 2020; 67: 9-12.
38. *van Ryn M*, *Hardeman R*, *Phelan SM*, *et al*. Medical school experiences associated with change in implicit racial bias among 3547 students: a medical student CHANGES study report. J Gen Intern Med 2015; 30: 1748-56.
39. *Lorello GR*. Leading progress: the role of the chief diversity officer in anesthesiology departments. Can J Anesth 2019. https://doi.org/10.1007/s12630-019-01530-5.