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Do mentoring programmes influence women's careers in the health and medical research sector? A mixed-methods evaluation of Australia's Franklin Women Mentoring Programme

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ABSTRACT

Objectives It is known that women are under-represented in senior positions within the health and medical research sector. The Franklin Women Mentoring Programme (Programme) is a professionally facilitated, cross-organisational initiative designed to support career development for mid-career women. The objective of this study was to evaluate Programme outcomes reported by participants 12 months following its formal conclusion.

Design Explanatory sequential mixed-methods study design using a cross-sectional survey and semi-structured interviews.

Setting Health and medical research institutes in Sydney, Australia.

Participants Health and medical researchers from the 2018 Programme.

Primary and secondary outcome measures Changes in knowledge, skills, behaviours and research metrics directly attributed to Programme participation.

Results A total of 50 mentors and mentees participated in the cross-sectional survey (68% of the total cohort) and 14 mentors and mentees participated in the interviews. All reported changes to their knowledge, skills, behaviours and research metrics which were directly attributed to participation in the Programme. This included changes in knowledge and skills to be more inclusive (96% mentees, 83% mentors), resilience (88% mentees, 67% mentors), ability to have difficult workplace conversations (88% mentees, 71% mentors) and improvements in supervisory and team management (82% mentees, 75% mentors) skills. Positive impacts on promotions and grant opportunities were also reported. All evaluation participants believed this Programme was a worthwhile initiative for their workplaces to invest in.

Conclusion Participation in this cross-organisational, professionally facilitated, structured mentoring programme has led to positive outcomes for mentees, as well as mentors. Reported outcomes indicate the Programme is meeting its aims to support the career development of mid-career women in health and medical research, while facilitating a more inclusive workforce.

Strengths and limitations of this study

- ► This is one of the first studies to formally evaluate a structured mentoring programme for mid-career women delivered in Australian academic research setting, demonstrating the value of this investment.
- ► The mixed-methods approach 12 months following conclusion is a strength of this evaluation allowing in-depth exploration of Franklin Women Mentoring Programme (Programme) outputs and outcomes.
- ► Recruitment to this Programme likely involved selection bias, with high performing mentees and influential mentors targeted for enrolment, influencing generalisability of findings.
- ► Selection bias may have impacted evaluation participation, potentially over or underestimating the benefits of the Programme for all participants.
- ► We did not include a control group in the study and therefore are unable to attribute the changes observed in this study solely to this Programme.

INTRODUCTION

Globally, women are under-represented in senior positions within the health and medical research sector.[1] While equal proportions of men and women are represented at student and early career levels, at mid-career women's participation in this workforce declines sharply and permanently.[2 3] Long standing gender disparities are exacerbated during times of crisis, such as is evident now in the COVID-19 pandemic—with decreases in women's workplace participation and productivity,[4] media representation[5] and academic outputs.[6 7] This will have prolonged and detrimental effects on gender equity in the research workforce, potentially setting back progress that has been made in some fields,[8] and highlights the importance of continuous efforts and financial investment in gender equity initiatives.

Worldwide, a number of programmes and initiatives are delivered at various levels aiming to contribute to gender equity, diversity and inclusion in science, technology, engineering, mathematics and medicine workplaces. In Australia, this includes the Science in Australia Gender Equity programme and Athena Swan Charter.[9–12] Mentoring relationships, either informal or as part of structured programmes, have been identified as valuable for career progression, particularly for minority groups, and have been widely incorporated into gender equity activities.[9 13–16] However, as few have been formally evaluated, there is some[17–20] but limited evidence demonstrating their effectiveness beyond immediate participant satisfaction.[21] It is therefore critical to evaluate mentoring initiatives to investigate if they are meeting their intended aims and whether they warrant the human and financial resources invested into them.[21 22]

The Franklin Women Mentoring Programme (Programme) is a gender equity initiative to increase the representation of women in leadership roles in the health and medical research sector in Australia. It aims to support mid-career women from a variety of disciplines progress into leadership positions, and prevent their drop out from the sector. It also provides leaders of any gender the opportunity to develop their mentorship skills, increase their awareness of the value of a diverse and inclusive workplace, and the role they play in achieving this in their workplaces and the broader sector. This is achieved through a combination of informal mentoring sessions between purposefully matched mentees and mentors from a different organisation, and facilitated professional development workshops for all participants, delivered over a 6-month period. This Programme is delivered by an independent social enterprise (Franklin Women) that brings research sector expertise and partnerships spanning diverse health research organisations. Franklin Women engaged professional leadership and mentoring consultants (Serendis Leadership) for the overall programme design and content delivery. Further details on the content of the 2018 Franklin Women Mentoring Programme can be found in online supplemental file 1.

The annual Programme was initiated in 2017 and was the first cross-organisational mentoring programme for the sector in Australia. The aim of this study was to evaluate outcomes of the 2018 Franklin Women Mentoring Programme reported by mentees and mentors 12 months following its conclusion.

METHODS

Study design and evaluation Programme Logic

This was an explanatory sequential mixed-methods study design using a cross-sectional survey and semi-structured interviews. The design of this programme evaluation was based on a Programme Logic Model incorporating six key components: problem; inputs; activities (with further detail at online supplemental file 1); outputs; outcomes and impact (figure 1). Established definitions for each component from the Kellogg Foundation[23] coupled with how these definitions have applied to this study are summarised in online supplemental file 2.

The questionnaire and interview guide, including the outcomes selected to measure, were designed based on pilot data provided by an informal evaluation survey with a previous cohort of the Programme (2017), as well as Advisory Group feedback (see the Patient and public involvement section). The questions were framed to determine outcomes experienced by participants of the 2018 Programme, self-reported 12 months following its completion. Questions measured specific changes to participants' knowledge, skills, behaviour and research metrics that they directly attributed to the Programme. The change was measured via self-report at a single point in time. The questionnaire also measured the participant's engagement with programme outputs, which are necessary precursors to achieving the measured outcomes. A copy of the questionnaire and interview guide is available in online supplemental files 3 and 4.

Patient and public involvement

Research questions, outcome measures and research design were informed by members of the Franklin Women Peer Advisory Group, comprised women working in the health and medical research sector reflecting on their experiences, and previous pilot research. The findings of this research will be disseminated to all study participants.

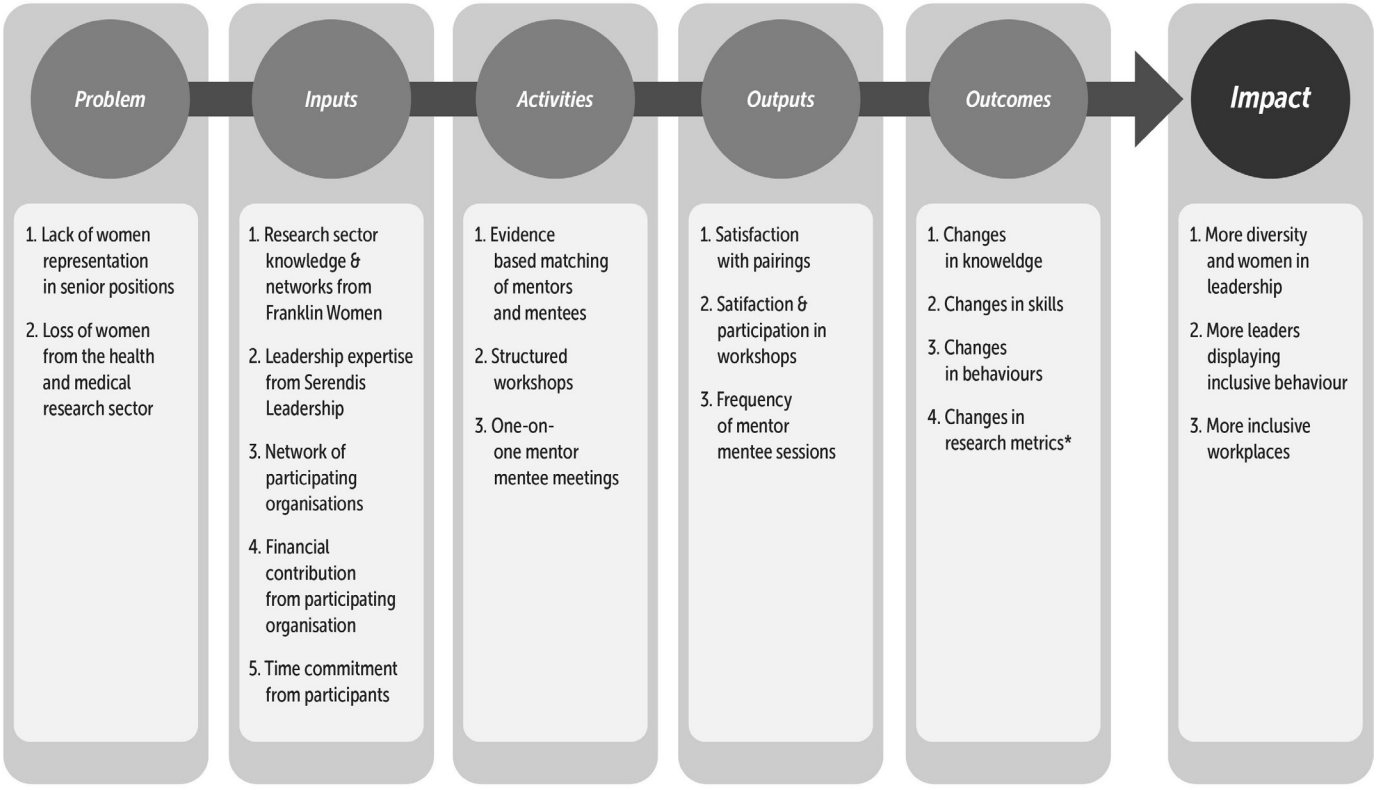
Recruitment and data collection

All mentees and mentors who were part of the 2018 Programme (37 pairs from 14 health and medical research organisations; all mentees were women, and 62% of mentors were women) were invited to take part in this evaluation study via email, with a link to complete an online questionnaire. Data were collected via REDCap (Research Electronic Data Capture) during a 10-week period.[24 25] REDCap is a secure, web-based software platform designed to support data capture for research. At the conclusion of the survey respondents were invited to consent to be contacted for an interview.

Semi-structured interviews with mentees and mentors were conducted from January to April 2020. Two researchers (KW, RJ) independent to the implementation of the Programme, interviewed participants via communication software Skype or Zoom. All interviews were recorded and transcribed. Interviews were conducted until thematic saturation was achieved.

Data analysis

Quantitative data from the questionnaires were analysed using descriptive statistics for closed answer questions and reported in proportions. Free text data from the survey were analysed with the qualitative data from the semi-structured interviews. The interviews were used to validate the survey findings. Transcripts from all interviews were reviewed by at least two researchers and manually coded pertaining to each theme of the survey data on a



*research metrics are professional milestones required for progression to leadership positions within the health and medical research sector. These include grants, translation of research into impact, PhD student completions and promotions.

Figure 1 Programme Logic for the Franklin Women Mentoring Programme evaluation.

Microsoft Excel spreadsheet. As the survey and interview responses were not identified it was not possible to link the responses between matched mentees and mentors. Due to the small number of men participating in the evaluation findings were not disaggregated by gender to prevent their identification.

RESULTS

Description of respondents

Of the 74 mentees and mentors who participated in the 2018 Franklin Women Mentoring Programme, 50 (68% of cohort, 26 mentees and 24 mentors, at least 5 were men) completed the electronic questionnaire and 23 of these consented to be contacted for interview. A total of nine mentees and five mentors (including two men) completed in-depth qualitative interviews, and inclusion was based on availability for interview. Data saturation was reached at 12 interviews.

The majority of mentees reported that they participated in the 2018 Programme because they felt it was the right time in their career (85%) and needed a mentor to guide them through the next phase (81%). This aligned with the qualitative data, where mentees discussed the need to connect with a senior leader who was independent and would give unbiased career advice. The main reason for participation cited by mentors was the structured nature (88%) and having leadership experts facilitate the Programme (75%).

Programme outputs

The survey explored how the participants engaged with the Programme activities as measures of Programme outputs which included mentee–mentor matching, mentee–mentor meetings and workshops (figure 1).

Most mentors and mentees felt that they were matched well and had a good relationship with their mentor/mentee. Two mentees interviewed were not wholly satisfied with their paired mentors and were given additional supplementary sessions with another mentor. During the 6-month Programme 81% of mentees and 83% of mentors reported meeting 4–6 times (as per Programme participation guidelines). According to the interviews laying ground rules between mentor and mentee early in the Programme and having a mentor from a different organisation helped build trust and have honest conversations. All mentees interviewed felt comfortable and safe discussing their career plans and challenges in taking the next step to advance their career with their mentors.

> it felt like it was a really safe space to have a professional conversation about something that doesn't usually get brought up in professional contexts. (Mentee)

From the interview findings workshops were considered well organised and useful. All mentees and 92% of mentors reported that they would recommend participation in the Programme to others at the same career level. All (100%) of the mentees and mentors believed

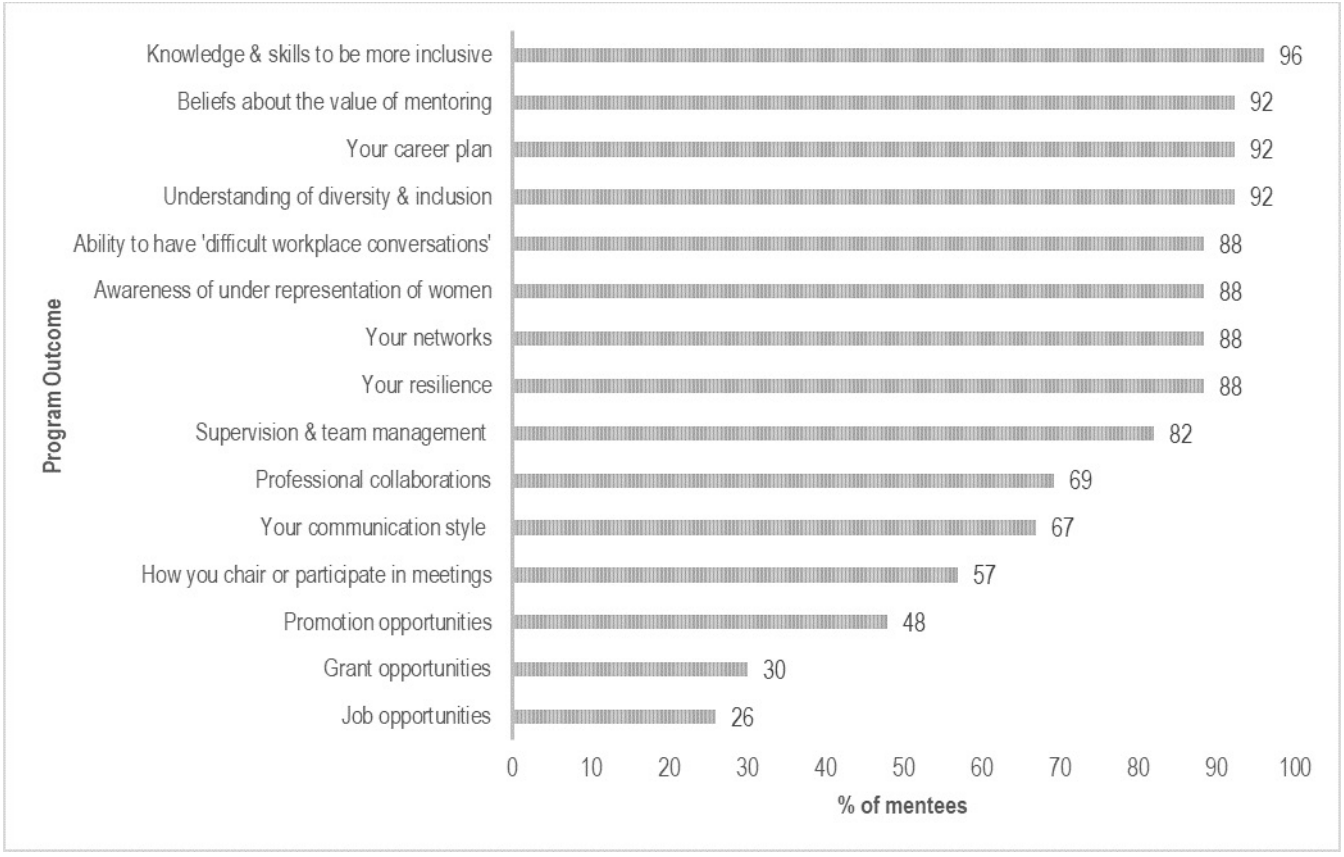


Figure 2 Proportion of mentees reporting changes in their knowledge, skills, behaviours and research metrics that they directly attribute to their participation in the Franklin Women Mentoring Programme.

the Programme was a valuable initiative for their organisation to invest in.

> I feel like the impacts are not going to just be individual, but it gave you something that you could take back to the team that you work with and the organisation that you work with and a new language around how to encourage those things to be implemented. (Mentee)

> Overall, I think it's a fantastic Programme. It fills a very much needed gap. I think just having the Program was fantastic in itself. But there are a lot of workshops in it that were really relevant. I think that both from a mentoring and mentee perspective, it sort of provided tools for both of those groups. (Mentor)

Programme outcomes

All mentees reported changes to their knowledge, skills, behaviours and/or research metrics which they directly attributed to their participation in the Programme (figure 2). The majority of mentees (96%) reported that participation in the Programme influenced the knowledge and skills required to be more inclusive in their workplace. This was complemented by 92% reporting changes to their understanding of the concepts of diversity and inclusion, as well as their beliefs of the value of mentoring.

The majority of mentees also reported that participation influenced enablers for career progression, such as establishment or revision of a career plan (92%), resilience (88%) and increases in networks (88%). Based on the interview findings, mentees felt that the Programme helped them to build their networks, with increased comradery within their organisation and the sector.

> I formed better connections, even from my Institute, and that's carried on … the real value was seeing other people were like me, and I looked at them and (thought) 'but you're so successful and doing really well' and they were going through exactly the same struggle (Mentee)

Other workplace behaviours were also influenced by the Programme. For example, 88% of mentees reported influences on their ability to have difficult workplace conversations, 67% reported improvements in their communication style and 57% a positive influence on how they chair or participate in meetings. Interviews revealed that this had personal benefits but also may also support and amplify the voice of women in the workplace:

> Being a young female academic, I felt that I was ticking boxes being on committees and sitting in meetings and didn't really feel I had a voice. The workshops really made me believe that I had a voice

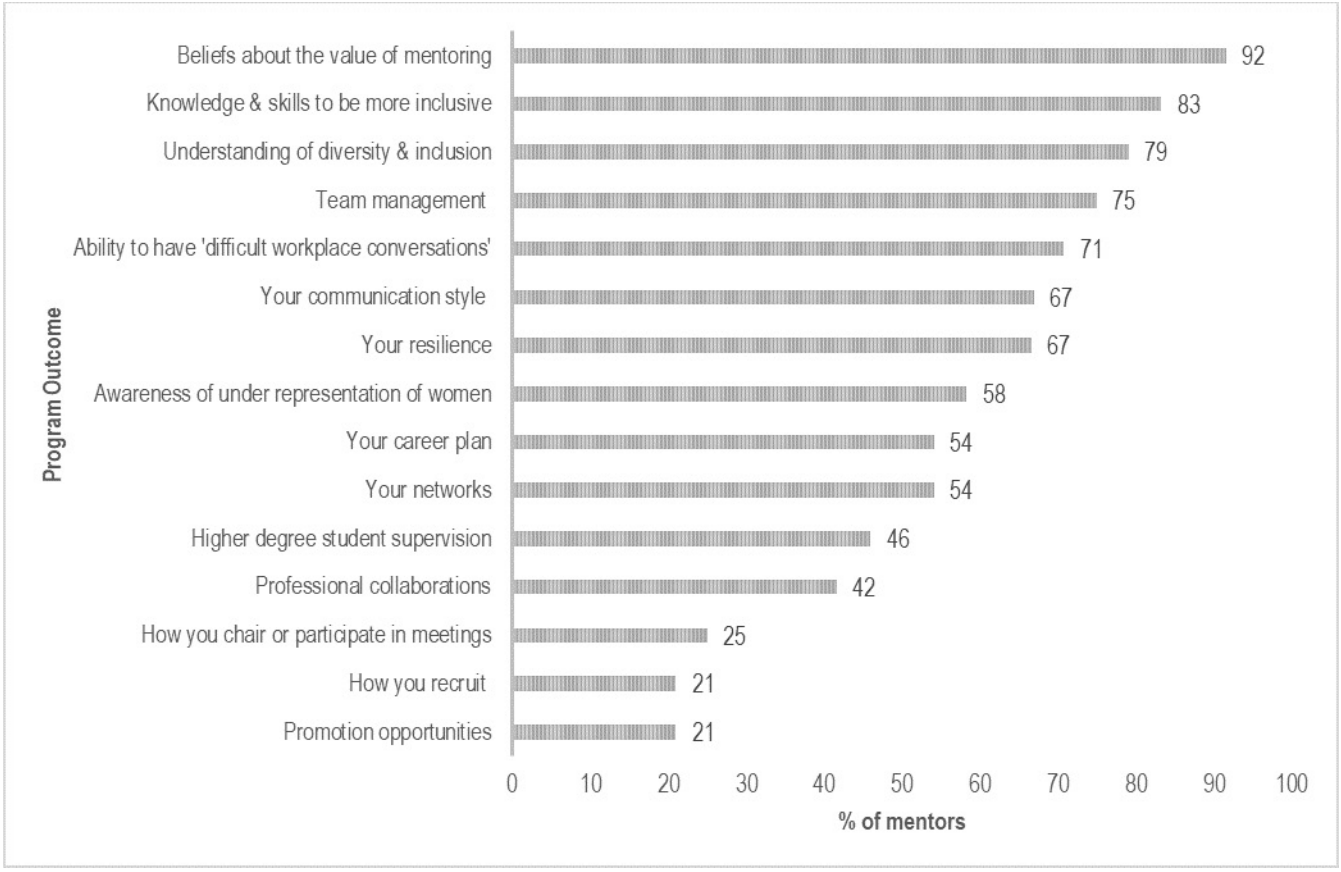


Figure 3 Proportion of mentors reporting changes in their knowledge, skills, behaviours and research metrics that they directly attribute to their participation in the Franklin Women Mentoring Programme.

> and what I had to say has value and it really taught me that. It was a huge learning curve. (Mentee)
>
> I had experienced some gender inequality at our workplace. Instead of getting angry and not knowing what to do with that anger, I went to the other mentees in my cohort and asked for their suggestions. (Mentee)

Positive changes to traditional research metrics were also reported by mentees. Nearly half (48%) of the survey respondents reported a professional promotion opportunity which they attributed to Programme participation. Almost a third (30%) of mentees reported grant opportunities. Interview themes relating to these outcomes found that these successes were often due to confidence and encouragement from their mentor to put themselves forward for opportunities, promotions or positions.

> I had a lot more confidence in myself and in my abilities and at work. I speak up a lot more than I used to. So, it's helped a lot with my confidence. I guess there's probably a lot of littler things, but I put in for a promotion … and I was awarded that promotion. (Mentee)

Despite being senior leaders in their fields, all mentors reported changes to their knowledge, skills, behaviours and/or research metrics due to their participation in the Programme (figure 3). The majority (92%) of mentors reported that participation in this Programme influenced their beliefs about the value of mentoring. Insights provided by the interviews suggests despite being mentors in the past, the structured approach of the Programme and the resources provided helped to tailor their mentoring skills:

> I learnt a lot about myself and about the process, what mentoring was, and sometimes you do have these ideas about mentoring … but once it is formalised and you see a structure and a format (Mentor)

A high proportion of mentors cited that participation in the Programme influenced their knowledge and skills on how to be more inclusive in the workplace, as well as their understanding of the concepts of diversity and inclusion (83% and 79%, respectively). This is captured by one mentees observation about a mentor participating from their workplace:

> … he'd gone through in the year before … I'd watch him change and his language change and he'd use phrases like diversity, inclusion and … it's really influencing on mentors as well (Mentee)

Changes to workplace skills and behaviours were also reported by mentors, with 75% reporting a positive

impact on their approach to managing their team, 71% reporting an influence on their ability to have difficult workplace conversations and 67% experiencing a positive influence on their communication style.

> And it made me reflect on who I have in my immediate research team and why it works and why we wind each other up. That's been very helpful because I've placed more value on having a very rounded diverse team around me that represents all of the bits of those strengths, because I can see very clearly how you need everything. You need balance. So that's probably changed how I interact with some of them. (Mentor)

Mentors less commonly reported that participation influenced traditional research metrics (such as promotion opportunities, 21%). However, they did report that participation has other career-related benefits such as resilience (67%), networks (54%) and professional collaborations (42%).

> peer relations or peer opportunities among the mentors … I actually think there's a lot of support we could give each other and I think particularly for senior women, it's still very fragile and you get up here and there's nobody else here to talk to or to ask questions of. So I actually think part of helping mentees is making sure the mentors have a stronger network, at the moment it's pretty feeble, and (the Program) could actually do something about that. (Mentor)

DISCUSSION

This study provides evidence on the positive outcomes of a mentoring-based gender equity initiative delivered in the Australian health and medical research sector, as measured by changes in participants knowledge, skills, behaviours and research metrics needed for academic career progression. Using a Programme Logic Model we present a process that links the activities and outputs of the Programme with Programme outcomes reported by study participants 12 months following its formal conclusion, to demonstrate the likely impact of the Programme in the long term, as per the Programme Logic theory.[23 26 27]

Outcomes data from this study demonstrated several personal and career benefits attributed to Programme participation. Close to 50% of mentees cited that participation played a role in a promotion—a meaningful outcome considering the aim of the Programme was to address the infliction point in career trajectory for women in health and medical research careers.[2 3] Mentees also attributed Programme participation to other traditional metrics of academic research career success—including grants, awards and other leadership opportunities. An increase in confidence, as well as support from their mentors and network built through the Programme, were considered essential by participants for achieving these outcomes. Other benefits reported by mentees included personal qualities such as increased resilience and confidence. Resilience has been often cited as a valuable quality in academic environments.[28] This finding aligns with previous work demonstrating the positive impact mentoring has on mentee self-esteem and self-efficacy.[18]

In additional to the multiple individual benefits reported by mentees (and mentors, aligning with previous work[29]), this evaluation also demonstrated the Programme's role in influencing workplace and culture changes. The mentees and mentors who took part in the study reported that participation not only improved their personal understanding of barriers faced by women in health and medical research careers and the concepts of diversity and inclusion, but also skills to put in place to be more inclusive in their workplace. This is a critical outcome, as previous research has demonstrated disparities in understandings and perceptions of gender biases in the workplace between men and women,[30] which becomes a substantial problem for influencing change when men hold the majority of positions of power. A strength of this Programme is the recruitment of male mentors, including institute directors, deans and team leaders, and equipping them with tools to enact change in their immediate environments. This is essential for tackling unconscious biases and driving long-term cultural change at an organisation and sector level.[31]

Despite the individual and organisational level benefits discussed previously, broader issues must also be acknowledged as opposed to 'fixing women'. The many systemic and cultural drivers of gender inequalities that exist within academic research settings and beyond have been well documented. This includes perceived capability, capacity and credibility, traditional gender roles and caring responsibilities, direct discrimination and the biased system of academic merit.[32–36] Many organisations are introducing initiatives and policies to create more inclusive workplaces, including paid parental leave, subsidised school holiday programmes, dedicated breastfeeding rooms and no tolerance sexual harassment policies. Shifts in societal norms around roles and treatment of women are also critical, though complex and slow moving. Thus, alongside these critical changes it is important that more women feel they are able, and supported, to apply for career opportunities, as reported in this study, while the biased system of 'academic merit' changes to one that gives equal opportunities to everyone.

When interpreting the findings of this evaluation there are a number of limitations that need to be considered. The 2018 Programme cohort only involved participants from one state in Australia, and likely involves a substantial element of Programme selection bias, with high performing mentees and influential mentors targeted for enrolment. Selection bias may have also influenced Programme participants' decision to take part in this evaluation, particularly the interview component. Therefore, the findings of this study may not be representative of the whole sector or all Programme participants. Additionally, the organisations who choose to invest in this Programme

are aware of the gender equity problem and likely have other interventions running concurrently which participants could also be impacted by. We did not include a control group in the study and therefore unable to attribute the changes observed in this study solely to this Programme, though participants were asked to directly link their reported outcomes to Programme participation throughout the survey and interview.

The strengths of this evaluation include the relatively high participation rate, the mixed-methods approach, and the use of interviews to help understand and explain survey results. To reduce interview bias, researchers who conducted qualitative data were not formally affiliated with Franklin Women. While not representative of the whole sector, participating organisations are a comprehensive cross-section of the sector, including medical research institutes, universities, not-for-profit health institutes and government departments. Participating mentors and mentees also encompass a diverse range of roles and disciplines within the sector. As we conducted this evaluation 12 months following the Programme's conclusion we were able to capture outcomes as well as outputs, while allowing the initial 'hype' of the Programme to settle and giving participants time to reflect on their careers and benefits. To confirm these findings, it will be critical to follow-up this cohort to evaluate sustained changes in the sector, particularly with respect to gender equity among leadership.[37]

Building the evidence base regarding best practice and effective interventions to support gender equity is needed,[38] and this evaluation addresses an important evidence gap for initiatives in the health and medical research sector, particularly academia. This is one of the first studies to formally evaluate a structured mentoring programme for mid-career women delivered in an Australian academic research settings. This is in line with a recent review reporting that very few gender equity initiatives in Australia are evaluated beyond content evaluations or personal reports of satisfaction.[21] This is a reflection of the status of diversity and inclusion action in the Australian scientific sector, which has increased rapidly in response to government and sector advocacy and investment, yet still largely led by individual volunteers,[39] often holding multiple roles within an organisation (ie, teaching, research or human resources), and often without specific training and support to fully understand these complex issues themselves.[40] Financial prioritisation of gender equity, and other diversity and inclusion initiatives, is known to be low,[41] and the limited funding available is often applied only for direct delivery of specific programme activities, rather than compensation of staff time or evaluation activities. Complex problems such as gender equity require several complementary interventions to affect change, and this evaluation information may be used to inform decisions on financial and time investments into the future.

CONCLUSION

The Programme is improving mentees' and mentors' knowledge, skills, behaviours and research metrics and supporting researchers to develop their careers. Structured mentoring programmes such as this are valuable for career enhancement for mid-career women.

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Contributors MG and AV conceived the study, all authors (AV, KW, MG and RJ) contributed to the design and interpretation of this article. AV and MG conducted the survey and AV analysed the questionnaire data. RJ and KW conducted the interviews. AV, MG and RJ reviewed the interview transcripts. AV drafted the article. All authors (AV, KW, MG and RJ) commented, critically analysed findings, and redrafted parts of the article.

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Competing interests AV and MG are team member and founder of Franklin Women, respectively, and involved in the delivery of the Franklin Women Mentoring Programme. Neither conducted any of the interviews for this research. KW and RJ have been previous participants (mentors) of the Franklin Women Mentoring Programme, however, they did not participate in this research study.

Patient consent for publication Not applicable.

Ethics approval Ethics approval was obtained from the University of New South Wales; HC190796. All participants gave implied informed consent to participate in the survey, with interview participants giving additional written informed consent.

Provenance and peer review Not commissioned; externally peer reviewed.

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