



ORIGINAL ARTICLE

Equity and diversity in the nephrology workforce in Australia and New Zealand

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Key words

female, male, sex factors, ethnicity, sexism/psychology/*statistics & numerical data, personnel.

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Abstract

Background: Despite diversity initiatives, inequities persist in medicine with negative implications for the workforce and patients. Little is known about workplace inequity in nephrology.

Aim: To describe perceptions and experiences of bias by health professionals in the Australian and New Zealand Society of Nephrology (ANZSN), focussing on gender and race.

Methods: A web-based survey of ANZSN members recorded degree of perceived inequity on a Likert scale, ranging from 1 (none) to 5 (complete). Groups were compared using Mann–Whitney *U*-test and logistic regression. Comments were synthesised using qualitative methods to explore themes of inequity and pathways to an inclusive future.

Results: Of the 620 members of the ANZSN, there were 134 (22%) respondents, of whom 57% were women and 67% were White. The majority (88%) perceived inequities in the workforce. Perceived drivers of inequity were gender (84/113; 75%), carer responsibilities (74/113; 65%) and race (64/113; 56%). Half (74/131) had personally experienced inequity, based on gender in 70% (52/74) and race in 39% (29/75) with perceived discrimination coming from doctors, patients, academics and health administrators. White males were least likely (odds ratio 0.39; 95% confidence interval 0.18–0.90) to experience inequity. Dominant themes from qualitative analysis indicated that the major impacts of inequity were limited opportunities for advancement and lack of formal assistance for those experiencing inequities. Proposed solutions to reduce inequity included normalising the discourse on inequity at an organisational level, with policy changes to ensure diverse representation on committees and in executive leadership positions.

Conclusions: Inequity, particularly driven by gender and race, is common for nephrology health professionals in Australia and New Zealand and impacts career progression.

Introduction

Inequities, or systematic differences in health outcomes of population groups associated with factors, such as gender or race, are widespread in medicine. Equity will only arise when needs are met, which may mean some

groups need more support to achieve the same outcomes as others. In the United States, the United Kingdom, Australia and New Zealand approximately 50% of medical school graduates are women.^{1,2} Despite this parity at a junior level, leadership in medicine lacks diversity, including across consultant positions, journal editorial boards, policy makers and senior research positions. Only 25% of nephrologists in the United States and 37% of

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medical consultants in Australia are women.^{1,3} Beyond gender, stark inequities persist based on race. The proportion of faculty physicians in United States medical schools who self-identify as Black barely changed from 2.6% in 1990 to 3.8% in 2020.⁴ In the wider US physician workforce, around 5% are Black, with a near equal split between males and females.⁵ In the research environment, applicants from racial minority groups may be less likely to receive funding.⁶

Within medicine, there are compelling reasons beyond the moral imperative to remove systematic barriers to diverse representation and individual career progression. A diverse workforce may be more able to represent the populations they serve. This may lead to improved patient outcomes, in part due to improved cultural competency and more diverse research priorities.⁷ Currently, only a minority of funded research specifically focusses on minority populations, yet disease characteristics can vary by race (and gender), decreasing our ability to optimise care for these populations.⁸

Worldwide, there have been many initiatives promoting equity in science and medicine. Notable examples include the Athena Scientific Women's Academic Network Charter⁹ and Women in Global Health, striving to create gender-equal health leadership internationally, including in Australia (<https://www.womeningh.org/>).

Specific to Nephrology, initiatives include Women in Transplantation and Women in Nephrology (American Society of Nephrology).^{10,11} In 2015, the Australian and New Zealand Society of Nephrology (ANZSN) started to promote more equitable representation of women in its scientific and educational meetings. From 2017, a gender equity working group was set up to address concerns, and from 2020, the ANZSN formed the Equity, Diversity and Inclusivity (EDI) committee to address intersectional bias and barriers to diverse workforce representation for women and other minority groups.

Understanding barriers to participation for women, minority groups and minoritized groups in nephrology is key to mitigating bias.¹² The EDI committee of the ANZSN undertook a survey which aimed to describe the lived-experience, and perceptions of equity and diversity for health professionals in nephrology, focussing on gender and race, to identify barriers to equity and pathways to a more inclusive future.

Methods

Survey design

The EDI committee of the ANZSN includes nephrologists, clinician researchers and trainees. Women and men of different ethnicities, career stages and training backgrounds are represented. The EDI committee

undertook a survey of ANZSN members to learn about perceptions and experiences of inequity. This was the second survey on inequity undertaken with ANZSN members. The first in 2018 was for internal ANZSN use only, and has not been made public.

The survey (Supplemental Item S1) was web based and was voluntary, anonymous and closed. Usability and technical functionality of the e-questionnaire were tested by the EDI group prior to use. The survey was 13 screens, with a maximum of five questions per page. Question order was not randomised. Participants were able to change answers prior to submission and adaptive questioning was used.

Participant recruitment

An invitation to participate in the survey was distributed to all members of the ANZSN through email and advertised through social media (twitter) and at the 2020 annual scientific meeting of the ANZSN. In addition, a link to the survey was available on the ANZSN website. All participants provided informed voluntary consent. No incentives were offered for survey completion. All members of ANZSN are nephrology professionals, who are regularly requested to respond to voluntary surveys distributed by the Society. The survey was open from 14 October 2020 to 12 January 2021. Data were anonymous and stored on password protected computers at the University of Queensland.

Questions and measures

Respondents self-identified their gender (female, male, prefer to self-describe), age, carer responsibilities, full- or part-time work and role (trainee, nephrologist, surgeon, researcher, scientist, nurse, allied health) and sector they spent the most time in (private, public or university). Career stage was user interpreted as early, mid or senior. Data were collected on self-identified race and ethnicity and whether any training was completed outside of Australia or New Zealand, to gain insight into intersectional experiences (i.e. whether race or place of training modified experience of inequity). Race and ethnicity are cultural constructs and have different meanings for different people, with evolution of much of the terminology related to race and ethnicity over time.¹³ We asked people to self-identify ethnicity and gave them an option to not respond to the question. For analyses, ethnicity was dichotomised into 'racial minority group' and 'White' and results will be reported in alphabetical order.

The main outcomes were perception and subjective experiences of Inequities for members of the ANZSN. Inequity was not defined within the survey, in order to allow respondents to reflect freely on their experiences, without constraint. The degree of inequity was recorded on a Likert scale ranging from 1 = none to 5 = complete

inequity. Other domains assessed included perceived drivers of inequities and belief that diversity was supported in the work place. These outcomes were assessed both quantitatively (with multi-choice responses) and qualitatively (free-text responses). This design was used to provide maximum information on the perception, experience and impact of inequity in the nephrology workforce, the availability of support systems (e.g. flexible working arrangements, mentorship), and suggestions on how to address and improve equity and diversity.

Data analysis

In quantitative analysis, data were summarised using mean, median and proportion of the Likert Scale scores, with number who answered each question listed as denominator. Ordinal data were compared using the Mann–Whitney *U*-test and the Kruskal–Wallis *H*-test, when there were three or more comparators. Proportions were compared using the Chi-squared test. Factors associated with experiencing inequity were explored using logistic regression, with results expressed as odds ratio (OR) with 95% confidence intervals (CI). Data were analysed using Python (modules SciPy and matplotlib) and Stata 15 (StataCorp., College Station, TX, USA). *P*-values <0.05 were considered significant.

For qualitative analysis, investigators coded the survey comments independently line by line and inductively identified and coded concepts into categories reflecting respondents' perspectives (KO, PP). Relationships among and between categories were identified to generate the themes and subthemes (Supplemental Item S2). Preliminary themes were reviewed by all authors and any differing opinions were resolved by consensus. Verbatim quotes were used to support the findings. nVivo (2020, QSR International Pty Ltd, Burlington, MA) was used to manage qualitative analysis.

Ethics was obtained from the University of Queensland (HREC 2020001192). The Checklist for Reporting Results of Internet *E*-Surveys (CHERRIES) was used to guide study reporting (Supplemental Item S3).

Results

Characteristics of survey respondents

At the time of survey release the ANZSN had 620 members. Overall, 143 people started the survey, with nine people excluded from analysis as they recorded no responses for any questions regarding inequities, leaving 134 respondents. More female (79/266; 29%) than male (52/354; 15%) members of the ANZSN completed the survey.

Table 1 Characteristics of survey respondents

Characteristic	Women, <i>n</i> (%) [†]	Men, <i>n</i> (%)	All, <i>n</i> (%)
Gender	79 (59%)	52 (48%)	134 [‡]
Age (years)			
20–39	38 (48)	13 (25)	51 (38)
40–59	35 (44)	32 (62)	69 (51)
60+	6 (8)	7 (13)	14 (11)
Career stage			
Early	45 (57)	14 (27)	60 (45)
Mid	19 (24)	18 (35)	38 (28)
Senior	15 (19)	20 (38)	36 (27)
Ethnicity			
White	53 (68)	34 (65)	82 (61)
Racial minority group	26 (32)	18 (35)	52 (39)
Overseas training in non-English speaking country			
No	74 (94)	44 (85)	120 (90)
Yes	5 (06)	8 (15)	14 (10)
Role			
Nephrologist	58 (73)	40 (77)	101 (75)
Other	21 (27)	12 (23)	33 (25)
Work basis			
Full time	44 (56)	38 (73)	85 (63)
Part time	35 (44)	13 (27)	49 (36)
Carer			
No	26 (33)	9 (18)	35 (27)
Primary	22 (28)	2 (04)	24 (18)
Equal share	25 (32)	25 (48)	51 (38)
Secondary/Other	6 (07)	16 (30)	24 (17)

[†]% relates to each column.

[‡]Three people identified as non-binary and their characteristics are not described here in order to preserve confidentiality.

Characteristics of included survey participants are shown in Table 1. Of the respondents, 59% (79/134) were women. The majority of respondents were of White ethnicity (82/134; 61%), followed by South East Asian (10/134; 7%), South Asian (10/134; 7%) or East Asian ethnicity (9/134; 7%). Most were born in Australia (65/134; 49%), the United Kingdom (19/34; 14%) or New Zealand (17/374; 13%). Three-quarters (101/134; 75%) of respondents were nephrologists; others included nephrology trainees, nurses, researchers, scientists and allied health workers. The majority (69/134; 51%) of respondents were aged 40–59 years. Two-thirds (85/134) worked full time, although this was less common (44/79; 56%) for women. Three-quarters (99/134) of the group had carer responsibilities, with 60% (47/79) of women and 52% (27/52) of men reporting primary or equal care responsibilities.

Inequity within the nephrology workforce

Subjective insights into inequity

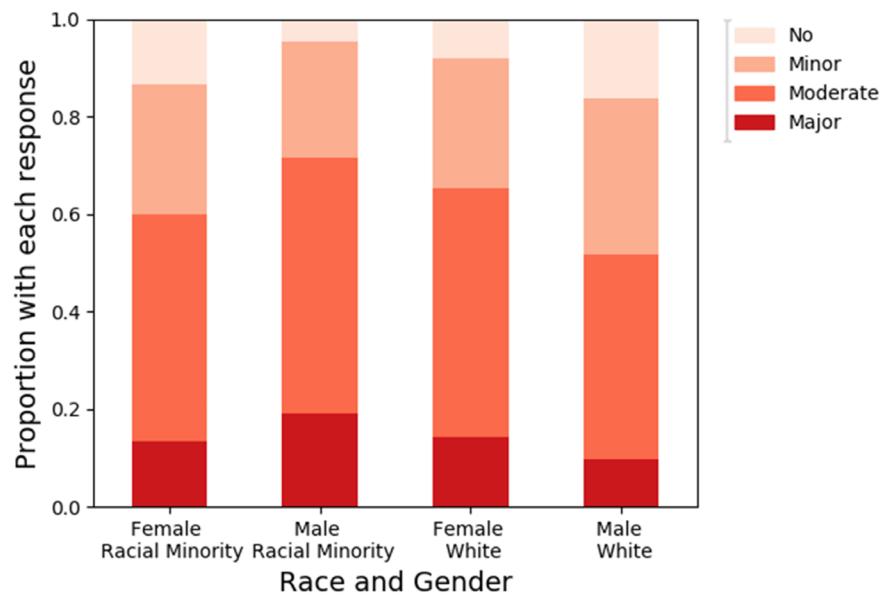
The majority (118/134; 88%) of respondents believed inequities existed within the nephrology workforce, with

most (99/134; 63%) believing there were moderate to major inequities. Insights into the existence of inequities were similar across gender and ethnicity ($P = 0.37$; Fig. 1A). Younger people (<40 years) were more likely to perceive inequities in the work force than those over 40 years of age ($P = 0.015$; Fig. 1B).

For those who felt inequities existed, the main drivers identified were gender (84/113; 74%), carer

responsibilities (74/113; 65%), ethnicity (64/113; 56%) and overseas training (58/134; 43%; Fig. S1). Women (58/71; 82%) were more likely than men (26/46; 56%; $P = 0.005$) to identify gender as a cause of inequity. Most (33/46; 72%) of the respondents from racial minority groups felt ethnicity was a driver of inequity, compared with 44% (32/72) of the White respondents ($P = 0.004$).

(A) Stratified by gender and race



(B) Stratified by age

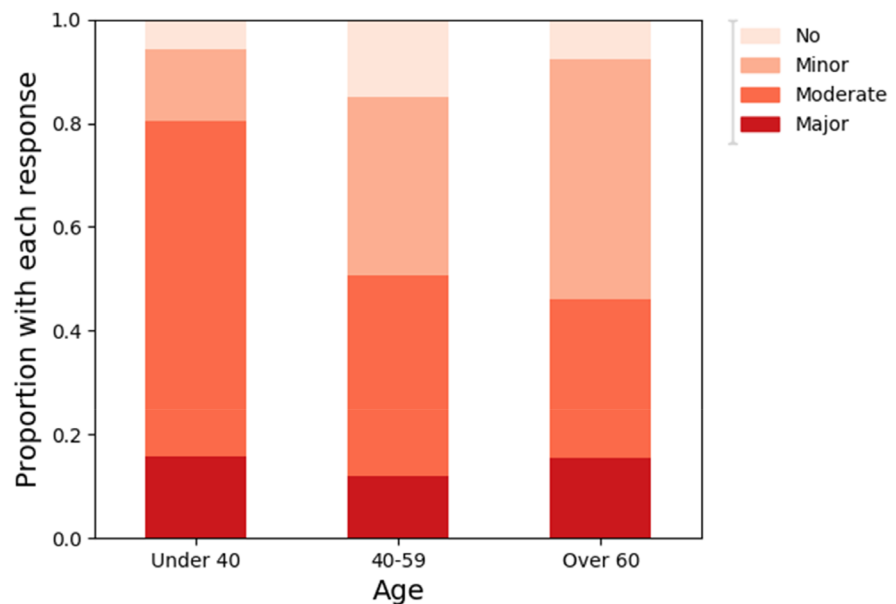


Figure 1 Perceived inequity for members of the Australian and New Zealand Society of Nephrology. (A) Stratified by gender and race. (B) Stratified by age. Inequity was rated as major (black, bottom of bar), moderate (red), minor (blue) or none (green, top of bar).

Most people felt their workplace moderately or strongly supported diversity (87/123; 71%), with no difference in view by gender ($P = 0.17$) or ethnicity ($P = 0.13$). Inequities were believed to affect chances of securing a consultant or senior position (74/113; 65%), election to leadership position and committees (67/113; 59%) and in obtaining research grants (57/113; 50%).

Personal experiences of inequity

Over half (74/131; 56%) of the respondents had personally experienced inequity, with 62% of males from racial minority groups, 65% of females from racial minority groups, 63% of White females and 40% of White males reporting inequity (Fig. 2). White males had less than half the odds of experiencing inequities compared with everyone else (OR 0.39; 95% CI 0.18–0.90; $P = 0.02$).

Respondents listed gender (52/75; 69%), carer responsibilities (35/73; 48%), ethnicity (29/75; 39%) and overseas training (17/73; 23%) as the primary drivers of the inequities they faced. Other nephrologists were identified as the primary source of inequities experienced in the professional career (driving inequities based on gender, carer responsibilities, ethnicity, sexual orientation, rural/remote location of practice and disabilities), except for inequities related to overseas training (where health administrators were the primary driver) and primary language (where academics were the primary driver). The majority (59/65; 91%) of respondents who had experienced inequity in their careers felt there was no one in the workforce to turn to for assistance.

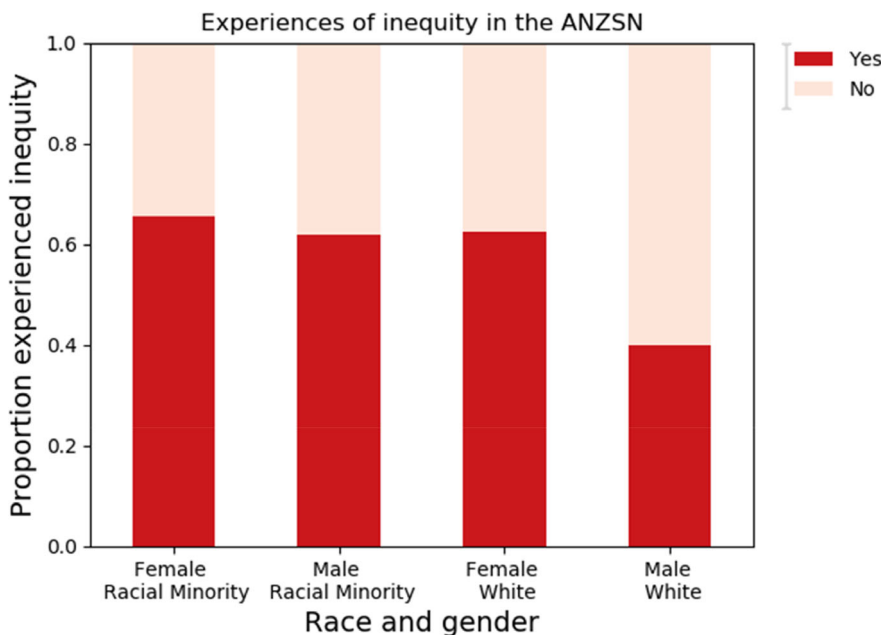


Figure 2 Personal experience of inequity, stratified by race and gender. Fraction of respondents who had personally experienced inequity.

Workplace equity

Participants reported the most important workplace equity issues to address included flexible training arrangements (40/119; 34%), addressing unconscious bias (33/119; 28%), supporting flexible consultant working arrangements (30/119; 25%) and ensuring diverse representation on Council and at conferences (30/119; 25%).

Qualitative analysis

Thematic analysis of participant responses revealed three major themes: (i) the availability of assistance for those who had experienced inequity; (ii) the impact inequity had on them personally and for their career; and (iii) what future approaches the society could take to address the inequities.

Theme 1: availability of assistance for inequity

Respondents reflected on the availability of help to redress inequity. Their responses were further coded into three sub themes; lack of formal assistance, peer support, and passive acceptance of inequity. The majority of responses indicated that there was no formal assistance available or offered at their institution. If assistance were available, it was in the form of peer support, including moral support or solidarity among colleagues. Many female and participants from racial minority groups

Availability of assistance

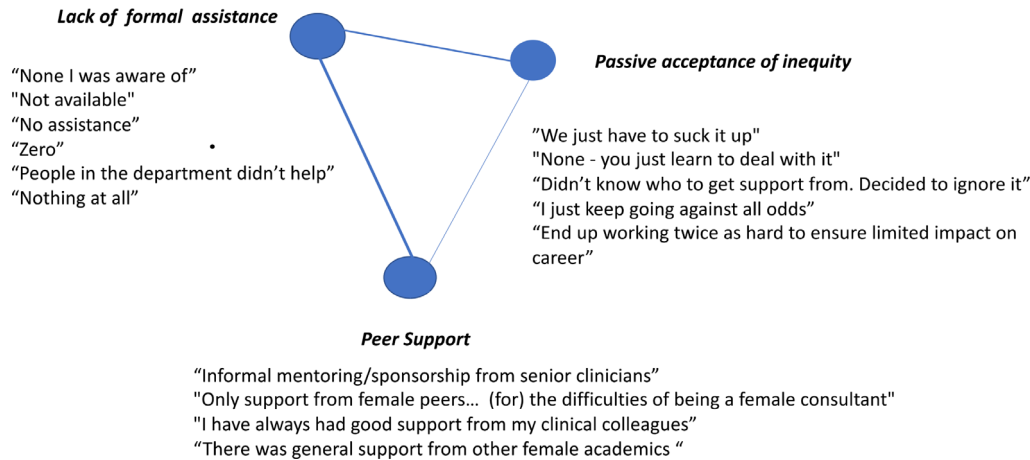


Figure 3 Qualitative findings: assistance for those affected by inequities. Larger nodes represent greater number of respondents comments mapping to the subthemes.

described passive acceptance of the status quo. A ‘soldier on’ mentality was adopted where women and males from racial minority groups felt they had to work harder to lessen the impact on their career (Fig. 3).

“(I had) Only support from female peers – who laughed with me at what had happened... ‘put it in your book’ about the difficulties of being a female consultant” (White Female, aged over 60 years).

Theme 2: impact of inequity

Participants were asked about the impact of inequity on their life. Five subthemes emerged: lack of choice, diminished ambition, limited opportunities for advancement, psychological impacts and dismissive culture. Females frequently felt disadvantaged due to caring responsibilities and lack of support, reporting delays in training and accessing fellowship opportunities. Male participants, in contrast, did not report carer responsibilities translating to diminished choices. Women and men from racial minority groups reported altering their level of ambition when it came to applying for leadership positions.

[I had a] Continual feeling of being gaslit by seniors. Having direct comments made to me by senior nephrologists like “why won’t you just stay home and look after the kids till they get to school” (White Female, aged under 40 years).

Personal experience of inequity was frequently reported to limit career advancement. Academics reported decreased ability to attract grant funding or publish papers. Males from racial minority groups who trained overseas reported they were treated as an outsider compared to those members trained locally and felt discriminated against when it came to job and research opportunities.

I have been unable to make successful headways in research, or in administration or in professional society being “unknown” and being an “outsider” compared to those trained locally. Job opportunities at some centres covertly discriminated against “overseas” trainees (Male from a racial minority group, aged 40–59 years).

Women reported a dismissive culture where they were not considered for substantial public appointments or left off grants and publications. Many women reported feeling they had to work harder to reduce the impact on their career (Fig. 4).

“Having to work twice as hard and do as much work as someone on twice the FTE to “prove” myself is exhausting.” (White Female, aged under 40 years).

Theme 3: pathways to an inclusive future

Participants were asked what approaches the ANZSN could take to reduce inequities for members. Responses

Impact of Inequity

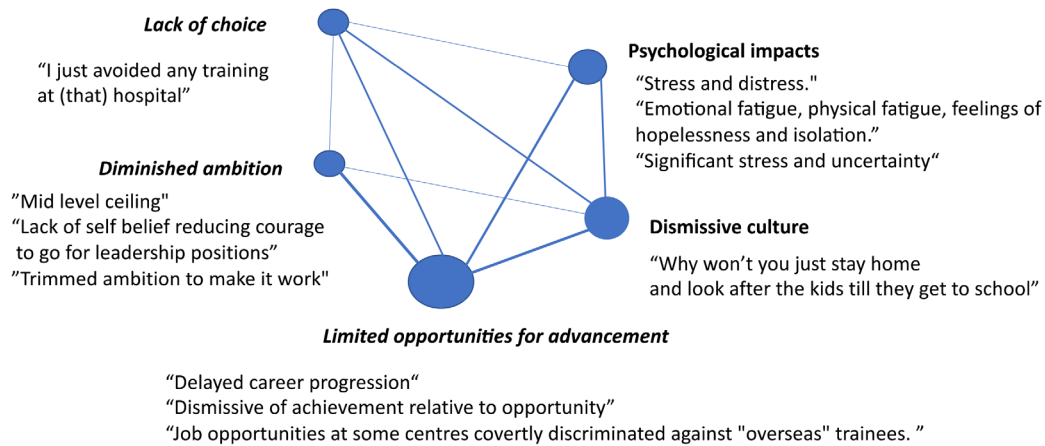


Figure 4 Qualitative findings: impact of inequities in the workplace. Larger nodes represent greater number of respondents comments mapping to the subthemes.

Approaches for the future

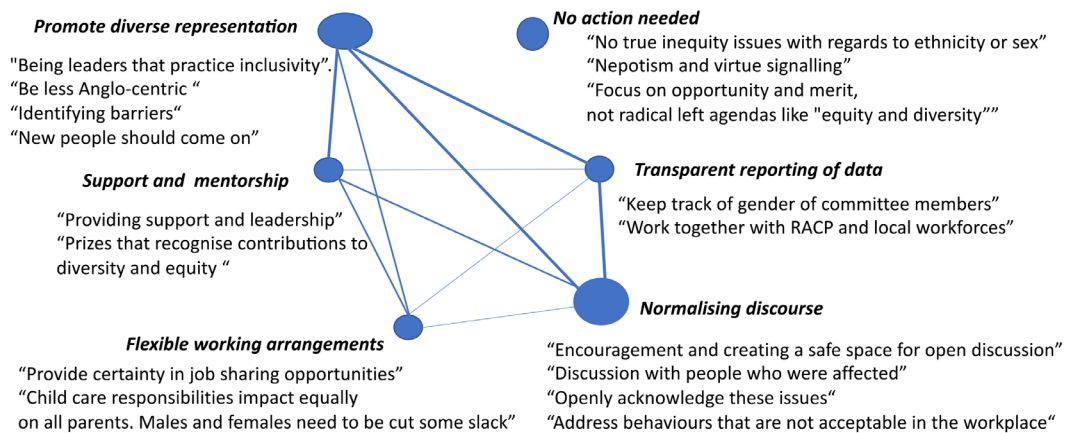


Figure 5 Qualitative findings: Pathways to improve equity. Larger nodes represent greater number of respondents comments mapping to the subthemes.

were coded into six subthemes: promote diverse representation, support and mentorship, flexible working arrangements, transparent reporting of data, normalising discourse and no action needed.

The strongest recommendation was for leadership roles to have diverse and inclusive representation of gender and ethnicity, including First Nations Australians and New Zealanders. Targeted scholarships for indigenous health workers were suggested to improve representation. Continued open and transparent reporting of gender breakdowns of grant patients, leadership positions

and conference speaker roles were recommended to highlight discrepancies and improve accountability.

"First, by aiming for 50% Female and Male gender representation, and including committee members who identify as LGBT. I think it is outdated that our committee this year aimed for 30% female representation and were proud they achieved this." (Female from a racial minority group, aged under 40 years).

Suggested policy changes included a mandate of equal female/male representation on committees and providing

adequate resources and support to mentor junior members.

“Active intervention with quotas – not just words.” (Male from a racial minority group, aged under 40 years).

Carer responsibilities were acknowledged to impact on workplace participation. Respondents emphasised the importance of committee meetings and conferences to occur in working hours, so attendance did not come at the expense of personal family time. Financial support (in the form of scholarships/research grants) and flexible training positions could support members with caring responsibilities.

“An understanding that domestic/child care responsibilities impact equally on all parents. Males and females need to be cut some slack when these impact on work and training engagement.” (White Male, aged over 60 years).

Survey respondents advocated for open and frank discussions around inequities and unconscious bias in the workforce, encouraging mindfulness of equity considerations (particularly related to leadership roles and grants) and consideration of unconscious bias training (Fig. 5). Females and males from racial minority groups provided most of the suggestions to address inequities within the society, while a small group of largely older White males felt the ANZSN either could or should not be addressing inequity, with some suggesting a focus solely on merit.

Discussion

The majority of ANZSN member respondents recognised inequities, particularly relating to gender, ethnicity and carer responsibilities, and half had personally experienced inequity in the workplace. Compared with White males, other groups were more likely to have experienced inequity and the overwhelming majority felt there was no one in the workforce they could turn to for assistance. Common themes for addressing inequities included flexible training and working arrangements, promoting diverse representation on council, conferences and committees and addressing unconscious bias.

Female gender and belonging to a racial minority group were commonly identified sources of inequity within the nephrology workforce. This highlights the importance of intersectionality, where two (or more) factors increase the likelihood of experiencing discrimination. White males were 61% less likely to have personally experienced inequity, which echoes findings from other specialties. Studies published in 2021 of Black

orthopaedic surgeons in the United States and cardiologists in the United Kingdom found personal experience of discrimination was very common for people of colour and for women.^{14,15} This survey adds to the existing literature by confirming the presence of inequities in the nephrology workforce and revealing differing perspectives based on gender, career stage and ethnicity. Highlighting the potential difficulties of understanding factors outside our own experience, women were more likely than men to cite gender as a cause of inequities and people from racial minority groups more commonly cited ethnicity as a driver of inequities than White people. Generational change appears to have affected beliefs, with 80% of early career members, irrespective of gender, perceiving moderate to major inequities in the nephrology workforce, compared to around half of older respondents.

The impact of discrimination appears to be profound, with respondents reporting restricted career advancement and psychological distress. The ‘glass ceiling’ has been widely reported, with female academic physicians earning less than their male counterparts¹⁶ and White men more likely to receive research grants.^{6,17} This research extends knowledge by revealing most discrimination came from peer nephrologists, particularly for discrimination based on gender, carer responsibilities and race. Highlighting the need for institutional change, over 90% of respondents who had experienced discrimination felt they had no one to turn to in their workplace for assistance.

ANZSN members advocated for several pathways to redress, including flexible training and working arrangements, diverse representation on council, conferences and committees and unconscious bias training. Unconscious bias is likely to be a widespread workforce issue.¹⁸ A study of faculty assessing identical resumes, with gender randomly assigned, felt male candidates were preferable.¹⁹ Unconscious bias training aims to raise awareness, facilitate introspection and hence potentially change actions, although it must be noted there is low level evidence of effectiveness.²⁰ Diverse representation is likely to encourage further diverse participation. For example, recent data demonstrate the effectiveness of increasing female representation in conference chair roles in increasing female participation at conferences.²¹

Strengths of this study include the large sample size and diversity of respondents. Women, men, people of different ethnicities, overseas and locally trained, nephrologists, scientists and nurses from Australia and New Zealand were all represented. There are very limited data on experiences of inequity, especially within nephrology. Potential limitations include the lack of a formal qualitative interview process, selection bias from

the low percentage of ANZSN members who participated in the study, response bias (e.g. from demand characteristics) and ascertainment bias (e.g. members access to the internet, convenience sampling through ANZSN channels). In example, the responses given were a snapshot in time and may not be durable over time. Most of the members who responded were doctors and academics so more work is needed to fully understand the experiences of scientists, nurses, allied health and other members of the nephrology workforce. Regardless, valuable insights into inequities were gathered from those who did participate.

Conclusion

Women and people from racial minority groups in this survey commonly reported experiencing inequities in the workplace. If we fail to attract, retain and promote

women and other underrepresented groups in nephrology, both in a research and clinical context, we fail to harness the potential of many recent graduates. A diverse workforce will better serve the needs of our patients, including through research and advocacy roles to improve patient outcomes and benefit the broader community. Pathways to a more inclusive future may include advocacy for diverse representation, flexible training arrangements and unconscious bias training. Future research should explore solutions to inequities in the nephrology workforce.

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Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's web-site:

Supplemental Figure S1. Perceived factors responsible for inequities.

Supplemental Item S1. Gender, Equity and Diversity working group survey.

Supplemental Item S2. Thematic Coding Tree.

Supplemental Item S3. CHERRIES Checklist for Reporting Results of Internet E-Surveys.
