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PRESIDENTIAL ADDRESS

Provocative Questions in Behavioral Medicine and the Acceleration of our Science

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The theme of the Society of Behavioral Medicine's (SBM's) 2020 Annual Meeting was "Accelerating our Science: Finding Innovative Solutions for Tomorrow's Health Challenges." As then-president of the society, the first author (M.A.D.) launched the "Provocative Questions in Behavioral Medicine" initiative. The goal of this initiative was to engage all members of the society to imagine the behavioral medicine of the future, to think of the "grand challenges" our field is facing, and to come up with "moonshot" ideas that are of utmost importance to the field and that they would like to work on in the next 15 to 20 years. The overall goal of the Provocative Questions initiative was threefold: to ascertain where the field of behavioral medicine might be heading in the next two decades; to communicate the results of the initiative to our members and funders; and to bring together interested scientists to initiate further follow-up on selected themes.

Such visioning exercises are not new to the field. For example, an article by Freedland [1] described the formation of the Behavioral Medicine Research Council (BMRC), which consists of senior scientists representing the major health psychology and behavioral medicine societies in the USA. The BMRC is charged with setting strategic research goals and identifying ways to achieve such goals in the future. Funders, as well, have relied on the scientific community to push the field forward by providing support for outstanding innovative ideas, such as the "Innovator" and "Transformative Research" awards from the National Institutes of Health (see: https://commonfund.nih.gov/newinnovator and https://commonfund.nih.gov/tra). These various efforts are laudable and needed to move science forward; however, a review of funded projects showed that behavioral medicine projects are entirely missing.

The Provocative Questions initiative launched by SBM in 2019 differs from these past efforts in two crucial and related aspects: first, the initiative was designed to be a true crowdsourcing effort. Rather than relying on the expertise of senior scientists to contribute their vision (as in the BMRC), we invited all members of SBM and other organizations, at all career stages, to voice their ideas. This aspect of our initiative has been particularly important as the focus of early career scientists may provide a diversity of new ideas not found by established scientists. Second, to minimize participant burden, the survey was designed to be easy to answer by asking for large-concept ideas and not lengthy responses. Details of the three-stage survey and detailed results of the findings were presented during the virtual presidential keynote address and can be accessed at SBM's website (https://www.sbm.org/meetings/2020-annual-meeting-webinar-series). I will only summarize them briefly here.

Seven broad areas for basic research and for informing policy emerged: (a) the role of artificial intelligence and computer applications in behavioral medicine; (b) integration of behavioral medicine into health systems, industry, and society at large; (c) health inequities; (d) new models of measurement, dissemination, and translation; (e) addressing the tension between scaling-up interventions and a "one-size does not fit all" approach; (f) improving science communication to address "fake news"; and (g) behavioral medicine's response to gun control and climate change. These responses are an indication of the creativity of our member and the intellectual vibrancy of our society. One also sees a clear split

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between established areas of behavioral medicine and some that reach outside the traditional purview of the field. The obvious question is how can we as SBM members and as a professional society—whose mission is to study and promote the health and well-being of individuals, families, and communities—respond to these new challenges? We will not tackle all the areas in this commentary but use two as exemplars for work that needs to be done now.

Climate Change and Behavioral Medicine

Integrating the "Old" and the "New"

We focus the remainder of the paper on one of the areas that traditionally has not been studied much by behavioral medicine scientists: climate change. The relation of climate change to health behavior was the most frequently listed topic in the initial survey and it is a good example to illustrate how new areas can be integrated within established ones. How can climate change be approached by the individual scientist who is not a climate researcher (reflecting the majority of SBM researchers)? By placing the new cluster of climate and behavior change into the center of established behavioral medicine areas, it becomes clear how new and established areas can inform each other and result in novel and impactful research and scholarship. Figure 1 lists sample questions for each established area with a focus on climate change. For example, for experts in health inequities, the focus on how climate change exacerbates health inequities is not a big shift. In terms of methods, do we need to develop new methods to address climate change behavior, or can we use existing ones? How can emerging technologies be used in the service of climate-related behavior change, and how can we use artificial intelligence and data-mining techniques to identify behavioral targets for future interventions and dissemination efforts? The model represented in Fig. 1 can be used as a guiding framework to integrate any new idea within established areas of behavioral medicine. It also shows how individual researchers can apply their specific areas of expertise to a new topical area.

Science Communication

A challenge to behavioral medicine and related fields was voiced by respondents, who mentioned that it is necessary for scientists to address "fake science." Climate change has long been a target of the antiscience sentiment and "climate change deniers." Similarly, over the past decade, the opposition to vaccines has become vocal among certain segments of the population and those voices will only become louder as a new COVID−19 vaccine is developed, tested, and distributed. Behavioral medicine scientists need to become much more skilled at communicating their science to the public and to politicians. Former SBM President Sherry Pagoto, PhD, has encouraged SBM members to write op-eds and contribute to blogs as part of her "Leading the Narrative"

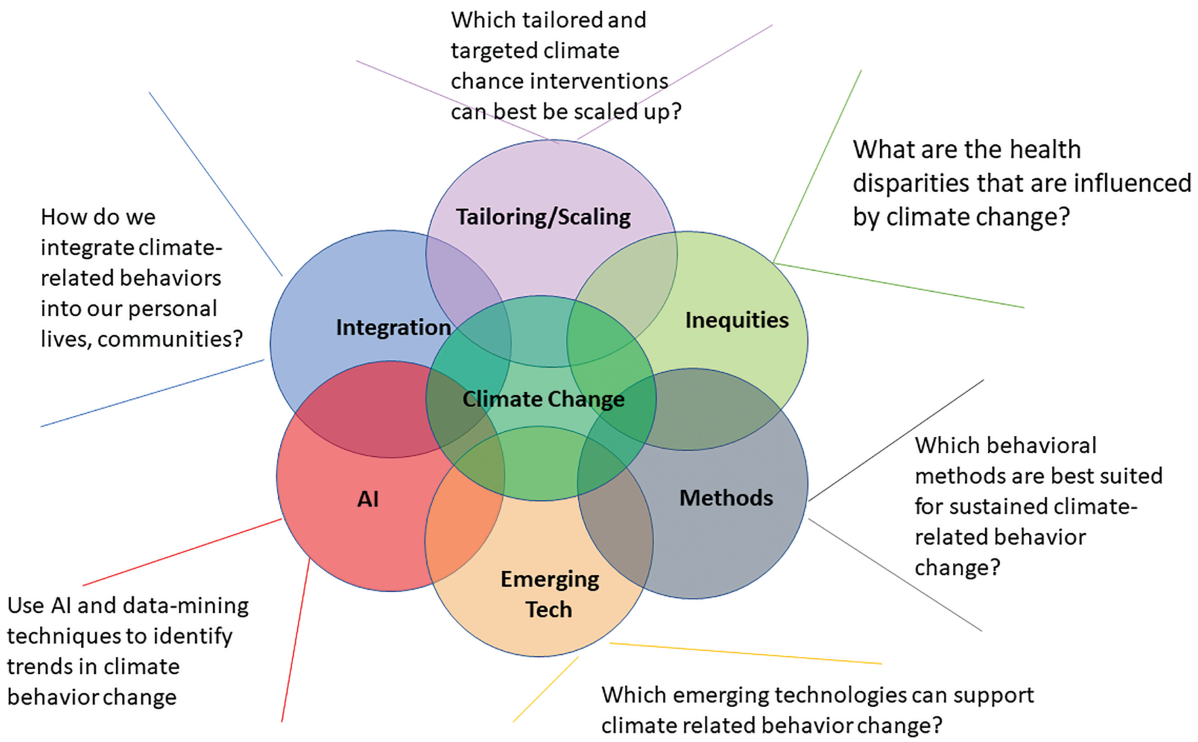

Fig. 1. The integration of nontraditional research into established research efforts.

initiative. Indeed, the society held workshops in op-ed writing for 2 years, which resulted in an increase in op-ed publications in newspapers (personal communication, September 17, 2020).

As valuable as these efforts are in bringing behavioral medicine to the people, they rely on the initiative of a few members who have the time and inclination to engage with the public. Such engagement can be rewarding, but it also can lead to a backlash on social media and vociferous discussions. A recent commentary in the online journal *PLOS* by Hotez [2] describes his experience of being an outspoken proponent of childhood vaccines. Hotez argues that an effective response to the antiscience movement, through improved science communication, cannot be waged by individuals alone, not even by professional societies alone, but needs an organized response across the entire spectrum of scientific disciplines. To reverse the tide of antiscience sentiments and to combat "fake news," it is imperative that we all become much more skilled at communicating our scientific findings and interacting with the public on what our science is about and how it can affect the individual.

Science communication training needs to be incorporated into the curricula of doctoral programs, medical schools, and postdoctoral training programs. But it is not only early career faculty who need to be trained but faculty at every career level. To achieve such widespread change, proper training in science communication needs to be incentivized and recognized as a career-building activity. This shift will take time, effort, and funds to realize. The question, therefore, is: What can we do now to improve the accessibility of behavioral medicine science to the general public? One small step would be to require every article published in one of SBM's journals to list key takeaways and detail the implications of the published research for individual health, public health and health policy, and the field of behavioral medicine.

Outreach and Advocacy

Effective communication of our science is a necessary prerequisite for impactful outreach and advocacy. SBM has a long history of advocacy, with a strong Health Policy Committee that drafts policy briefs and position papers, which are subsequently published in *Translational Behavioral Medicine,* one of the society's journals. SBM also is increasingly asked to sign on to policy briefs that were developed by other organizations. We have developed a program of policy ambassadors, who are tasked with connecting with their federal representatives and senators to offer their and the society's knowledge and expertise to the respective legislators. The scale of these efforts is appropriate for a relatively small society such as SBM; however, to increase our presence and influence, we need to diversify our outreach and advocacy.

Let us return to the example of climate change and behavior: As climate change affects all facets of life, we need to broaden our outlook of *who* will benefit from our science. There are the obvious disciplines, such as public health and communication science; there are also environmental and agricultural sciences, architecture, and environmental design. Former SBM President Gary Bennett, PhD, made "extending our reach" his signature initiative during his presidency. How can we achieve this wider reach? SBM's annual scientific meeting is a perfect venue to invite speakers from a variety of disciplines to start fostering collaborations. Networking events with speakers can deepen the connection between members and conference attendees and might lead to closer ties and collaborations. SBM's Scientific and Professional Liaisons Council maintains strong connections with other professional health-related organizations. Such outreach, however, cannot rest on the shoulders of individual scientists; rather, SBM needs to develop a long-term targeted approach to connect with many professional societies in these efforts. In the meantime, until in-person meetings resume, SBM is continuing to hold regular webinars on a variety of traditional and new topics, such as climate change.

Recognizing the urgency and importance of the topic of climate change and behavior, SBM has authorized the creation of a working group on *Climate Change, Behavior Change, and Health*. The mission of the working group is to "Engage a broad set of relevant experts and stakeholder communities to advance a transdisciplinary translational research agenda focused on understanding, developing, and testing strategies to facilitate both healthy lifestyles and global environment." A diverse group of scientists has agreed to be part of the working group, which is organized around five topic areas that are reflected in the Provocative Questions initiative described earlier: (a) climate change, behavior, and health; (b) health-related behavior and climate change; (c) health inequity; (d) communication; and (e) policy and advocacy. The working group will meet regularly (virtually) over the next year to (a) identify research strategies for transdisciplinary, translational research to enhance health and reduce the effects of climate change; (b) identify transdisciplinary opportunities to advance translational research efforts; and (c) identify collaboration and integration needs.

Next Steps

As we are working on developing a transdisciplinary approach to climate and behavior change, these efforts need to be publicized among our members but equally importantly to the public in general. By making behavioral science relevant to existing problems, such as climate change

or gun violence, and by addressing fake news and science skepticism, we will have laid the foundation for staying relevant in a rapidly changing public health environment and create the crucial building blocks for effective advocacy.

How we address new scientific challenges has far-reaching implications for individual scientists and how we function as a professional society. To achieve our mission to improve the health of all through evidence-based science, it becomes increasingly clear that we as scientists and as a professional society need to take steps that are outside our academic traditional purview.

The Provocative Questions initiative, a crowd-sourced effort among the membership of SBM, identified major areas that speak to the core of behavioral medicine as a field and the goal to achieve better health for all. It also identified novel challenges that can draw on existing knowledge and approaches but also require new transdisciplinary and translational approaches to population health. For behavioral science to thrive and to maximize its impact, we need to improve our ability to communicate our science to the public and other scientific fields, as well as improve our outreach to professional societies and governmental and nongovernmental groups. To be successful, we need to build an infrastructure that educates scientists throughout their careers to become better communicators and advocates. The plan outlined here requires time and financial investments; the rewards, however, will be unparalleled.

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