



An Australian Government Initiative

Women in STEM
Ambassador

WORKFORCE GENDER EQUITY INITIATIVES

A rapid systematic review

INITIAL RECOMMENDATIONS
6 JUNE 2023



UNSW
SYDNEY



Research Associate

Dr. Jessica Bergman



Chief Investigator

Associate Professor Lisa A. Williams



**Australian Government
Women in STEM Ambassador**

Professor Lisa Harvey-Smith

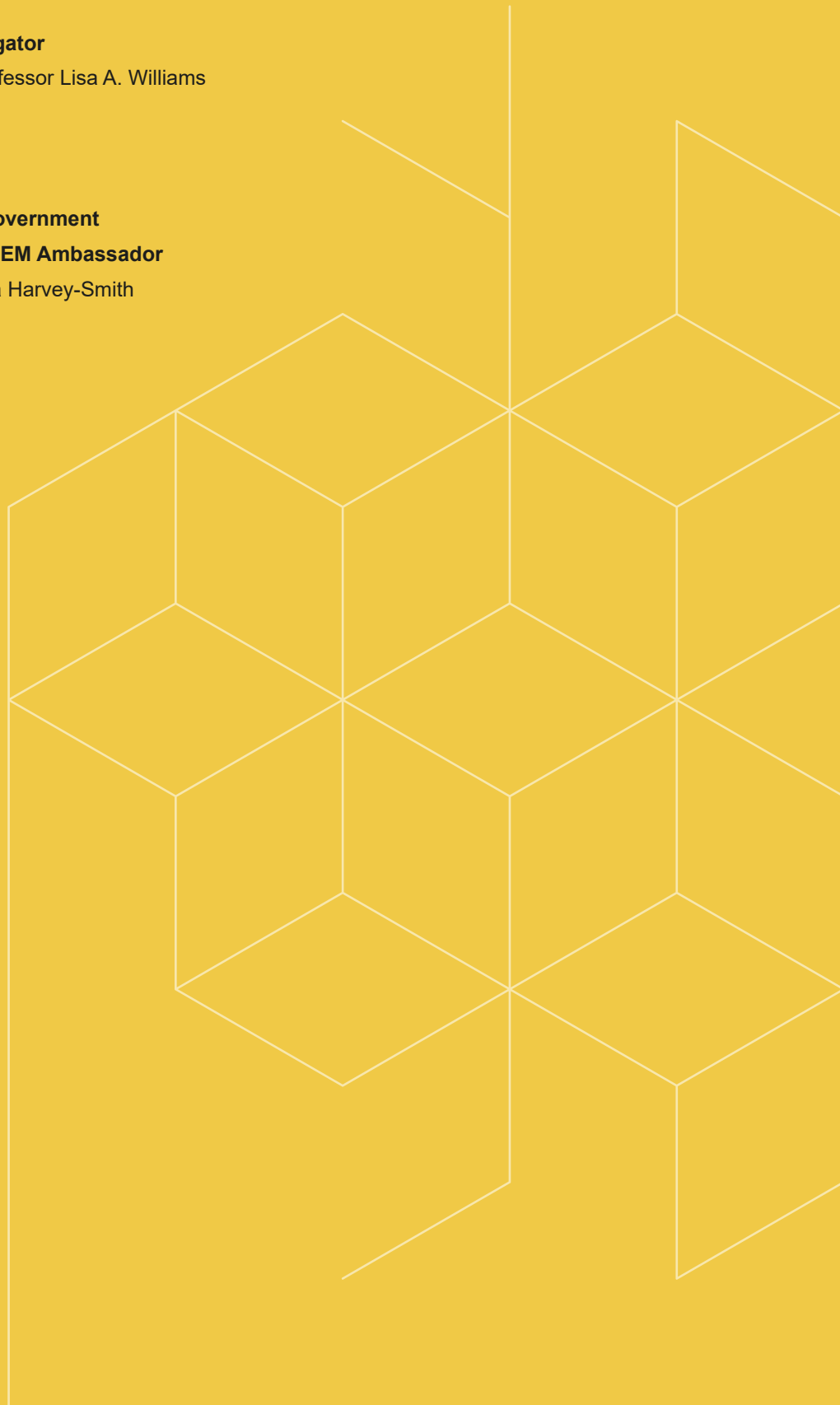
Research Assistants

Dylan Barrett

Shannon Eckhardt

Kyle Morrison

Kate Nicholls



FOREWORD



It is with pleasure that I submit this report, which offers initial recommendations for consideration by the Diversity in STEM Review Panel and Taskforce. We have formed these based on preliminary findings of a multi-part systematic review my research team has been undertaking. Our focus to date has been to summarise the evidence on workplace gender equity initiatives – what works to shift the dial on gender equity in the STEM sector?

We chose to use a systematic review method because of its evidence-based nature. Systematic reviews apply a pre-specified search protocol to the peer-reviewed academic literature. They offer a structured approach to developing insights on a body of evidence.

Systematic reviews complement, and may offset, what can be very strong opinions on matters relating to diversity. It is my hope that this report adds to the range considerations used to guide the Australian Government's next steps in pursuing diversity in STEM.

I'd like to emphasise that these are initial recommendations. We will be updating these as the systematic review activities continue. We also look forward to taking part in the consultation process on the Panel's initial recommendations, set to be released later this year. This is clearly an ongoing discussion – a discussion of which my team and I are honoured to be a part.

PROFESSOR LISA HARVEY-SMITH

BACKGROUND

The Office of Australia's Women in STEM Ambassador was commissioned to carry out research activities to support the Pathway to Diversity in STEM Review. As part of those activities, we are undertaking a series of systematic reviews of the peer-reviewed literature.

Systematic reviews offer a highly-focused and transparent process for summarising the available evidence on a topic. Predetermined search protocols avoid biases that may arise from less comprehensive review processes. Systematic reviews are carried out solely on the academic peer-reviewed literature. Other publications (e.g., white papers, industry reports) are traditionally not included.

While systematic reviews are thorough and unbiased summaries of an evidence base, there can be bias in the evidence base itself. In the context of this review, that means that any equity or diversity initiatives that have not been implemented, evaluated, or published are not captured here.

This document provides a snapshot of the evidence that exists in the peer-reviewed literature on workforce initiatives to address gender equity. Following a pre-set protocol, we identified 67 peer-reviewed publications offering data on the efficacy of initiatives

ranging from career development and mentorship programs to fellowships. We complemented this with additional peer-reviewed studies on initiatives not covered well in our initial search, including pay transparency policies, bullying and sexual harassment initiatives, and quotas. This resulted in a total of 82 publications. Most, if not all, adopted a binary approach to gender (discussing only women and men), which does not align with the nonbinary nature of this construct.

We offer initial findings from our analysis of these 82 publications. In forming our recommendations, we included assessments of the quality as well as the quantity of evidence. Studies often report positive findings ("what works"), and less commonly negative findings ("what doesn't work"). It is not necessarily the case that initiatives with the most papers offer the 'most evidence' for (or against) an initiative.

These are initial, preliminary findings and recommendations, which will be updated once we complete this stage of the review considering workplace gender equity initiatives. In addition, the updated recommendations will include studies of workplace initiatives addressing other groups e.g., sexual and gender minorities, people with disability, people of underrepresented cultural or ethnic backgrounds.

RECOMMENDATIONS AT A GLANCE

- Initiatives to progress gender equity in the STEM workforce will be most effective when policies and programs are implemented together.
- Central coordination offers effective governance with the benefits of consistent implementation and evaluation, longevity and reach, and resource maximisation.
- Evaluation is imperative for assessing impact.

INITIAL FINDINGS AND RECOMMENDATIONS

1. WHAT EVIDENCE IS THERE ON INITIATIVES THAT BENEFIT GENDER EQUITY IN STEM?

Findings: In our evidence base, we find that the success of initiatives depends on how they are implemented. Policies offer a mechanism to address systemic barriers relating to gender. Targeted programs, especially those with multiple components, can reduce historical disparities in participation and progression. However, when implemented alone, programs do not address systemic gender equity issues. By incorporating policy changes complemented by programs, underlying inequities can be tackled whilst accelerating progress for historically disadvantaged groups.

Programs and policies in our evidence base varied in terms of whether they were for women only or for all employees. While programs implemented for women specifically can offer unique benefits for sense of belonging and community, they exclude non-binary people and other gender minorities. We recommend implementing women-specific initiatives with caution.

Our review suggests that employee training on unconscious bias, bullying, and harassment should be implemented with caution: without careful design and implementation policy, such training can offer negligible, and sometimes counterproductive, outcomes.

A summary of the evidence from our review on what works and what doesn't work for each policy and program is listed on page 8.

Recommendations: Our systematic review found that, under some circumstances, the following policies and programs can effectively progress gender equity in STEM. We recommend that these policies and programs are implemented together – prioritising the implementation of policies to create more inclusive workplaces and supplementing those policies with well-structured programs.

Policies:

- Bullying and harassment
- Flexible work
- Parental and carer's leave
- Pay transparency
- Quotas/targets

Programs:

- Career development programs
- Fellowships
- Mentoring
- Anti-bullying, discrimination, and harassment programs

2. WHAT EVIDENCE SUPPORTS EFFECTIVE IMPLEMENTATION OF STEM GENDER EQUITY INITIATIVES?

Findings: Our evidence indicates that centralised governance, design, and evaluation processes avoid duplication and offer consistency of initiatives, which increases their effectiveness and reduces unnecessary burden on participants. Further, centralised programs can provide the infrastructure required for long-term implementation and broad reach.

A model example of this approach is the U.S. National Science Foundation's ADVANCE¹ model. The NSF ADVANCE model provides grants for initiatives that address systemic or organisational barriers to equity and inclusion. Funded initiatives include evidence-based systemic change strategies and policies that promote equity for STEM faculty in academic workplaces and the academic profession.

Many of the policies and programs in our evidence base can be effectively implemented at different levels: federal/governmental, peak body/association, or at a company/organisation level. Coordinated implementation may have farther reach, but it can sometimes fail to target specific needs in a localised environment, so care should be taken. Notably, the ADVANCE model supports localised initiatives, which are sometimes quite bespoke, while simultaneously offering the benefit of centralisation.

Recommendations: We advocate for a centrally-coordinated and funded model of Diversity in STEM activities with programs fanning out under large-scale policy initiatives implemented by the Australian Government. These should be supported by co-funding, co-design and implementation with industry, academia, peak bodies, and community organisations. Policy initiatives should be prioritised, with programs offered as a supplement.

Evidence shows that this approach offers particular benefit in terms of:

- Consistent implementation and evaluation
- Longevity and reach
- Resource maximisation

*Workplace Gender Equity: An Implementation Guide*² is a comprehensive resource from the Australian Government's Women in STEM Ambassador on how to effectively define, design, prepare, and execute initiatives to have the most impact and the greatest chance of success.

3. HOW SHOULD STEM GENDER EQUITY INITIATIVES BE EVALUATED?

Findings: Studies in our review that evaluated multiple initiatives on a large population over time had the most persuasive findings. Evaluations that included comparison data, for example with a group that did not participate in the initiative or with comparisons of before-and-after effects of an initiative, had the best insights into the impact of the program or policy. In addition, the strongest evaluations included tangible long-term outcomes of the initiative beyond personal satisfaction of the participants, including changes in career progression rates, remuneration, or retention.

Recommendations: We recommend that all STEM gender equity initiatives (and diversity and inclusion initiatives more broadly) are robustly evaluated, including tracking tangible outcomes over time. We recommend using tools such as the Office of the Women in STEM Ambassador's STEM Equity Evaluation Portal (<https://evaluation.womeninstem.org.au/>), supplemented by the *National Evaluation Guide*³, to collate and publish project-wide evaluation data in a standardised framework. Our systematic review highlighted the importance of formal program evaluation for establishing strengths, weaknesses, and effectiveness. Evaluation results must be communicated publicly to advance a collective understanding of best practice.

CONTEXTUALISING WITHIN AUSTRALIA

We formed these initial recommendations on preliminary findings of a systematic review of evaluated initiatives to address workplace gender equity, the majority of which were implemented internationally.

While not evaluated within the scope of this review, we note the following entities and initiatives in Australia that, to our knowledge, support and align with our initial recommendations offered here:

- **Workplace Gender Equality Agency (WGEA)** – *pay transparency*
- **Science in Australia Gender Equity (SAGE)** – *centrally-coordinated accreditation process, including evaluation, for gender equity*
- **Department of Industry, Science, and Resources STEM Equity Monitor** – *data resource on STEM gender equity*

SUMMARY OF EVIDENCE

Here we offer a summary of the evidence supporting the recommendations listed above. These include evaluated policies and programs from the published peer-reviewed studies included in our systematic review.

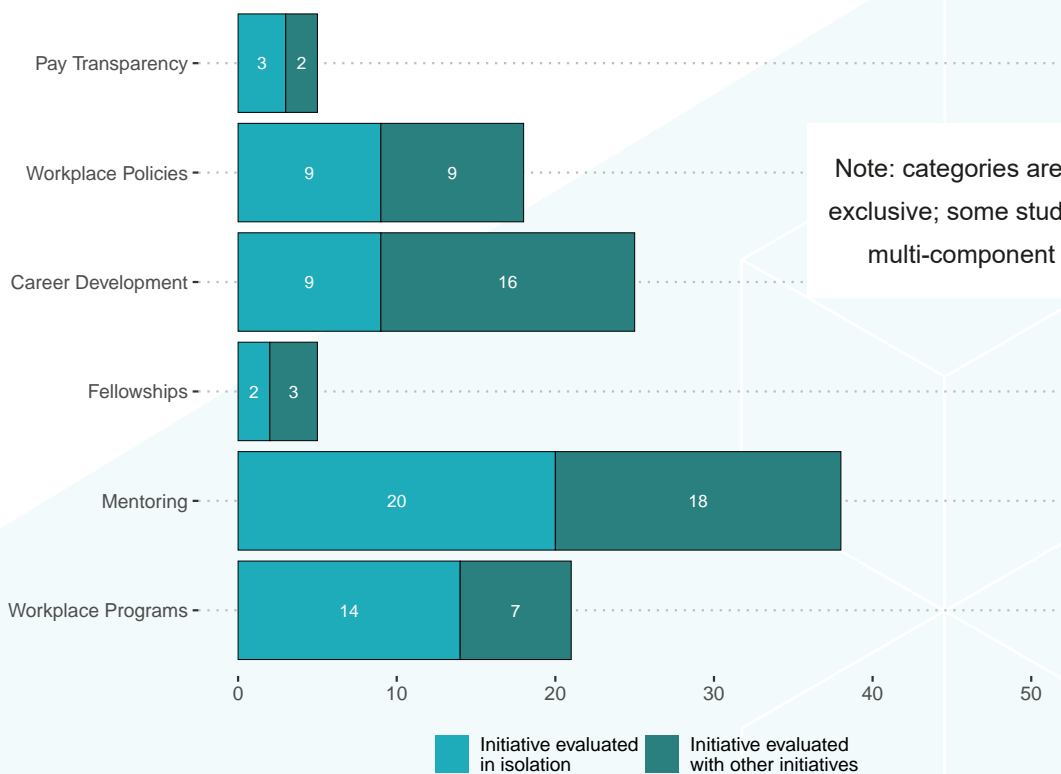
We include references to these studies in our review for further reading. Studies on policies and programs either reported on them in isolation or as part of a multicomponent initiative. Additional information on all 82 of the studies included in our review starts on page 13.

We note that the systematic review approach is limited to summarising studies that were published in peer-reviewed outlets. Initiatives that were not evaluated, or those that were evaluated but unpublished, are not included.

Because peer-reviewed studies often report positive findings (“what works”), and less commonly negative findings (“what doesn’t work”) or null findings (“we don’t know if it works”), our review likely fails to capture initiatives that are difficult to evaluate and/or those with mixed or null findings. We therefore avoid interpreting a high number of published studies on a particular initiative (e.g., mentoring and career development programs) as evidence of relative efficacy over other initiatives.

We summarise the evidence regarding policies first as the top priority for gender equity initiatives. Programs, in isolation, do not tackle the root cause of inequities but only compensate for them. To create meaningful, lasting change, prioritising initiatives (in this case, policies) that support systemic change in the workplace is required.

Number of Studies Evaluating Initiatives, by Category



Note: categories are not mutually exclusive; some studies evaluated multi-component initiatives.

POLICIES

Pay Transparency

Pay gap, salary equity interventions (5 studies)

Pay transparency policies can successfully reduce the gender pay gap when implemented at a national or organisational level. For example, Canada's public sector salary disclosure laws, which enable public access to individual faculty salaries, has resulted in a 24 to 40% reduction in the gender pay gap of full-time academics⁴.

By requiring companies to disaggregate gender wage statistics and provide public access to salaries, the gender pay gap can be reduced⁵.

If employers are not required to act on pay differences, the responsibility falls on employees to bargain for higher wages⁶. This can reduce the effectiveness of the initiative on narrowing the gender pay gap.

Career development training on salary negotiation can be offered as a stop-gap solution while policy action is undertaken.

Workplace Policies

Flexible work, parental and carer's leave policies, quotas/targets (18 studies)

There is a clearly identified need for workplace policies that accommodate employees' parental and/or caring commitments. Policies, such as flexible work, function best when they are "opt-out" and implemented for all people in the workplace. This can reduce the guilt or stigma that employees feel if they are required to "opt-in".

Flexible work and leave policies can lead to a more inclusive and supportive workplace culture for all genders, though our evidence base is currently limited to implementation of such policies alongside other programs (such as career development)⁷.

Quota and target policies are often designed to rectify gender imbalances in terms of women's representation, especially in senior career roles. Quotas and targets can increase the percentage of women in certain positions⁸, but they should be paired with other workplace policies and initiatives to ensure retention over time⁹. Also, when set as targets (gender equity goals) rather than compulsory quotas, limited compliance occurs.^{8,10,11}

Policies preventing workplace bullying and sexual harassment are needed, though the studies in our evidence base were limited to policies implemented alongside training programs (which themselves carried mixed evidence of efficacy, as described below).

PROGRAMS

Career Development

Leadership, training/workshops/programs for women or all genders (25 studies)

Career development programs are most effective when they have a clearly defined structure and are evaluated for their effects on the retention or progression of women in their careers over time.

There was a high degree of variability in the way that career development programs were implemented in our evidence base (single-session, multiple-session, curricula programs; women-only, all genders; virtual, face-to-face, hybrid).

Programs also varied in terms of the content offered, ranging from career planning to communication and leadership skills, and salary negotiation to resilience. This variability precludes assessment of specific features that lead to success, though consistent evidence pointed to the efficacy of a dedicated, paid program coordinator for career development programs.

The programs in our evidence base showed the most efficacy when they had a clearly defined structure and were evaluated for their effects on the retention or progression on women in their careers over time. The Hedwig van Ameringen Executive Leadership in

Academic Medicine (ELAM) program is an example of an effective career development program¹². One documented feature of this program is its in-built support from organisational leadership. The ELAM program, which has been running since 1995, also benefits from long-term evaluation, which includes career progression assessment¹²⁻¹⁴.

Consistent implementation of programs such as ELAM over several years means that informative metrics, such as discipline-level retention, can be measured and effectiveness of the program can be robustly assessed.

Fellowships

Funding award schemes (5 studies)

Our systematic review found that fellowships can offset documented early-to-senior level career barriers. Fellowship schemes in the United States, which are open to all genders but whose awardees are mostly women, have documented positive outcomes for research outputs and career progression^{15,16}.

The fellowship programs included in our systematic review were designed to support the careers of people with caring responsibilities or facing personal obstacles¹⁵⁻¹⁷. Fellowships are particularly well-suited for joint implementation alongside career development or other support programs.

Mentoring

Vertical mentoring, networking programs, peer mentoring (38 studies)

Mentoring programs are most effective with a formal, structured approach that clearly defines mentor and mentee goals prior to the start of the program.

There was a high degree of variability in the way that mentoring programs were implemented in our evidence base. Mentoring programs could be vertical (when mentees are paired with senior mentors), horizontal (when participants are both mentors and mentees), or a combination of both.

Program formats also varied, ranging from in person to virtual, and within-organisation to national. Some mentoring programs in our evidence base specified that mentees and mentors be gender-matched, others included mentors of all genders.

There were a few themes shared among the programs in our evidence base that pointed to efficacy: structure, goal-setting, and sense of community.

Mentoring was found to be impactful as part of a multicomponent program alongside other mechanisms, such as workplace policy changes, that work across departments or organisations^{7,18}.

Mentoring programs delivered without formal coordination, for example with self-structured meeting times^{19,20}, or in isolation without cultural change policies in the workplace were found to be ineffective²¹.

Workplace Programs

Bias training, bullying and harassment (21 studies)

Evidence on the efficacy of employee bias, bullying, and harassment training in the workplace is mixed and nuanced.

For example, sexual harassment programs that have been run by volunteers without formal training or those that happen without a concurrent change in workplace policies can have a negative effect on participants^{22,23}. Similarly, unconscious/gender bias training can improve understanding of gender bias when the training is clearly defined and communicated^{24,25}, but can also reduce women's sense of belonging²⁶ or have no effect on explicit gender biases²⁷ when delivered in isolation.

Little evidence from our review exists on the long-term impact of bias training; most studies assessed short-term changes in participant attitude without addressing long-term impacts on the retention of participants.

REFERENCES

1. Morimoto, S., Zajicek, A., Hunt, V. & Lisnic, R. Beyond binders full of women: NSF ADVANCE and initiatives for institutional transformation. *Sociological Spectrum* 33, 397–415 (2013).
2. Barnes, S. & Kingsley, I. Workplace gender equity: an implementation guide. (2023).
3. Kingsley, I. Evaluating STEM Equity Programs. (2020).
4. Baker, M., Halberstam, Y., Kroft, K., Mas, A. & Messacar, D. Pay transparency and the gender gap. *American Economic Journal: Applied Economics* 15, 157–183 (2023).
5. Bennedsen, M., Simintzi, E., Tsoutsoura, M. & Wolfenzon, D. Do firms respond to gender pay gap transparency? *The Journal of Finance* 77, 2051–2091 (2022).
6. Gulyas, A., Seitz, S. & Sinha, S. Does pay transparency affect the gender wage gap? Evidence from Austria. *American Economic Journal: Economic Policy* 15, 236–255 (2023).
7. Bauman, M. D., Howell, L. P. & Villablanca, A. C. The women in medicine and health science program: An innovative initiative to support female faculty at the university of california davis school of medicine. *Academic Medicine* 89, 1462–1466 (2014).
8. Oldford, E. Soft regulation of women on boards: Evidence from Canada. *Business and Society Review* (2022).
9. Gould, J. A., Kulik, C. T. & Sardeshmukh, S. R. Gender targets and trickle-down effects: Avoiding the ‘decoupling dynamics’ that limit female representation in senior roles. *Australian Journal of Public Administration* (2023)..
10. Palá-Laguna, R. & Esteban-Salvador, L. Gender quota for boards of corporations in Spain. *European Business Organization Law Review* 17, 379–404 (2016).
11. De Cabo, R. M., Terjesen, S., Escot, L. & Gimeno, R. Do ‘soft law’ board gender quotas work? Evidence from a natural experiment. *European Management Journal* 37, 611–624 (2019).
12. Helitzer, D. L. et al. Narratives of participants in national career development programs for women in academic medicine: identifying the opportunities for strategic investment. *Journal of Women's Health* 25, 360–370 (2016).
13. Dannels, S. A. et al. Evaluating a leadership program: A comparative, longitudinal study to assess the impact of the Executive Leadership in Academic Medicine (ELAM) program for women. *Academic Medicine* 83, 488–495 (2008).
14. Chang, S. et al. Retaining Faculty in Academic Medicine: The Impact of Career Development Programs for Women. *Journal of Women's Health* 25, 687–696 (2016).
15. Connelly, M. T. et al. The Impact of a Junior Faculty Fellowship Award on Academic Advancement and Retention. *Academic Medicine* 92, 1160–1167 (2017).
16. Szczygiel, L. et al. Insights from an Intervention to Support Early Career Faculty with Extraprofessional Caregiving Responsibilities. *Women's Health Reports* 2, 355–368 (2021).
17. Jones, R. D. et al. The most valuable resource is time: Insights from a novel national program to improve retention of physician–scientists with caregiving responsibilities. *Academic Medicine* 94, 1746–1756 (2019).
18. Deutsch, N. et al. Evaluating the Women's Empowerment and Leadership Initiative: Supporting mentorship, career satisfaction, and well-being among pediatric anesthesiologists. *Paediatric Anaesthesia* 33, 6–16 (2023).
19. LaChelle Jackson, J., London, J. S., Mondisa, J.-L. & Adams, S. G. Mentoring among African American women in the engineering academy. (2020).

REFERENCES

20. Dajani, R., Tabbaa, Z., Al-Rawashdeh, A., Gretzel, U. & Bowser, G. Peer mentoring women in STEM: an explanatory case study on reflections from a program in Jordan. *Mentoring and Tutoring: Partnership in Learning* 29, 284–304 (2021).
21. Dashper, K. Challenging the gendered rhetoric of success? The limitations of women only mentoring for tackling gender inequality in the workplace. *Gender, Work & Organization* 26, 541–557 (2019).
22. de Haas, S., Timmerman, G., Höing, M., Zaagsma, M. & Vanwesenbeeck, I. The impact of sexual harassment policy in the Dutch police force. *Employee Responsibilities and Rights Journal* 22, 311–323 (2010).
23. Bingham, S. G. & Scherer, L. L. The Unexpected Effects of a Sexual Harassment Educational Program. *The Journal of Applied Behavioral Science* 37, 125–153 (2001).
24. Devine, P. G. et al. A gender bias habit-breaking intervention led to increased hiring of female faculty in STEMM departments. *Journal of Experimental Social Psychology* 73, 211–215 (2017).
25. Carnes, M. et al. Effect of an intervention to break the gender bias habit for faculty at one institution: a cluster randomized, controlled trial. *Academic medicine: journal of the Association of American Medical Colleges* 90, 221 (2015).
26. Pietri, E. et al. Addressing Unintended Consequences of Gender Diversity Interventions on Women's Sense of Belonging in STEM. *Sex Roles* 80, 527–547 (2019).
27. Girod, S. et al. Reducing implicit gender leadership bias in academic medicine with an educational intervention. *Academic Medicine* 91, 1143–1150 (2016).

STUDIES INCLUDED IN REVIEW

Citation	Description and Outcome	PT	WPOL	CD	F	M	WPRO
Lin, S. Y., Francis, H. W., Minor, L. B., & Eisele, D. W. (2016). Faculty diversity and inclusion program outcomes at an academic otolaryngology department. <i>The Laryngoscope</i> , 126(2), 352-356.	A collection of 10 years of diversity initiatives by Johns Hopkins Medical School, under a broader umbrella of DEI governance, was analyzed to determine if the initiatives have effectively increased the number of women and underrepresented minorities in an academic department. Initiatives included mentorship across departments and personalized mentorship planning for faculty.						
del Pino Jones, A., Cervantes, L., Flores, S., Jones, C. D., Keach, J., Ngov, L. K., ... & Burden, M. (2021). Advancing diversity, equity, and inclusion in hospital medicine. <i>Journal of Hospital Medicine</i> , 16(4), 198-203.	This initiative included development of a divisional strategic plan to address diversity, equity, and inclusion (DEI). The plan was implemented and evaluated and specifically focuses on compensation/salary equity, recruitment, and policies. Implementation of the plan included establishing a DEI director role to assist with overseeing DEI efforts. Initiatives under this umbrella included equal pay, diversity in recruitment, matching of each faculty member with a mentor in their area of interest, and policy change for salary benchmarking, leadership roles, and committee membership.						
Baker, M., Halberstam, Y., Kroft, K., Mas, A., & Messacar, D. (2023). Pay transparency and the gender gap. <i>American Economic Journal: Applied Economics</i> , 15(2), 157-183.	Impact of public sector salary disclosure laws on university faculty salaries in Canada. Laws enable public access to the salaries of individual faculty if they exceed specific thresholds (\$50-100k). Using salaries, demographic characteristics, and job-related variables of full-time academics at Canadian universities, the evaluation assessed whether laws reduced the gender pay gap between men and women.						
Bennedsen, M., Simintzi, E., Tsoutsoura, M., & Wolfenzon, D. (2022). Do firms respond to gender pay gap transparency?. <i>The Journal of Finance</i> , 77(4), 2051-2091.	The effect of a 2006 pay transparency legislation change in Denmark on the gender pay gap and firm outcomes was assessed. Legislation required firms to provide gender-disaggregated wage statistics and detailed employee-employer administrative data.						
Gulyas, A., Seitz, S., & Sinha, S. (2023). Does pay transparency affect the gender wage gap? Evidence from Austria. <i>American Economic Journal: Economic Policy</i> , 15(2), 236-255.	The impact of the 2011 Austrian pay transparency law, which requires firms above a size threshold to publish internal reports on the gender pay gap, was assessed via a pre-post event analysis. The law required firms to produce and update internal gender pay gap reports every second year, disaggregated by occupation groups.						
Ryabov, I., & Wang, G. Z. (2011). Assessing academic climate change in gender diversity in the areas of science and engineering. <i>Journal of Women and Minorities in Science and Engineering</i> , 17(4), 371-388.	This paper presents results of two climate surveys conducted at an institution of higher education as an evaluation effort of the effectiveness of the National Science Foundation's ADVANCE initiative. Outcomes focused on changes in faculty perception of institutional climate. The initiative included institution-wide programs (faculty development, collaborative leadership, pairing of junior faculty with senior faculty, and policy/recruitment) over a span of 5 years.						
Bauman, M. D., Howell, L. P., & Villablanca, A. C. (2014). The Women in Medicine and Health Science program: an innovative initiative to support female faculty at the University of California Davis School of Medicine. <i>Academic Medicine</i> , 89(11), 1462.	Assessed the outcomes of the University of California Davis School of Medicine's Women in Medicine and Health Science (WIMHS) program, which is a multipronged initiative including career development clinics, networking, non-leave parenting initiatives, and mentoring.						
Fritch, R., McIntosh, A., Stokes, N., & Boland, M. (2019). Practitioners' perspectives: a funder's experience of addressing gender balance in its portfolio of awards. <i>Interdisciplinary Science Reviews</i> , 44(2), 192-203.	An analysis of gender initiatives for research grants, both funding and application, through Science Foundation Ireland, as a complement to the Athena SWAN initiative in Ireland. Initiatives reported are designed to improve gender balance in the range of awardees and support female researchers in their careers. The initiative included an overarching target of 30% women among award holders.						
Jones, D., Fluker, S. A. N., Walker, T. A., Manning, K. D., & Bussey Jones, J. C. (2023). An innovative approach to career development and promotion of diverse faculty. <i>Journal of Hospital Medicine</i> , 18(3), 234-238.	Evaluates the outcomes of a 7-year Faculty Review Committee initiative designed to systematise promotion review and support for all medical faculty in an academic medicine department - with a focus on providing actionable advice early in the process. The aim was to reduce bias in availability of review activities and thus increase promotion for all, but with particular impact expected for underrepresented groups.						
Carpenter, J. P., & O'Neal, D. P. (2015). Developing and Implementing Effective Campus Work-Life Policies: The Story of One NSF ADVANCE Project. In 2015 ASEE Annual Conference & Exposition.	An NSF ADVANCE program to implement effective worklife policies for a university campus to increase retention of women faculty was assessed. Implementation of the initiative required buy-in from top administrators at the university and personnel at the state system level. Implemented components included expanded childhood education services on campus and a tuition exchange program.						
Holladay, C. L., Cavanaugh, K. J., Perkins, L. D., & Woods, A. L. (2022). Inclusivity in Leader Selection: An 8-Step Process to Promote Representation of Women and Racial/Ethnic Minorities in Leadership. <i>Academic Medicine</i> , 98(1), 36-42.	This initiative included a sequential 8-step leader selection process: a policy update, selection of interview panels, training of panelists (bias training), screening the candidate pool, structured interview guides, final candidate slates, assessments of final candidates, and development of newly selected leaders. The initiative offered a standardized process grounded in leadership processes/competencies.						
Pitts, D. G., Wasserman, J. A., & Gould, D. J. (2020). Implementing a successful faculty-driven diversity liaison program: an innovative approach to faculty recruitment at OUWB School of Medicine. <i>Medical Science Educator</i> , 30, 1007-1009.	A faculty-led Diversity Liaison Program offered training to staff involved in hiring processes on how to identify bias and increase diversity within an applicant pool. The initiative included both an orientation session and a training session. The content of these sessions was designed to provide participants with understanding and specific strategies to implement.						

PT = PAY TRANSPARENCY, WPOL = WORKPLACE POLICIES, CD = CAREER DEVELOPMENT, F = FELLOWSHIPS, M = MENTORING, WPRO = WORKPLACE PROGRAMS

STUDIES INCLUDED IN REVIEW

Citation	Description and Outcome	PT	WPoI	CD	F	M	WPro
Bertrand, M., Black, S. E., Jensen, S., & Lleras-Muney, A. (2019). Breaking the glass ceiling? The effect of board quotas on female labour market outcomes in Norway. <i>The Review of Economic Studies</i> , 86(1), 191-239.	This evaluation assessed the impact of Norway's 2003 reform requiring a quote of 40% representation of each gender on public limited liability companies boards 7 years after coming into effect. The primary objective of this reform was to increase the representation of women in top positions in the corporate sector and decrease the gender disparity in earnings within that sector.						
De Cabo, R. M., Terjesen, S., Escot, L., & Gimeno, R. (2019). Do 'soft law' board gender quotas work? Evidence from a natural experiment. <i>European Management Journal</i> , 37(5), 611-624.	Evaluated the effectiveness of the 2017 Spanish board gender quota - a "soft" quota recommending all large public and private Spanish firms appoint a target of 40% of each gender to serve as board directors. Outcomes on representation of women on boards was assessed.						
Formánková, L., & Křížková, A. (2015). Flexibility trap—the effects of flexible working on the position of female professionals and managers within a corporate environment. <i>Gender in Management</i> , 30(3), 225-238	This initiative, implemented at a company, provided internal labour flexibility programmes at two levels. All employees could take advantage of flexible working hours (flex-time) with an obligatory "core" time of in-office presence. Employees could work the remainder of their hours at any time outside these intervals and could change their work regime to part-time or home-based work. The evaluation assessed uptake and impact of flexible work arrangements among women employees.						
Gould, J. A., Kulik, C. T., & Sardeshmukh, S. R. (2022). Gender targets and trickle down effects: Avoiding the 'decoupling dynamics' that limit female representation in senior roles. <i>Australian Journal of Public Administration</i> , in press.	Assessed the impact of an Australian state government gender target for executives across all departments via an 11-year dataset (the target was imposed in year 6). This analysis investigated trickle-down effects (TDEs) across the sector. Outcomes included gender representation data at executive/executive feeder levels across 11 years, paired with interviews with department execs around workplace policies (leave arrangements, CDPs, recruitment practices).						
Klein, R., Law, K., & Koch, J. (2020). Gender representation matters: Intervention to solicit medical resident input to enable equity in leadership in graduate medical education. <i>Academic Medicine</i> , 95(12S), S93-S97.	An intervention that incorporated medical residents' input on who they thought should be chief resident - counteracting the historical process that only included faculty members' input. This involved a simple, cross-sectional survey of residents in which they were asked to identify individual residents as good candidates for consideration for CR. Impacts on chief resident selection in terms of diversity characteristics were assessed.						
Oldford, E. (2022). Soft regulation of women on boards: Evidence from Canada. <i>Business and Society Review</i> , 127(4), 779-808.	Examines the effectiveness of a national board gender diversity disclosure requirement, described as a "soft" quota intervention, on women's representation on boards. The requirement included disclosures on the number and percentage of women on the board of directors and officer positions as well as any targets. Three years of corporate disclosures were analysed.						
Palá-Laguna, R., & Esteban-Salvador, L. (2016). Gender quota for boards of corporations in Spain. <i>European Business Organization Law Review</i> , 17, 379-404.	This article assesses outcomes of the corporate governance self-regulation system in Spain aimed at achieving a balanced presence of women and men on the boards of listed companies. There are no binding rules on gender equality on the boards of private companies.						
Shea, C. M., Malone, M. F. F. T., Young, J. R., & Graham, K. J. (2019). Interactive theater: An effective tool to reduce gender bias in faculty searches. <i>Equality, Diversity and Inclusion</i> , 38(2), 178-187.	The ADVANCE program GEAR UP is an interactive theatre workshop where faculty members watch a short play about the hiring process at an academic institution. The play incorporates implicit bias against female candidates, and allows audience members to ask questions at the end to engage with the characters and delve into discussions about equity in the hiring process. The initiative was designed to increase awareness of and reduce implicit gender bias among faculty search committees.						
Sojo, V. E., Wood, R. E., Wood, S. A., & Wheeler, M. A. (2016). Reporting requirements, targets, and quotas for women in leadership. <i>The Leadership Quarterly</i> , 27(3), 519-536.	The impact of a board of directors' diversity reporting requirements, introduced by the U.S. Securities and Exchange Commission in 2010, was assessed in terms of the representation of women on boards of directors of Fortune 500 companies.						
Carnes, M., Schuler, L., Sarto, G. E., Lent, S. J., & Bakken, L. (2006). Increasing sex and ethnic/racial diversity of researchers in aging: Some promising strategies at the postdoctoral level. <i>Journal of the American Geriatrics Society</i> , 54(6), 980-985.	The goal of this program was to train future researchers in academic health sciences. This was done through a vertical mentoring initiative of 9 trainees with career coaching, counseling with senior faculty members, and meetings with a multidisciplinary advisory committee to discuss research plans. The funding portion of this initiative offered postdoctoral applicants multiple years of financial support contingent on achievement of academic benchmarks.						
Danhauer, S. C., Tooze, J. A., Barrett, N. A., Blalock, J. S., Shively, C. A., Voytko, M. L., & Crandall, S. J. (2019). Development of an innovative career development program for early-career women faculty. <i>Global Advances in Health and Medicine</i> , 8, 1-11.	An Early Career Development Program for Women supported 81 women across different medical institutions and universities at the faculty level. The program included 6 monthly 6-8 hour curriculum settings each addressing topics such as imposter syndrome, assessing one's strengths, change style, and career management and with a peer-to-peer networking component (participation in a small group setting with required attendance).						
Hallar, A. G., Avallone, L., Thiry, H., & Edwards, L. M. (2015). Ascent, a discipline specific model to support the retention and advancement of women in science. In <i>Women in the geosciences: Practical, positive practices toward parity</i> (eds M.A. Holmes, S. OConnell and K. Dutt), pp. 135-148.	The ASCENT (Atmospheric Science Collaborations and Enriching NeTworks) program was designed for women in atmospheric science and meteorology. The program involved annual workshops with training programs around communication and other professional skills, as well as networking opportunities among participants and mentoring from a more senior woman scientist in the field. The program also produced a documentary and produced a newsletter to showcase personal and professional successes of women in the field.						

PT = PAY TRANSPARENCY, WPOL = WORKPLACE POLICIES, CD = CAREER DEVELOPMENT, F = FELLOWSHIPS, M = MENTORING, WPRO = WORKPLACE PROGRAMS

STUDIES INCLUDED IN REVIEW

Citation	Description and Outcome	PT	WPoI	CD	F	M	WPro
Jackson, J. L., London, J. S., Mondisa, J. L., & Adams, S. G. (2020, June). Mentoring Among African-American Women in the Engineering Academy. In 2020 ASEE Virtual Annual Conference Content Access.	The Intergenerational Mentoring Among African American Women in the Engineering Academy workshop was designed to launch a mentoring network to foster ongoing support. The initiative included a mix of presentations, panel discussions, and interactive discussions.						
Koontz, A., Walters, L., & Edkin, S. (2019). Positively supporting women faculty in the academy through a novel mentoring community model. <i>Journal of Applied Research in Higher Education</i> , 11(1), 102-117.	This evaluation assessed the ways in which an innovative higher education women's faculty mentoring community model fostered supportive networking and career-life balance. The program combined monthly large group sessions on specific topics with self-guided small monthly groups held between large group sessions. Participants were both mentors and mentees via an expanded vertical-horizontal model.						
Levine, R. B., González-Fernández, M., Bodurtha, J., Skarupski, K. A., & Fivush, B. (2015). Implementation and evaluation of the Johns Hopkins University School of Medicine leadership program for women faculty. <i>Journal of Women's Health</i> , 24(5), 360-366.	A leadership training program for women faculty included goals to develop and retain women leaders through 9 half-day interactive curriculum sessions. Content focused on specific gender and leadership content areas as well as institutional culture. A networking aspect of the program was delivered via unstructured time before the start of each module.						
Merrill, A. L., Stein, S. L., Chu, J. T., Sarode, A. L., McKinley, S. K., Parangi, S., ... & Palamara, K. (2023). Do resident coaching programs benefit their coaches? Impact of a professional development coaching program on the coaches. <i>World Journal of Surgery</i> , 47, 1609-1616.	A coaching program offered women-identifying surgeons a 9-month hybrid program offering training on how to conduct professional development coaching offered through the Association of Women Surgeons (AWS). After an initial in-person session, participants were offered additional virtual refresher training sessions.						
Nolina, S. K., Mekongo, P. E., & Leke, R. G. F. (2017). Mentoring for early-career women in health research: the HIGHER Women Consortium approach. <i>Global Health, Epidemiology and Genomics</i> , 2, e3.	The Higher Institute for Growth in HEalth Research for Women (HIGHER Women) consortium was designed to support and encourage the growth of women research scientists through a training institute with a Mentor-Protégé Program (MPP). Two workshops focused on research fundamentals and soft skills, both with "fireside conversations" for mentors and proteges.						
Tsoh, J. Y., Kuo, A. K., Barr, J. W., Whitcanack, L., Merry, I., Aldredge, B. K., & Azzam, A. N. (2019). Developing faculty leadership from 'within': a 12-year reflection from an internal faculty leadership development program of an academic health sciences center. <i>Medical Education Online</i> , 24(1), 1567239.	Faculty leadership training with the goal of increasing leadership attainment (leadership position at UCSF). Assessment of a 12-year program. Cohort-based model of training, with peer support as an aspect of a Coro experiential leadership training model with 75 program hours towards six core leadership competencies.						
Tung, J., Nahid, M., Rajan, M., & Logio, L. (2021). The impact of a faculty development program, the Leadership in Academic Medicine Program (LAMP), on self-efficacy, academic promotion and institutional retention. <i>BMC Medical Education</i> , 21, 1-9.	This evaluation considered the effects of the Leadership in Academic Medicine Program (LAMP) on self efficacy, academic promotion, and institutional retention (addressed through lens of gender in some aspects). The LAMP program is a 10 month long program with seminars, capstone project, and mentoring.						
Vassallo, A., Walker, K., Georgousakis, M., & Joshi, R. (2021). 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. <i>BMJ Open</i> , 11(10), e052560.	An evaluation of Australia's Franklin Women Mentoring Programme. The evaluation included 6 months of informal mentoring sessions and professional development workshops. The mentoring component matched mentor and mentee pairs in a vertical mentoring format.						
Von Feldt, J. M., Bristol, M., Sonnad, S., Abbuhl, S., Scott, P., & McGowan, K. L. (2009). The brief CV review session: one component of a mosaic of mentorship for women in academic medicine. <i>Journal of the National Medical Association</i> , 101(9), 873-880.	Female assistant professors were paired with an associate or full professor for a CV review workshop. Participants sent mentors a copy of their CV and their mentor had a week to review it. Mentors and proteges met in person to discuss the review at a conference. During the 3 years, there were 93 CV review sessions.						
Woolnough, H., Fielden, S., Crozier, S., & Hunt, C. (2019). A longitudinal investigation of the glass-ceiling in nursing. <i>Journal of Managerial Psychology</i> , 34(2), 96-109.	This initiative delivers career development and leadership courses for female mental health nurses in the UK. Participants completed gender awareness training, role modelling and career planning. Participants could shadow a manager, and had a 12-month long mentoring experience.						
Caffrey, L., Wyatt, D., Fudge, N., Mattingley, H., Williamson, C., & McKevitt, C. (2016). Gender equity programmes in academic medicine: a realist evaluation approach to Athena SWAN processes. <i>BMJ Open</i> , 6(9), e012090.	An evaluation on how the Athena SWAN gender equity program was implemented across 5 departments in a university medical school. The evaluation included assessing how the program can be enabled and constrained by interactions between the program and the context it is implemented into.						

PT = PAY TRANSPARENCY, WPOL = WORKPLACE POLICIES, CD = CAREER DEVELOPMENT, F = FELLOWSHIPS, M = MENTORING, WPRO = WORKPLACE PROGRAMS

STUDIES INCLUDED IN REVIEW

Citation	Description and Outcome	PT	WPoI	CD	F	M	WPro
Chang, S., Morahan, P. S., Magrane, D., Helitzer, D., Lee, H. Y., Newbill, S., ... & Cardinali, G. (2016). Retaining faculty in academic medicine: the impact of career development programs for women. <i>Journal of Women's Health, 25</i> (7), 687-696.	Impact of participation in three national career development programs on retention in academic medicine overall and on academic rank. Three programs providing multiple career development modalities were assessed: ELAM + Early and Mid-Career Women Faculty Professional Development (EWIM + MWIM).						
Dannels, S. A., Yamagata, H., McDade, S. A., Chuang, Y. C., Gleason, K. A., McLaughlin, J. M., ... & Morahan, P. S. (2008). Evaluating a leadership program: A comparative, longitudinal study to assess the impact of the Executive Leadership in Academic Medicine (ELAM) Program for Women. <i>Academic Medicine, 83</i> (5), 488-495.	The Hedwig van Ameringen Executive Leadership in Academic Medicine (ELAM) program provides an external yearlong development program for senior women faculty in U.S. and Canadian medical schools. This study aims to determine the extent to which program participants, compared with women from two comparison groups, aspire to leadership, demonstrate mastery of leadership competencies, and attain leadership positions.						
Hardy, M. C., Desselle, M. R., & 2016 Catch a Rising Star Consortium. (2017). Engaging rural Australian communities in National Science Week helps increase visibility for women researchers. <i>Royal Society Open Science, 4</i> (10), 170548.	Catch a Rising Star program: flew scientists who identify as women to remote communities in QLD. The goals of this program were bring science to remote and regional communities and determine whether media/public engagement provide career advancement for women scientists. Program consisted of a 1.5 day training workshop on media engagement + community visits.						
Helitzer, D. L., Newbill, S. L., Cardinali, G., Morahan, P. S., Chang, S., & Magrane, D. (2016). Narratives of participants in national career development programs for women in academic medicine: identifying the opportunities for strategic investment. <i>Journal of Women's Health, 25</i> (4), 360-370.	Three career development programs were implemented to prepare women faculty to succeed in academic medicine: two sponsored by the Association of American Medical Colleges, which began a professional development program for early career women faculty in 1988. The third national program, the Hedwig van Ameringen Executive Leadership in Academic Medicine (ELAM) program for women, was developed in 1995 at the Drexel University College of Medicine.						
Li Sauerwine, S., Bambach, K., McGrath, J., Yee, J., Boulger, C. T., Hunold, K. M., & Mitzman, J. (2022). Building a RAFFT: Impact of a professional development program for women faculty and residents in emergency medicine. <i>AEM Education and Training, 6</i> (3), e10763.	Evaluates the impact of the Resident and Faculty Female Tribe (RAFFT) program, a 10-session curriculum delivered to 24 women faculty and residents in emergency medicine. The program adopted a curriculum approach, including sessions on mentorship, professional advancement, imposter syndrome, work-life balance, and salary and contract negotiation.						
Melin, J. L., & Correll, S. J. (2022). Preventing soft skill decay among early-career women in STEM during COVID-19: Evidence from a longitudinal intervention. <i>Proceedings of the National Academy of Sciences, 119</i> (32), e2123105119.	Evaluation of an intervention to improve women's confidence in their soft skills. The research objective was to study how online career coaching and virtual peer groups affect women's self assessments of their ability to navigate interpersonal relationships at work.						
Nowling, T. K., McClure, E., Simpson, A., Sheidow, A. J., Shaw, D., & Feghali-Bostwick, C. (2018). A focused career development program for women faculty at an academic medical center. <i>Journal of Women's Health, 27</i> (12), 1474-1481.	A career development program (CDP) at the Medical University of South Carolina (MUSC) was implemented with the goal of improving the number of women in leadership positions. The CDP was first initiatives as a 2-day program, then in 2015, a half-day promotion-focused program was offered alternating with the 2-day program. Program evaluated for reaction and learning through postprogram surveys.						
Pelfrey, C. M., Cola, P. A., Gerlick, J. A., Edgar, B. K., & Khatri, S. B. (2022). Breaking Through Barriers: Factors That Influence Behavior Change Toward Leadership for Women in Academic Medicine. <i>Frontiers in Psychology, 13</i> , 854488.	Female faculty members at academic medical institutions are involved in the FLEX program, which is designed to increase the number of women in leadership positions at these institutions. The program includes 7 days of workshops to help develop communication and leadership skills. The factors that facilitated behavior change following participation in the FLEX Program were in five themes: (1) Communication Skills; (2) Self-Efficacy; (3) Networking; (4) Situational Awareness; and (5) Visioning.						
Jones, R. D., Miller, J., Vitous, C. A., Krenz, C., Brady, K. T., Brown, A. J., Daumit, G. L., Drake, A. F., Fraser, V. J., Hartmann, K. E., Hochman, J. S., Girdler, S., Libby, A. M., Mangurian, C., Regensteiner, J. G., Yonkers, K., & Jagsi, R. (2019). The Most Valuable Resource Is Time: Insights From a Novel National Program to Improve Retention of Physician-Scientists With Caregiving Responsibilities. <i>Academic Medicine, 94</i> (11), 1746-1756.	Part of an evaluation of the Fund to Retain Clinical Scientists (FRCS), a national program launched by the Doris Duke Charitable Foundation at 10 U.S. institutions. The program provides financial support to physician-scientist caregivers. "Awardees received grant funding, typically \$30,000 to \$50,000 per year, to cover research support or to enable buyout of clinical duties. Funds are not used to cover childcare or eldercare costs. Some institutions also provided access to other forms of support, such as leadership development training, training in academic and career development skills, and/or networking.						
Szczygiel, L. A., Jones, R. D., Drake, A. F., Drake, W. P., Ford, D. E., Hartmann, K. E., ... & Jagsi, R. (2021). Insights from an intervention to support early career faculty with extraprofessional caregiving responsibilities. <i>Women's Health Reports, 2</i> (1), 355-368.	Doris Duke Charitable Foundation's Fund to Retain Clinical Scientists. Qualitative interviews with 12 program directors representing all 10 US medical schools who received the funding. Initiative is \$30-40k to directly support research of physician-scientist faculty members with extraprofessional care. An institution/top down assessment of the implementation of the faculty grant program and how to champion, implement, assess, and sustain a new paradigm of support.						

PT = PAY TRANSPARENCY, WPoI = WORKPLACE POLICIES, CD = CAREER DEVELOPMENT, F = FELLOWSHIPS, M = MENTORING, WPro = WORKPLACE PROGRAMS

STUDIES INCLUDED IN REVIEW

Citation	Description and Outcome	PT	WPoI	CD	F	M	WPro
Connelly, M. T., Sullivan, A. M., Chinchilla, M., Dale, M. L., Emans, S. J., Nadelson, C. C., ... & Shore, E. G. (2017). The impact of a junior faculty fellowship award on academic advancement and retention. <i>Academic Medicine</i> , 92(8), 1160-1167.	Harvard Medical School's junior faculty fellowship is open to all genders designed to support instructors and assistant professors to undertake research, clinical, or educational projects early in their careers. Impact on academic advancement was assessed.						
Morimoto, S. A., Zajicek, A. M., Hunt, V. H., & Lisnic, R. (2013). Beyond binders full of women: NSF ADVANCE and initiatives for institutional transformation. <i>Sociological Spectrum</i> , 33(5), 397-415.	A component of the NSF ADVANCE program, analysed at four cohorts. Grants were supplied to institutions to implement their own equity programs. Most initiatives centered on issues of horizontal and vertical composition (recruitment/retention of women faculty), networking and mentoring access, and distribution of material resources.						
Bierema, L. L. (2005). Women's networks: a career development intervention or impediment?. <i>Human Resource Development International</i> , 8(2), 207-224.	A women's network (top executive women in a Fortune 500 corporation) that existed over approximately a four-year period and held a meeting approximately twice annually. Goal was to improve recruitment, retention, and advancement of women.						
Carter-Sowell, A. R., Vaid, J., Stanley, C. A., Pettitt, B., & Battle, J. S. (2019). ADVANCE Scholar Program: enhancing minoritized scholars' professional visibility. <i>Equality, Diversity and Inclusion</i> , 38(3), 305-327.	This reports the details and evaluation outcomes of a mentoring program (ADVANCE Scholar) aiming to retain and advance junior women faculty of color. The ADVANCE Scholar Program pairs each scholar for two years with a senior faculty member at the university who serves as an internal advocate, and with an eminent scholar outside the university who helps the scholar gain prominence in their discipline.						
Dajani, R., Tabbaa, Z., Al-Rawashdeh, A., Gretzel, U., & Bowser, G. (2021). Peer mentoring women in STEM: an explanatory case study on reflections from a program in Jordan. <i>Mentoring & Tutoring: Partnership in Learning</i> , 29(3), 284-304.	Female STEM professors from Jordanian universities participating in a year-long informal peer-based mentoring program. Goals were to determine if the model would lead to positive outcomes for mentees/mentors and a sense of community among participants. Mentoring workshop and "speed dating" style of matching plus a self-structured mentoring experience.						
Dashper, K. (2019). Challenging the gendered rhetoric of success? The limitations of women only mentoring for tackling gender inequality in the workplace. <i>Gender, Work & Organization</i> , 26(4), 541-557.	A formal women only mentoring program built on gender positive goals to empower women within the events industry. The aims of the programme are not to coach women in relation to masculine traits and behaviours but to empower them to 'be the best they can be'. Mentees are formally mentored by an individual outside of their organization with no direct stake in their career progression.						
Daye, D., Achuck, E., & Slanetz, P. J. (2023). New England Women in Radiology (NEWWR) invited lectureship series: a novel program to advance the careers of junior female faculty in academic radiology. <i>Academic Radiology</i> , 30(5), 919-925.	New England Women in Radiology program designed to generate speaking and networking opportunities for radiologists. Junior female faculty members of academic radiology departments were invited to give a lecture at another institution. Institutions both hosted the invited lectures and sent their own faculty to speak elsewhere.						
Deutsch, N., Yanofsky, S. D., Markowitz, S. D., Tackett, S., Berenstein, L. K., Schwartz, L. I., ... & Schwartz, J. M. (2023). Evaluating the Women's Empowerment and Leadership Initiative: Supporting mentorship, career satisfaction, and well being among pediatric anesthesiologists. <i>Pediatric Anesthesia</i> , 33(1), 6-16.	Women's Empowerment & Leadership Initiative (WELI) was designed to help women pediatric anesthesiologists to achieve equity, promotion, and leadership. WELI is focused on six career development domains: promotion and leadership, networking, conceptualization and completion of projects, mentoring, career satisfaction, and sense of well-being. Program components were protege-advisor dyads, workshops, online content, and networking.						
Dutta, R., Hawkes, S. L., Kuipers, E., Guest, D., Fear, N. T., & Iversen, A. C. (2011). One year outcomes of a mentoring scheme for female academics: a pilot study at the Institute of Psychiatry, King's College London. <i>BMC Medical Education</i> , 11, 1-9.	A mentoring program for female faculty at the Institute of Psychiatry at King's College in London. Mentees were matched with a mentor, who was a senior individual at the psychiatry institute as well. Both mentees and mentors received initial training, and then were encouraged to meet between 4 - 12 times during the next year.						
Files, J. A., Blair, J. E., Mayer, A. P., & Ko, M. G. (2008). Facilitated peer mentorship: a pilot program for academic advancement of female medical faculty. <i>Journal of Women's Health</i> , 17(6), 1009-1015.	Experienced female physicians acted as facilitators to a group of junior women who served as their own peer mentors. Peer mentors and facilitators met separately once per month. The pilot program was divided into three phases: (1) skills acquisition and enhancement (training and workshops), (2) skills application (writing a review article), and (3) development of a group research protocol. Goals of the program and responsibilities of participants agreed upon up front, 1 year contract period.						
Headlam Wells, J., Craig, J., & Gosland, J. (2006). Encounters in social cyberspace: e mentoring for professional women. <i>Women in Management Review</i> , 21(6), 483-499.	EMPATHY-EDGE: an innovatory e-mentoring scheme designed to overcome barriers women face in career progression or returning to work, and to promote career development. Matching done by an initial survey of 11 criteria such as number of years work experience, level of qualification, age.						
Kalpazidou Schmidt, E., & Faber, S. T. (2016). Benefits of peer mentoring to mentors, female mentees and higher education institutions. <i>Mentoring & Tutoring: Partnership in Learning</i> , 24(2), 137-157.	A mentoring program at a university aimed to retain early career female researchers in academia. Post-docs and assistant professors were matched with associate and full professors. Mentors could be male or female. Mentors and mentees were asked to meet at least 4 times across the year. They could also attend 3 half-day seminars to gain information and support in establishing a mentor relationship. Pairs were not necessarily from the same department.						

PT = PAY TRANSPARENCY, WPoI = WORKPLACE POLICIES, CD = CAREER DEVELOPMENT, F = FELLOWSHIPS, M = MENTORING, WPro = WORKPLACE PROGRAMS

STUDIES INCLUDED IN REVIEW

Citation	Description and Outcome	PT	WPOL	CD	F	M	WPRO
O'Meara, K., & Stromquist, N. P. (2015). Faculty peer networks: Role and relevance in advancing agency and gender equity. <i>Gender and Education</i> , 27(3), 338-358.	3 types of peer mentoring assessed together. "Keeping Our Faculties" (KOF) was for assistant professors to come together with a facilitator and complete various educational and skills-based sessions for career progression. "Advancing Together" was also for assistant professors with the specific goal of helping them to advance to the full professor level. "ADVANCE Professors" was for full professors to complete professional development and receive peer support from one another as they mentored more junior faculty members.						
Petersen, S., Pearson, B. Z., & Moriarty, M. A. (2020). Amplifying voices: Investigating a cross-institutional, mutual mentoring program for URM women in STEM. <i>Innovative Higher Education</i> , 45, 317-332.	A virtual mutual mentoring program via bi-weekly Zoom meetings for URM women in STEM. Low cost of program coordination and capacity to network individuals across institutions was a feature of the program.						
Roan, A., & Rooney, D. (2006). Shadowing experiences and the extension of communities of practice: A case study of women education managers. <i>Management Learning</i> , 37(4), 433-454.	This study evaluates a type of mentoring called work-shadowing - an individual follows another worker in their day to day context. Intended learning occurs through observing and reflecting on the behaviour and decisions of the person being shadowed.						
Shiffman, D. S., Arguedas Álvarez, T., Bangley, C. W., Boyt, R., Côté, I. M., Daly-Engel, T. S., ... & Ferry, L. A. (2022). What Can Professional Scientific Societies Do to Improve Diversity, Equity, and Inclusion: A Case Study of the American Elasmobranch Society. <i>Frontiers in Education</i> , 7, 842618.	This study evaluates a component of the Young Professional Recruitment Fund Diversity Initiative. The initiative included a complimentary society membership to bring new diverse members into a society with access to networking and mentoring with the goal of increasing diversity of the society while providing professional development and networking opportunities for awardees.						
Varkey, P., Jatoi, A., Williams, A., Mayer, A., Ko, M., Files, J., ... & Hayes, S. (2012). The positive impact of a facilitated peer mentoring program on academic skills of women faculty. <i>BMC Medical Education</i> , 12(1), 1-8.	Nineteen women were divided into 5 groups for a facilitated peer mentoring program. Each group had an assigned facilitator. Members of the respective groups met together with their facilitators at regular intervals (4-6 weeks) during the 12 months of the project.						
Voytko, M. L., Barrett, N., Courtney-Smith, D., Golden, S. L., Hsu, F. C., Knovich, M. A., & Crandall, S. (2018). Positive value of a women's junior faculty mentoring program: a mentor-mentee analysis. <i>Journal of Women's Health</i> , 27(8), 1045-1053.	Women at the junior faculty level at the Wake Forest School of Medicine participated in one on one mentoring with a male or female member at the senior faculty level. Additional resources and activities were provided to support the mentoring relationship. This is a report of program evaluation findings from 2010-2015.						
Walsh, K. F., Fahme, S., Reif, L. K., Mathad, J., Konopasek, L., & Downs, J. A. (2021). Novel, Low-Cost Intervention to Promote Women's Advancement in Global Health Research. <i>Academic Medicine</i> , 97(1), 84-88.	Female Global Scholars Program focused on providing leadership skills and peer mentoring for female investigators in global health research over 2 years through a symposium, skill-building workshop, skill-building webinars, and the building of a peer mentor group. Low-cost, hybrid in-person-virtual model.						
Wasburn, M. H. (2007). Mentoring women faculty: An instrumental case study of strategic collaboration. <i>Mentoring & Tutoring</i> , 15(1), 57-72.	Strategic collaboration model of mentoring implemented in a university context (faculty). Combined features of both horizontal and vertical mentoring with a negotiated contract between mentor and protege. Groups met approximately five times per semester.						
Zurn-Birkhimer, S., Geier, S. R., & Sahley, C. (2011, June). ADVANCE-PURDUE: retention, success, and leadership for senior female STEM faculty. In 2011 ASEE Annual Conference & Exposition.	ADVANCE-Purdue: Retention, Success and Leadership for senior female STEM faculty: institutional transformation project designed to increase the presence, retention and success of STEM female faculty. Three goals: 1) to increase the number of women of color in STEM faculty positions, 2) to improve the success of all women STEM faculty, and 3) to engage all faculty in transforming the institution.						
Bingham, S. G., & Scherer, L. L. (2001). The unexpected effects of a sexual harassment educational program. <i>The Journal of Applied Behavioral Science</i> , 37(2), 125-153.	This study evaluates a sexual harassment program for staff and faculty at a university. Program developed under suboptimal conditions: volunteers who had no formal background in sexual harassment training and did not assess participants needs prior to the program. 30 min program consisting of three components.						
Campbell, R., Munford, A., Moylan, C. A., PettyJohn, M. E., Schweda, K., Fedewa, T., ... & Buchanan, N. T. (2023). Creating a university strategic plan to address relationship violence and sexual misconduct (RVSM): An application of principles-focused evaluation at Michigan State University. <i>Violence Against Women</i> , 29(1), 3-34.	This paper describes a multi-year initiative at Michigan State University (MSU) to change an institutional response to relationship violence and sexual misconduct (RVSM). Large-scale program with a large, multicomponent overview in response to a very public sexual misconduct case - very transparent, in-depth discussion centering around seven umbrella goals with multiple training, network, policy initiatives within them. Results made public and key metrics tracked over time.						

PT = PAY TRANSPARENCY, WPOL = WORKPLACE POLICIES, CD = CAREER DEVELOPMENT, F = FELLOWSHIPS, M = MENTORING, WPRO = WORKPLACE PROGRAMS

STUDIES INCLUDED IN REVIEW

Citation	Description and Outcome	PT	WPoI	CD	F	M	WPro
Carnes, M., Devine, P. G., Baier Manwell, L., Byars-Winston, A., Fine, E., Ford, C. E., Forscher, P., Isaac, C., Kaatz, A., Magua, W., Palta, M., & Sheridan, J. (2015). The effect of an intervention to break the gender bias habit for faculty at one institution: a cluster randomized, controlled trial. <i>Academic Medicine</i> , 90(2), 221–230.	Evaluation of Bias Literacy Intervention designed to promote awareness of bias, strategies to action it, and self-efficacy to enact strategies. The intervention was a 2.5 hour interactive workshop in three models. The first module reviewed research on the origins of bias as a habit. The second promoted "bias literacy". The third promoted self-efficacy for overcoming gender bias.						
Carnes, M., Devine, P. G., Isaac, C., Manwell, L. B., Ford, C. E., Byars-Winston, A., Fine, E., & Sheridan, J. T. (2012). Promoting Institutional Change Through Bias Literacy. <i>Journal of Diversity in Higher Education</i> , 5(2), 63–77.	Initial evaluation of the Bias Literacy Workshop, which aims to provide awareness of gender bias, provide self-efficacy for actioning bias, set positive expectations for such actions, and engage participants in deliberate practice in a 2.5hr format open to all faculty.						
de Haas, S., Timmerman, G., Höing, M., Zaagsma, M., & Vanwesenbeeck, I. (2010). The impact of sexual harassment policy in the Dutch police force. <i>Employee Responsibilities and Rights Journal</i> , 22, 311-323.	The aim of the present study was to evaluate the outcome of sexual harassment policy in the Dutch Police Force. Components of the policy include training of confidential advisors to support victims of sexual harassment and proactively prevent harassment in their teams. Using a survey, sexual harassment was measured in 2000 and again in 2006.						
Devine, P. G., Forscher, P. S., Cox, W. T., Kaatz, A., Sheridan, J., & Carnes, M. (2017). A gender bias habit-breaking intervention led to increased hiring of female faculty in STEMM departments. <i>Journal of Experimental Social Psychology</i> , 73, 211-215.	Follow-up analysis of Carnes et al. 2015 Bias Literacy Workshop evaluation to track hiring. Original design of 46 STEMM departments to receive a 2.5hr workshop that sought to (1) increase awareness of gender bias, (2) highlight the consequences of bias, and (3) teach strategies to counteract bias.						
Girod, S., Fassiotto, M., Grewal, D., Ku, M. C., Sriram, N., Nosek, B. A., & Valantine, H. (2016). Reducing implicit gender leadership bias in academic medicine with an educational intervention. <i>Academic Medicine</i> , 91(8), 1143-1150.	A standardized 20-minute education intervention (presentation summarizing research literature) to educate faculty about implicit biases and strategies for overcoming them. "Champions" in the department were selected to deliver a 20-minute presentation summarizing the research literature on implicit bias.						
Hock, L. E., Barlow, P. B., Scruggs, B. A., Oetting, T. A., Martinez, D. A., Abramoff, M. D., & Shriver, E. M. (2021). Tools for responding to patient-initiated verbal sexual harassment: a workshop for trainees and faculty. <i>MedEdPORTAL</i> , 17, 11096.	Workshop designed for faculty to deal with responding to verbal sexual harassment from patients, evaluated for overall application to communication tools for responding to verbal sexual harassment. Training consisted of a 50-minute workshop that used an interactive lecture and role-play scenarios to teach a tool kit for responding to harassment. Designed for patient-initiated sexual harassment but applicable to workplaces.						
Jackson, S. M., Hillard, A. L., & Schneider, T. R. (2014). Using implicit bias training to improve attitudes toward women in STEM. <i>Social Psychology of Education</i> , 17, 419-438.	A diversity training program on 234 university faculty members assessing changes in implicit associations and explicit attitudes towards women in STEM. The goal of this program was to improve attitudes and associations of STEM faculty. Program elements included evidence-based content such as non-confrontational research-based content, the use of inclusive language, and the introduction of practical remedies for overcoming bias.						
Latimer, M., Jackson, K., Dilks, L., Nolan, J. and Tower, L. (2014). Organizational Change and Gender Equity in Academia: Using Dialogical Change to Promote Positive Departmental Climates. In <i>Gender Transformation in the Academy (Advances in Gender Research, Vol. 19)</i> , Emerald Group Publishing Limited, Bingley, pp. 333-353.	Department-level intervention designed to change the current group dynamic towards women, with a focus on a model of inclusive decision-making and enhanced communication. Flexibly implemented intervention timing so that it could be implemented in departments with a variety of time commitments.						
Pietri, E. S., Hennes, E. P., Dovidio, J. F., Brescoll, V. L., Bailey, A. H., Moss-Racusin, C. A., & Handelsman, J. (2019). Addressing unintended consequences of gender diversity interventions on women's sense of belonging in STEM. <i>Sex Roles</i> , 80, 527-547.	Video interventions on bias literacy among female faculty. Female scientists were asked to view video interventions (VIDS) about gender diversity in STEM, and also complete a module called UNITE, which discusses how gender bias in STEM can be overcome.						
Preusser, M. K., Bartels, L. K., & Nordstrom, C. R. (2011). Sexual harassment training: Person versus machine. <i>Public Personnel Management</i> , 40(1), 47-62.	A comparison of a computer-based sexual harassment training initiative to traditional instructor-led training. Computer-based training took approximately 1.5-2 hours to complete and consisted of five sections. Instructor-led training utilized video clips from the computer-based training and also took 1.5-2 hours.						
Sekaquaptewa, D., Takahashi, K., Malley, J., Herzog, K., & Bliss, S. (2019). An evidence-based faculty recruitment workshop influences departmental hiring practice perceptions among university faculty. <i>Equality, Diversity and Inclusion</i> , 38(2), 188-210.	A 2-hour faculty recruitment workshop (ADVANCE FRW) on faculty attitudes toward evidence-based, equitable hiring practices. Study 1 included faculty who had or had not attended an FRW. Respondents were surveyed about their attitudes and their intentions to use specific equitable search practices. Study 2 employed a similar design and tested whether effects of workshop attendance (intention to use equitable search strategies) are explained by changes in beliefs about social science research (e.g. belief that implicit biases occur) learned from the workshop.						

PT = PAY TRANSPARENCY, WPoI = WORKPLACE POLICIES, CD = CAREER DEVELOPMENT, F = FELLOWSHIPS, M = MENTORING, WPRO = WORKPLACE PROGRAMS

STUDIES INCLUDED IN REVIEW

Citation	Description and Outcome	PT	WPOL	CD	F	M	WPRO
Shields, S. A., McCormick, K. T., Diccio, E. C., & Zawadzki, M. J. (2018). Demonstrating the cumulative effects of unconscious bias with WAGES-academic (Workshop Activity for Gender Equity Simulation): Short-and long-term impact on faculty and administrators. <i>Journal of Women and Minorities in Science and Engineering</i> , 24(2), 147-163.	Reports on short- and long-term effectiveness of the Workshop Activity for Gender Equity Simulation academic version (WAGES-Academic; http://wages.la.psu.edu/) assessed via pre-post survey and 2-4yr follow-up questionnaire. WAGES is a game that live-demonstrates accumulated (dis)advantage followed by a facilitated discussion.						
Chaudron, L. H., Anson, E., Bryson Tolbert, J. M., Inoue, S., & Cerulli, C. (2021). Meeting the needs of mid-career women in academic medicine: one model career development program. <i>Journal of Women's Health</i> , 30(1), 45-51.	This study analysed a mid-career women faculty development program (4 days total over 6 months) with a peer-to-peer networking component. The program provided participants with lectures and workshops designed to help them target their developmental needs. The impact of the development program was self-assessed on knowledge, competence, self-identified goals, and promotions.						
O'Mullane, M. (2022). What do the narratives tell us? Exploring the implementation of the Athena SWAN Ireland Charter. <i>Frontiers in Sociology</i> , 7, 1058397.	The Athena SWAN Ireland Charter was analysed through an empirical research narrative interviewing university staff about perceptions of ASIC, perceptions about working within the framework of ASIC, and the nature and role of power relations in embedding ASIC actions. ASIC is a gender equality accreditation program, in this case implemented across three Irish universities.						

PT = PAY TRANSPARENCY, WPOL = WORKPLACE POLICIES, CD = CAREER DEVELOPMENT, F = FELLOWSHIPS, M = MENTORING, WPRO = WORKPLACE PROGRAMS



An Australian Government Initiative

Women in STEM Ambassador



UNSW
SYDNEY