



Developing Priorities to Alleviate the Long-Term Impact of the COVID-19 Pandemic on Women Engaged in Diabetes Research, Education, and Care: A Concept Mapping Study

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OBJECTIVE | The aim of this study was to develop priorities through stakeholder engagement to alleviate the impact of the coronavirus disease 2019 (COVID-19) pandemic on the professional careers of women engaged in diabetes research, education, and care.

RESEARCH DESIGN AND METHODS | This study used concept mapping, a mixed-methods, multistep process, to generate a conceptual map of recommendations through the following steps: 1) identify stakeholders and develop the focus prompt, 2) generate ideas through brainstorming, 3) structure ideas through sorting and rating on priority and likelihood, 4) analyze the data and create a cluster map, and 5) interpret and use results.

RESULTS | Fifty-two participants completed the brainstorming phase, and 24 participated in sorting and rating. The final concept map included seven clusters. Those rated as highest priority were to ensure supportive workplace culture ($\mu = 4.43$); promote practices to achieve gender parity in hiring, workload, and promotion ($\mu = 4.37$); and increase funding opportunities and allow extensions ($\mu = 4.36$).

CONCLUSION | This study identified recommendations for institutions to better support women engaged in diabetes-related work to alleviate the long-term impact of the COVID-19 pandemic on their careers. Some areas were rated as high in priority and high in likelihood, such as ensuring a supportive workplace culture. In contrast, family-friendly benefits and policies were rated as high in priority but low in likelihood of being implemented; these may take more effort to address, including coordinated efforts within institutions (e.g., women's academic networks) and professional societies to promote standards and programs that advance gender equity in medicine.

Since coronavirus disease 2019 (COVID-19) pandemic restrictions began in early 2020 (1), several surveys worldwide have reported a disproportional impact on women who work outside of the home, commonly referred as the pandemic's "gender effect" (2). Women were twice as likely to suffer reduced work hours compare with their male counterparts and experienced an overall increase in unemployment (3). By September 2020, a Center for American Progress survey estimated \$64.5 billion per year in lost wages and economic activity resulting from working mothers leaving the labor force or reducing their work hours because of caretaking responsibilities (3).

In this study, we explored ideas to alleviate the pandemic's gender effect among women engaged in diabetes research, education, and care. The field of diabetes care and research represents a diverse workforce of health professionals, including scientists, nurses, pharmacists, dietitians, psychologists, social workers, and physicians. Women play a crucial role in supporting patients living with diabetes; nearly 95% of diabetes care and education specialists are women (4).

Medicine has one of the "leakiest" pipelines of the scientific professions. Despite its workforce being near half women,

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women occupy less than one-fourth of its leadership positions (5). Women comprise ~70% of all endocrinology fellows and 44% of practicing endocrinologists. Despite a shortage of >1,500 endocrinologists in the United States, the number of male applicants to endocrinology fellowships has decreased by 40% in the past decade, and endocrinology remains one of the lowest paid specialties in medicine (6). There are concerns that, at this pace, salary parity with male counterparts for women in endocrinology will be harder to achieve than for their peers in other medicine specialties (6,7).

Among diabetes researchers, women represent only one-third of editors-in-chief of top-ranked diabetes journals, with substantial gaps in women from underrepresented minority groups (8). In a recent study, disproportional representation was also seen among prestigious award recipients, award panels, and important funding mechanisms such as the American Diabetes Association's (ADA's) Pathway to Stop Diabetes Initiator Award, Accelerator Award, and Visionary Award from the American Diabetes Association (9). Of note, almost half the applicants to many of the awards were women, signaling structural issues rather than a lack of an adequate pipeline of applicants (8).

Several studies have reviewed and documented gender disparities in academic medicine, some of which were mentioned above (5,8–11). The most recent report from the National Academy of Sciences, Engineering and Medicine showed that women continue to struggle because of lack of effective mentorship, sponsorship, and disparities in research funding and salary support (12). Pandemic restrictions exacerbated many of these issues, as remote work intensified challenges with work-life boundaries and associated disruptions (11). Pandemic restrictions made it more difficult to effectively network and engage in collaborations, and many conferences and other opportunities were canceled or limited to virtual formats (11). During 2020, there was a decrease in the number of women who were first authors (13), and fewer women than men were principal investigators in COVID-related research (14). Furthermore, layoffs and furloughs affected mostly non-tenured faculty, positions more often occupied by women and people of color (12,15). Thus, the COVID-19 pandemic gender effect has the potential to widen the gender gap if left unaddressed.

The ADA is the professional society that leads diabetes research funding, education, community services, and advocacy in the United States. In 2016, it established the Women's Inter-professional Network of the American Diabetes Association (WIN ADA) to support the career development of women in the field of diabetes. Today, the network has grown to include

>3,000 members (16). The group has organized professional development symposia and networking events and established several awards such as the annual Lois Jovanovic Transformative Woman in Diabetes Award. As part of ongoing efforts to advance women in the field of diabetes, the WIN ADA Advisory Group decided to address the long-term professional impact of the COVID-19 pandemic on women in diabetes. This study describes the process and outcomes of stakeholder engagement (stages 1–4) to develop priorities to alleviate the impact of the COVID-19 pandemic on the professional careers of women engaged in diabetes research, education, and care.

Research Design and Methods

We used concept mapping, a mixed-methods, multistep process of idea generation and organization, to generate a conceptual map of recommendations (17). Two members of the research team (P.C. and A.P.) oversaw all aspects of the concept mapping process. Concept mapping consists of several stages, including 1) identifying stakeholders and developing the focus prompt, 2) generating ideas through brainstorming, 3) structuring ideas through sorting and rating, 4) analyzing the data and creating a cluster map, and 5) interpreting and using results. Stages 2–4 were completed using Group Wisdom software (Concept Systems, Inc., Ithaca, NY) (18).

Identifying Stakeholders and Developing the Focus Prompt

Given recent data on disparities of women in research, the team identified stakeholders for this study as women engaged in diabetes-related work, including either clinical care, basic science, public health research, translational research, and/or education. We then used two existing networks to recruit stakeholders: WIN ADA, described above, and the Washington University Center for Diabetes Translation Research (WU-CDTR).

The WU-CDTR includes 86 members, 61 of whom are women investigators. Members include junior and senior faculty researchers from the fields of public health, medicine, and social work, among others. In total, we identified >3,000 potential women participants engaged in diabetes clinical care, education, or research to participate in this study.

The focus prompt was developed by the research team with input and feedback from the WIN ADA Advisory Group. Suggested focus prompts were reviewed and revised by ADA stakeholders to assure clarity and appropriate focus of generated ideas. COVID-19-specific participant demographic questions were modeled after the EMPOWER survey, which

studied work-related and personal factors associated with mental well-being among health care workers during the pandemic response (19). Participants were asked to select answers to the demographics questions that best described them. Demographics questions included career stage (e.g., trainee, early-career, midcareer, or late-career), role (e.g., basic science researcher, clinical researcher, clinician, or educator), race, and ethnicity. Specific work-related questions included “Since the COVID-19 pandemic restrictions began, have you spent a lot more time taking care of others (partner, child, parent, etc.)?” and “Since the COVID-19 pandemic restrictions began, how has your career-related productivity been impacted?”

Generating Ideas Through Brainstorming

Data collection took place between 10 March and 16 June 2021. An invitation was emailed directly to the women members of WIN ADA and the WU-CDTR and posted on the WIN ADA discussion board. Participants were directed to the Group Wisdom project site and asked to complete the following statement (focus prompt): “To alleviate the long-term impact of the COVID-19 pandemic on women engaged in diabetes research, education, and care, we should” Respondents were asked to limit their responses to one idea per statement, were able to enter as many statements as they liked, and could view previously submitted statements.

Two research team members (P.C. and A.P.) then synthesized the initial list of statements for a final list for the next two phases: structuring and rating. Ideas were edited for clarity and to ensure that each statement represented one unique idea.

Structuring Ideas Through Sorting and Rating

Participants then provided structure to the generated ideas by rating and sorting the final list of statements through the Group Wisdom software. A second recruitment e-mail was sent to the participant list for this phase of the project. Participants were asked to rate each statement on five-point scales for priority (with 1 indicating not a priority and 5 indicating high/essential priority) and the likelihood that the statement would be implemented at the participants’ institution (with 1 indicating extremely unlikely and 5 indicating extremely likely). Participants also grouped statements into categories based on similarity in meaning. Participants were instructed to sort each statement into a pile based on their interpretation of how the ideas were related. Each statement could only be sorted into one pile,

and each pile was named to describe its theme or contents. Participants could save their work and complete this activity at a later time.

Analyzing Data and Creating a Cluster Map

After participants completed the structuring activities, the research team selected a final visual representation of the ideas called a cluster map. A cluster map was developed using multidimensional scaling and hierarchical cluster analysis using the Group Wisdom software.

First, a similarity matrix was created by consolidating sorting data from all participants. A two-dimensional point map is created using multidimensional scaling; the distance between each point represents how often statements are sorted together, with more similar statements placed closer on the map (20,21). Hierarchical cluster analysis then groups points together to reflect similar concepts in each cluster (20). Two members of the research team (P.C. and A.P.) reviewed several iterations of cluster maps, selecting a final map based on uniformity of ideas within each cluster. This solution was then presented to the remainder of the research team (A.A.E., B.E.G., and R.G.T.) for feedback. Clusters were named according to the labels provided by participants and the final set of statements in each cluster.

The stress index, a diagnostic statistic produced in multidimensional scaling, measures the degree to which a point map is dissimilar from a similarity matrix. A lower stress index indicates a better overall fit; from a pooled analysis of concept mapping studies, the average stress value is 0.285 (SD 0.04, 95% CI 0.205–0.365) (22).

Priority and likelihood ratings were averaged for each cluster. A “pattern match” figure was generated to compare the average priority and likelihood rating of each cluster. Subgroup comparisons were also done across participant groups based on the effects of COVID-19 on their work life (i.e., self-reported time spent caring for others and self-reported changes in productivity). Correlation coefficients were generated for each pattern match to reflect the degree of similarity across ratings or subgroups.

Ethical Statement

This study was approved by the Washington University in St. Louis Institutional Review Board (IRB #201812015). As part of the review, this board approved the consent process, which consisted of a written statement on the web-based software; participants selected “Accept” before continuing with participation.

Results

We invited women from a pool of ~3,000 women engaged in diabetes-related work to participate in the study. Participants are described in Table 1. Brainstorming participants (n = 52) were split between early- (17.6%), mid- (47.1%), and late-career (31.4%) categories. The majority of participants were White (71.7%), and more than half (54.9%) reported an increase in time caring for others since the start of the COVID-19 pandemic, along with a decrease in productivity (56.8%). Participants generated 87 statements during brainstorming, which were then synthesized to a final list of 70 unique statements (Supplementary Table S1).

Twenty-four participants completed at least one of the sorting and rating activities. Sorting data were included if a participant sorted all statements; rating data were included if a participant rated at least 10 statements. Similar to the brainstorming participants, the majority of individuals who completed sorting and rating activities were White (66.7%), and most (65.2%) reported an increase in time caring for others. However, considerably fewer early-career participants completed sorting and rating (4.5%), with the majority of participants completing these tasks identifying as midcareer (68.2%), followed by late-career (27.3%) professionals.

The final concept map included seven thematic actionable clusters, with the smallest containing five statements and the largest containing 18 statements. These clusters included 1) increase research support through mentoring and salary coverage; 2) reduce administrative burden and provide adequate support; 3) promote practices to achieve gender parity in hiring, workload, and promotion; 4) improve availability and utilization of technology; 5) increase funding opportunities and allow extensions; 6) implement family-friendly benefits and policies; and 7) ensure a supportive workplace culture (Figure 1). The stress value for this configuration was 0.26, suggesting a good fit (20,22).

The statement “Rework systems that allow or reward bad behavior and discrimination” was originally included in cluster 4 (improve availability and utilization of technology) after hierarchical cluster analysis. Through feedback and discussion with WIN ADA leadership, the decision was made to move this statement to cluster 3 (promote practices to achieve gender parity in hiring, workload, and promotion). This manual adjustment is in line with standard concept mapping methodology (20) and improved the interpretability of the overall map.

The highest priority clusters, identified through pattern match (Figure 2), were ensure supportive workplace culture

TABLE 1 Participant Characteristics

Characteristic	Brainstorming (n = 52)	Sorting and Rating (n = 24)
Career stage	51	22
Trainee	2 (3.9)	0 (0)
Early-career	9 (17.6)	1 (4.5)
Mid-career	24 (47.1)	15 (68.2)
Late-career	16 (31.4)	6 (27.3)
Race/ethnicity (select all that apply)	53	24
Alaskan Native/American Indian	2 (3.8)	1 (4.2)
Asian	4 (7.5)	2 (8.3)
Black or African American	3 (5.7)	0
Hispanic or Latino	4 (7.5)	4 (16.7)
White	38 (71.7)	16 (66.7)
Other	2 (3.8)	1 (4.2)
Role (select all that apply)	69	37
Basic science researcher	5 (7.2)	5 (13.5)
Clinical researcher	21 (30.4)	11 (29.7)
Clinician	19 (27.5)	12 (32.4)
Educator	16 (23.2)	8 (21.6)
Other	8 (11.6)	1 (2.7)
Since COVID-19, increased time taking care of others	51	23
Yes	28 (54.9)	15 (65.2)
No	20 (39.2)	5 (21.7)
Since COVID-19, my career-related productivity has . . .	51	23
Decreased (a little/a lot)	29 (57)	11 (48)
Stayed the same	10 (19.6)	4 (17.4)
Increased (a little/a lot)	12 (24)	8 (35)

Data are n or n (%).

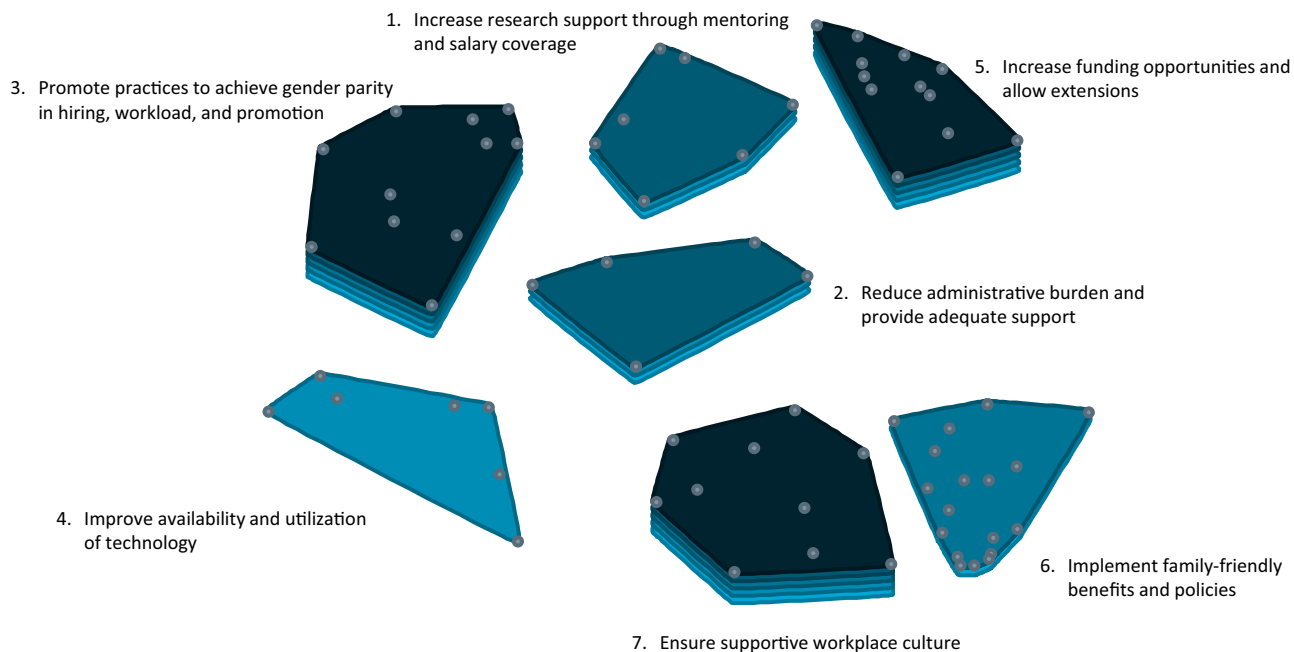


FIGURE 1 Cluster map for priorities to alleviate the long-term impact of the COVID-19 pandemic on women engaged in diabetes research, education, and care.

($\mu = 4.43$); promote practices to achieve gender parity in hiring, workload, and promotion ($\mu = 4.37$); and increase funding opportunities and allow extensions ($\mu = 4.36$). All clusters were rated lower in their likelihood to be implemented (2.80–3.40) compared with priority ratings (4.01–4.43), with a correlation coefficient of 0.28. In addition to being highest priority, ensure supportive workplace culture was also identified as the most likely to be implemented by institutions ($\mu = 3.40$). The other clusters identified as most likely to be implemented were improve availability and utilization of technology ($\mu = 3.09$) and increase research support through mentoring and salary coverage ($\mu = 3.00$). Table 2 includes the top three highest priority statements for each cluster, along with their likelihood ratings.

We also examined differences in ratings across participant subgroups. In comparing participants who reported a decrease in productivity to those reporting increased or the same productivity, the two groups rated these same three clusters as highest priority ($r = 0.64$). We observe the same pattern with those who reported increased time taking care of others. Supplementary Figures S1 and S2 depict the subgroup pattern matching.

Discussion

Overall, the women members of WIN ADA and the WU-CDTR identified three actionable themes as highest priority

and highest likelihood for achieving the goal of alleviating the long-term impact of the COVID-19 pandemic on their professional careers. These were to:

- 1) Ensure a supportive workplace culture
- 2) Increase funding opportunities and allow extensions
- 3) Promote practices to achieve gender parity in hiring, workload, and promotion

The highest priority area was to ensure a supportive workplace culture. Participants indicated that they want to feel safe and valued at work, with statements such as “Ensuring a safe environment for women who are pregnant or breastfeeding.” They also advocated for putting appropriate measures in place to avoid burnout and improve their work-life balance. Not surprisingly, previous research has shown that women who perceive their workplace culture as supportive report less work-home conflicts and higher satisfaction (23). During the pandemic restrictions, women reported worse mental health; the Women in the Workplace survey found that 42% of women reported feeling burnt out often, compared with 35% of men (2). The EMPOWER survey among health care workers found that the strongest association between worsening mental health and lower productivity was when their supervisor exhibited poor family-supportive behaviors (i.e., Your direct supervisor makes you feel comfortable talking to him/her about your conflicts between work and nonwork; demonstrates effective behaviors in how to

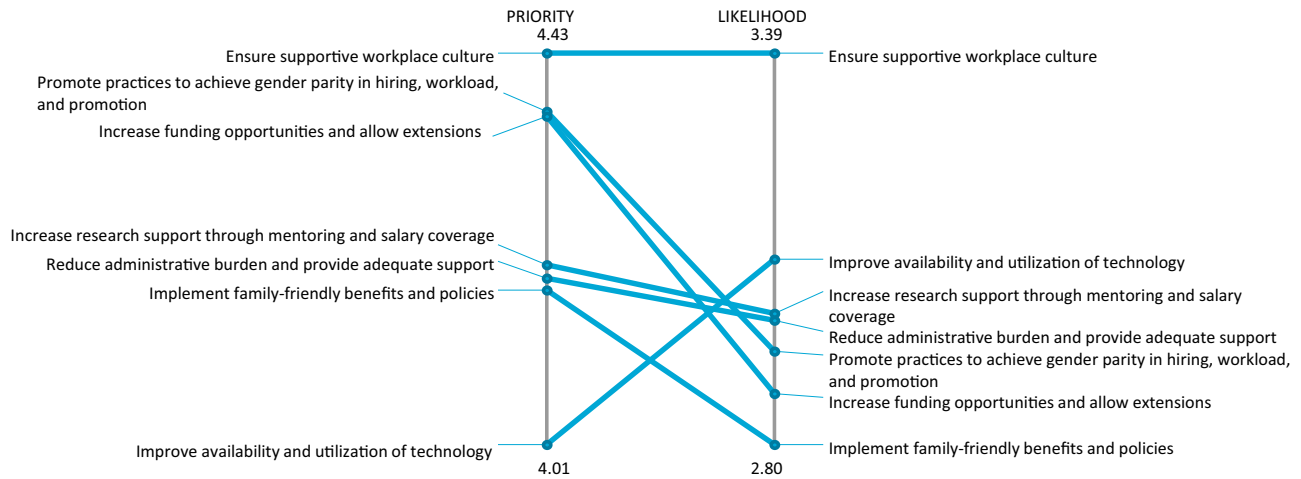


FIGURE 2 Pattern match for importance and likelihood of implementation.

juggle work and nonwork issues) (24). The results were similar for professionals engaged in clinical and nonclinical work (19). Supporting women in balancing work-life demands is not a new topic. However, our study shows that efforts need to address the structural issues that women face and include multipronged strategies. For instance, a study found that women in academic medicine who were married and had children spent, on average, 8 hours more per week in household responsibilities than their male counterparts (25). Irrespective of gender, the 2019 Medscape National Physician Burnout, Depression, and Suicide Report found an association between burnout and hours worked. More than half of physicians who worked >61 hours per week had symptoms of burnout compared with 36% of those who worked 31–40 hours (26). Still, many times women are given advice to work harder, work on weekends, or add more tasks related to wellness to their already busy lives (27).

Reducing bias for women was highly prioritized as important in promoting practices to achieve gender parity in hiring, workload, and promotion. Women’s salaries remained 8–29% lower than men in equivalent positions. Women working fewer hours or being less committed are often cited as reasons why women earn less (28). However, studies are showing that assumption to be untrue and reflective of bias toward women. For example, in a study that examined reactions to fictional mother and father job applicants with similar credentials, mothers were consistently rated by both men and women as less committed and recommended for lower salaries than father applicants (29). Nevertheless, studies have found women are as committed as men and participate actively in institutional committees (27). For women physicians, one study found that, when adjusting for patient and visit

characteristics, women generated equal revenue compared with men and spent 16% more time with each patient (30). In a study among Medicare beneficiaries, patients treated by women physicians had lower mortality and readmission rates compared with those seeing men physicians (31). Strategies to reduce bias for women in medicine should include unconscious bias training; an ongoing trial among departments of medicine across several institutions is underway, with results expected in 2022 (32).

Our study adds evidence that developing policies and practices to ensure a supportive workplace culture must be a priority to prevent long-term effects of the COVID-19 pandemic on the careers of women engaged in diabetes research, education, and care. Such practices should focus on two areas, according to pilot research conducted by the Work Family and Health Network: family-supportive supervisory behaviors and flexibility regarding when (flex-time) and where (flex-place) to work (33). Supportive supervisory behaviors can be reinforced with formal trainings and evaluations (5,11). Work flexibility, interestingly, improved during the pandemic, as more women were able to work remotely and use telehealth broadly, while pandemic-related measures ameliorated flexibility stigma previously associated with working from home (34). Both areas are strongly associated with higher satisfaction, reduction in burnout, and improvement in work-life balance without compromising productivity.

Another avenue for providing support to women engaged in diabetes research and care is through mentorship programs aimed at moving women to the next level in their career (27). These programs not only support women, but also can help to address the third priority found in our

TABLE 2 Top Three Priority Statements per Cluster

Statement by Cluster	Rating	
	Priority	Likelihood
1. Increase research support through mentoring and salary coverage (<i>n</i> = 7). Increase transparency of levels of federal grant support between men, women, and underrepresented minority investigators. Support collaborative research. Increase the university-paid fraction of salary for everyone in order to level the playing field.	4.20 4.55 (0.74) 4.53 (0.68) 4.32 (0.8)	3.00 3 (1.17) 3.89 (0.85) 1.95 (0.94)
2. Reduce administrative burden and provide adequate support (<i>n</i> = 5). Reduce administrative burden. Give additional weight to service work during the pandemic for promotion and evaluation. Provide additional staff support.	4.19 4.42 (0.59) 4.26 (0.78) 4.15 (0.91)	2.99 2.58 (1.31) 2.75 (1.18) 2.8 (1.21)
3. Promote practices to achieve gender parity in hiring, workload, and promotion (<i>n</i> = 11). Rework systems that allow or reward bad behavior and discrimination. Recognize other forms of productivity besides publication and receipt of grants. Training to reduce gender inequities in promotion and hiring.	4.37 4.72 (0.56) 4.6 (0.66) 4.55 (0.59)	2.96 3.11 (0.91) 2.9 (1.09) 3.42 (0.94)
4. Improve availability and utilization of technology (<i>n</i> = 7). Utilize telemedicine and other technology to keep safely working during the pandemic. Utilize technology over face-to-face work as much as possible. Increase availability of remote glucose-monitoring tools like CGM and connected glucose meters to improve telehealth visits.	4.01 4.38 (0.72) 3.55 (1.28) 4.43 (0.66)	3.09 4 (0.73) 3.58 (0.88) 3.47 (1.14)
5. Increase funding opportunities and allow extensions (<i>n</i> = 12). Allow grant extensions to ongoing research delayed by the pandemic. Ensure that grant administrators are very well trained, competent to submit a grant, and have great attention to detail. Increase funding opportunities.	4.36 4.6 (0.66) 4.47 (0.75) 4.58 (0.67)	2.88 3.89 (0.72) 3.11 (1.12) 3.05 (1.19)
6. Implement family-friendly benefits and policies (<i>n</i> = 18). Increase work-from-home opportunities. Maintain flexible work hours. Maintain flexibility to work from home.	4.18 4.25 (0.89) 4.52 (0.59) 4.37 (0.58)	2.80 3.55 (0.86) 3.45 (1.16) 3.42 (0.94)
7. Ensure supportive workplace culture (<i>n</i> = 10). Ensure a safe work environment. Continue efforts to promote wellness, mental health, and life balance beyond the pandemic. Provide a safe environment for women who are pregnant or breastfeeding.	4.43 4.85 (0.36) 4.55 (0.59) 4.74 (0.55)	3.40 4.26 (0.85) 3.95 (1) 3.89 (0.79)

Cluster ratings are expressed as means. Statement ratings are expressed as means (SDs).

study: to promote practices to achieve gender parity in hiring, workload, and promotion. This is a huge undertaking that might need separate strategies. Parity in hiring can improve by training recruiters and search committees on gender equity and ensuring that committee members include women and people of color. Standards to track workload and service should be developed and implemented to ensure that they are equitably assigned for rank and gender. For example, the COVID-19 CV Matrix provides standards to track pandemic disruptions for women in medicine and could be adapted by other institutions (35,36). The Initiative to Support Female Faculty at the University of California, Davis provides an exceptional example of helping women advance in their careers. The program, established in 2000, consists of multiple strategies to promote women's career development, including 1) promoting an inclusive climate with equal opportunity, 2) increasing networking opportunities, 3) sponsoring and developing career development programs, and 4) recognizing and celebrating

women's accomplishments, among others. By 2011, the number of women faculty had almost doubled, and the number of women chairs increased from one to five (37). These initiatives need to be disseminated and can be adapted to individual institutional needs. Professional societies should also step in; for example, the WIN ADA Advisory Group is planning a career development program for women in diabetes based, in part, on the results of this concept mapping study. Other existing cross-collaborative efforts to empower women include the Women in Science Summit, a 2-day symposium focused on leadership skills and work-life balance (38).

Our study also highlighted the need to increase funding opportunities and allow extensions. The National Institutes of Health (NIH) funds the majority of investigator-initiated medical research in the United States. The NIH has created an early-stage investigator status to prioritize researchers who have completed their terminal degree

within the past 10 years for grants. Allowing extensions to this status for qualifying disruptions, including childbirth and the COVID-19 pandemic, can help early-career researchers remain in science. However, women initially had their petitions for extensions related to COVID-19 disruptions rejected if they had previously received a childbirth extension. After receiving feedback that the policy may discriminate against women, the NIH will now consider requests for life events that occurred during the previously granted extension period (39). In addition, the NIH will grant a 1-year automatic extension for childbirth. As noted previously, caregiving duties make women vulnerable to leaking out the academic pipeline; thus, more flexibility through extensions is crucial. The NIH also sponsors two types of centers for diabetes across the country: 16 diabetes research centers (DRCs), which support primarily basic and clinical research related to the etiology and complications of diabetes, and 7 centers for diabetes translational research (CDTRs) that support testing intervention effectiveness in real-world settings. Women make up only 12% of DRC directors but represent 50% of CDTR directors. Because women are more likely to be in lower-ranking academic positions, promoting funding programs for women might increase the number of women in leadership roles (40).

Finally, despite our study finding that participants identified ensuring a supportive workplace culture as the most likely recommendation to be implemented at their institutions (of those identified in the current study), family-friendly policies and benefits that are meant to support employees' work-life balance were considered the least likely to be implemented. Statements such as "Increase work-from-home opportunities" and "Maintain flexible work hours" were highly prioritized but rated as policies that are less likely to be implemented. Future efforts should focus on the implementation or sustainability of such policies (27). Examples of additional policies that support work-life balance include 1) strategies to decrease time spent on meetings, especially those outside of regular work hours; 2) provision of childcare subsidies and backup care assistance; 3) improvement in the availability of extensions on promotion (i.e., stop-the-clock policies) for women at the assistant professor or associate professor level; 4) improvement in options for automatic extensions in cases of illness or when taking care of children <5 years of age for mothers and fathers; and 5) more flexibility in paid leave, even at a reduced salary for qualifying leaves (2).

Limitations

Our findings provide important insight for institutional leaders, professional societies, managers, and supervisors

in the fields of diabetes research, education, and care; however, there are several limitations. First, this study was purposely anonymous, and collection of participant demographic characteristics was limited. Although we had an adequate number of statements per the method and our concept map demonstrated statistical good fit, it was a time-consuming activity, which limited participation. We saw a decrease in the number of participants in the sorting and rating phase; of note, none of the participants in this phase were trainees, and only one self-identified as an early-career professional. Unfortunately, our study population was racially/ethnically homogenous, missing significant input from women of color. Participants were likely those interested in the research and only included people who identified as women. This may have limited the generalizability of the sample; thus, our findings may not be representative of all researchers and practitioners. Our findings also do not represent the views of men who may be experiencing similar research challenges. This can be a topic for future study. Despite not including people identifying as nonbinary, the strategies discussed included promoting diversity and reducing bias. Finally, our findings are consistent with prior reports and initiatives (5,35,41). Specifically, our findings are in agreement with the EMPOWER survey (19) and underscore the need to advance supportive work policies and practices to alleviate the impact of the COVID-19 pandemic on women engaged in diabetes research, education, and care.

Conclusion

Our study followed a systematic structured brainstorming process with concept mapping that identified priorities for women engaged in diabetes-related work to alleviate the long-term impact of the COVID-19 pandemic on their professional careers. This process demonstrated areas that were rated as high for priority and high for likelihood of implementation such as ensuring a supportive workplace culture, providing important insights for action. In contrast, family-friendly benefits and policies were rated high in priority but low in likelihood of being implemented; these may take more effort to address, including coordinated efforts within institutions (e.g., women's academic networks or advocacy groups) and professional societies to promote standards and programs that advance gender equity in medicine.

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DUALITY OF INTEREST

No potential conflicts of interest relevant to this article were reported.

AUTHOR CONTRIBUTIONS

P.C. crafted the research question, analyzed data, and wrote the manuscript. A.P. analyzed the data and wrote and edited the manuscript. A.A.E. contributed to the discussion and reviewed/edited the manuscript. B.E.G. provided feedback on the concept map and reviewed the manuscript. R.G.T. reviewed the concept map, contributed to the discussion, and reviewed/edited the manuscript. P.C. is the guarantor of this work and, as such, had full access to all the data and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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