Climate Change and Health Working Group

Report and Recommendations to the National Advisory Council for Nursing Research

June 2024
EXECUTIVE SUMMARY

The Climate Change and Health Working Group was established under the auspices of the National Advisory Council for Nursing Research (NACNR), the advisory council to the National Institute of Nursing Research (NINR). The Working Group was charged with recommending to the NACNR future directions for NINR-supported science within the area of climate change and health by identifying pressing research questions that could be addressed using nursing science’s multi-level approach to improving health. Between September and November 2023, the Working Group met four times to discuss the current state of the science and pressing research questions, and to develop recommendations for areas of research where nursing science and NINR can have the most significant impact in addressing the health effects of climate change. The Working Group believed that NINR and nursing science were well-positioned to play key roles in this area of research, and that NINR should be bold and creative in its thinking as it considers future research directions and mechanisms in climate change and health research. Nine overall recommendations were developed from the Working Group discussions. Note that the order in which these recommendations are listed should not be inferred to imply any priority order.

RECOMMENDATION SUMMARY

| 1. | NINR should support climate change and health research that incorporates a cross-cutting focus on health equity, health disparities, and social determinants of health. |
| 2. | NINR should support climate change and health research that has a strong focus on multilevel, multidisciplinary, and transdisciplinary research across a broad range of settings, communities, and populations. |
| 3. | NINR should support science that investigates the potential impacts of climate change on nutrition and food security and develop strategies for mitigating these impacts. |
| 4. | NINR should explore strategies for reducing the impact of climate-related disruptions and disasters on healthcare systems and services. |
| 5. | NINR should leverage its expertise in developing and testing strategies to build and reinforce adaptation and resilience in the face of climate change-related health impacts. |
| 6. | NINR should leverage its focus on community and population health to work with communities in developing strategies for mitigating the impact of climate change on health. |
| 7. | NINR should support the development of a cohort of trainees and new investigators with the knowledge and skills necessary to conduct rigorous and high-impact research on understanding and mitigating the health impacts of climate change. |
| 8. | NINR should support research that can inform policy decisions about climate change and health at the federal, state, and local government levels. |
| 9. | NINR should support research on improving the way that climate change and its impacts on health are communicated to the public. |
BACKGROUND AND MISSION

The National Institute of Nursing Research (NINR) supports nursing science that addresses the nation’s most pressing and persistent health challenges and informs practice and policy to optimize health and advance health equity. NINR’s strategic plan outlines five research lenses that form the core of the science the Institute supports: health equity, social determinants of health, community and population health, prevention and health promotion, and systems and models of care. NINR’s strategic vision leverages the strengths, and unique knowledge and perspectives inherent to the nursing discipline, to address urgent health challenges.

Climate change is expected to increasingly affect human health by threatening air quality, food and water supplies, housing, and other environmental factors directly related to health outcomes. The U.S. Global Change Research Program identified several exposure pathways for climate-related health effects, including extreme heat; reduced food, air, and water quality; changes in infectious agents; and population displacement. Health outcomes related to these pathways include heat-related illness; food-, water-, and vector-borne disease; respiratory disease; safety issues; and stress and other mental health consequences.

The National Institutes of Health (NIH) has recognized that now is the time to study the impacts of climate change on health and disease, and to produce the much-needed data and knowledge for communities to adapt and prevent further harm from unprecedented climate impacts. NINR serves on the executive committee for the NIH Climate Change and Health Initiative, an NIH-wide effort focused on mitigating climate risks and building resilience by researching health determinants and interventions at multiple levels. Through this initiative, NIH seeks to reduce health threats from climate change across the lifespan, and build resilience in individuals, families, communities, and nations around the world, especially among those at highest risk.

Nursing science has an important role in this effort because nurses and nurse scientists have firsthand knowledge of the direct impact of climate challenges on the health of communities and the people they serve. Nurses also understand the upstream causes for the persistent disparities we see between different groups of people and types of communities. Climate change and its effects, such as extreme heat, air and water pollution, and increasing allergens, among many others, are some of our biggest challenges, and NINR-scientists are well positioned to be leaders in developing solutions.
WORKING GROUP

At its May 2023 meeting, the National Advisory Council for Nursing Research (NACNR) approved the formation of a working group to consider future directions for NINR-supported research to address the impact of climate change on health. The Climate Change and Health Working Group, established under the NACNR in September 2023, was then charged with recommending to the NACNR future directions for NINR-supported science within this area of climate change and health. The Working Group was asked to identify pressing research questions that could be addressed using nursing science’s multi-level approach to improving health. The Working Group consisted of experts in nursing science, climate change and health research, public health, disaster research, and health equity/social determinants of health research and was co-chaired by an NINR Division Director and a member of the NACNR. A full list of the Working Group members can be found in Appendix B.

The Working Group met virtually four times between September and November 2023 to discuss nursing research’s potential role in addressing multiple factors related to climate change and health. During the Working Group’s robust deliberations, many potential research ideas were proposed and discussed, and were subsequently synthesized, and refined by the group during meetings and over e-mail. The Working Group’s ideas formed the basis for the recommendations presented in this report. The draft recommendations were provided to the NACNR at its January 24th, 2024 meeting. Overall, the Working Group concluded that:

- Nurses and nurse scientists have firsthand knowledge of climate-related health impacts on the communities and people they serve.
- Climate change-related health impacts on communities pose a challenge and are an ideal topic of interest for nursing research, with nurses poised at the intersection of science and society.
- NINR and nursing science are well-positioned to play key roles in this area of research.
- NINR should be bold and creative in its thinking as it considers future initiatives in climate change and health research.

RECOMMENDATIONS

Recommendation 1

NINR should support climate change and health research that incorporates a cross-cutting focus on health equity, health disparities, and social determinants of health.

Health equity and social determinants of health should be the primary foci for research on the impact of climate change. Existing evidence indicates that the health effects of climate change disproportionately impact communities that are already experiencing health inequities and add to the existing social and economic factors that underlie many health disparities. It is vital for any research into the health impacts of climate change, regardless of the specific topic, to include considerations and assessments of health equity and social determinants of health. Populations of interest include groups at higher risk of adverse health effects of climate change, such as agricultural and outdoor...
workers, Indigenous populations, rural and urban populations, and people with chronic conditions like asthma.

**Recommendation 2**

**NINR should support climate change and health research that has a strong focus on multilevel, multidisciplinary, and transdisciplinary research across a broad range of settings, communities, and populations.**

Multilevel approaches are central to research on climate change and health. These approaches should move beyond descriptive studies and include transdisciplinary, intervention, secondary analysis, and policy analysis methods. Studies should be well-powered and focused on implementation.

Research should consider both the long-term effects of climate change and health (e.g. drought, higher temperatures leading to food insecurity), as well as the immediate effects of climate change-related disasters (e.g. hurricanes leading to housing insecurity). The focus should be proactive rather than reactive.

Interventions should be based in the communities and settings they address, including school settings, clinics, health centers, migrant worker camps, and faith-based or civic organizations. Research could focus on healthcare systems, which could be made more resilient and nimble during climate disasters, ensuring access in times of crisis and providing community outreach.

**Recommendation 3**

**NINR should support science that investigates the potential impacts of climate change on nutrition and food security and develop strategies for mitigating these impacts.**

Research is needed in the area of mitigating the impact of climate-change related increased carbon dioxide levels, severe weather, and natural disasters on food security, supply, and quality. This could include research focused on concerns specific to certain communities and populations, such as reduced access to traditional foods and access to food in public assistance programs. Research could address climate change effects on food supply, quality, and security; effects of government (federal, state, local) policies; and uptake of more sustainable diets and food sources.

**Recommendation 4**

**NINR should explore strategies for reducing the impact of climate-related disruptions and disasters on healthcare systems and services.**

Research is needed on strategies for ensuring continued access to health care during climate-related disruptions and disasters (e.g. increasing severe heat and storms), particularly for at-risk populations and geographical areas. Priority should be placed on developing and testing climate disaster
planning, especially for underserved communities that are disproportionately impacted by the effects of climate change. For example, leveraging technology such as telehealth, including the lessons learned from the COVID pandemic, is an important area of research with untapped potential for solutions to healthcare accessibility. Other topics could include ensuring access to mental health care to aid in recovery from traumatic events, and assessing the impact of federal, state, and local government policies on health care in the face of disasters.

**Recommendation 5**

**NINR should leverage its expertise in developing and testing strategies to build and reinforce adaption and resilience in the face of climate change-related health impacts.**

Resilience is the capacity to protect, accommodate, and recover from the effects of a shifting climate and extreme weather events, which requires ongoing efforts to recognize, address and mitigate the impacts of climate change on health (NIEHS). Researchers should work to develop interventions and strategies for promoting resilience in coping with the health effects of climate change.

There is a particular need for this research in communities and populations already experiencing health disparities. For example, are resilience centers or hubs, such as heating and cooling centers that provide shelter during extreme weather, effective? How can they be more effective? The COVID pandemic is an example of an acute challenge that tested the resilience of communities and systems and that can inform future research.

Research topics should harness technology to build individual, community, and health system resilience. Furthermore, the research community should be mindful of terminology in developing recommendations in this area. For example, terms such as adaptation and resilience could be seen as related, but researchers would need to be clear about how resilience could be a form of adaptation or vice versa.

**Recommendation 6**

**NINR should leverage its focus on community and population health to work with communities in developing strategies for mitigating the impact of climate change on health.**

NINR’s strategic plan highlights the critical need for research focusing on community and population health. For any intervention to be successfully implemented, community input is necessary from the inception of the research and can be leveraged throughout the entire process. This can include partnering with schools, clinics, local businesses, unions, the energy sector, trade organizations, and many others affected by climate change. Researchers and clinicians should collaborate with communities to develop and implement solutions involving these diverse sectors of society.

Programs like NIH’s ComPASS initiative are using new and promising models of community-based participatory research, which could be particularly useful for communities like American Indian/Alaska Native populations and community organizations. Other research could look at new ways to create
thriving communities designed specifically to cope with changing climates, such as exploring strategies for designing built environments and investigating new types of agriculture.

**Recommendation 7**

**NINR should support the development of a cohort of trainees and new investigators with the knowledge and skills necessary to conduct rigorous and high-impact research on understanding and mitigating the health impacts of climate change.**

Training investigators in climate change and health research is crucial to successful efforts in this area. NINR should support training, workshops, and career development opportunities with a focus specifically on climate change and health research. Training in this area should focus on providing mentorship across disciplines and on forming transdisciplinary research teams, given the multifaceted and complex nature of the topic.

**Recommendation 8**

**NINR should support research that can inform policy decisions around climate change and health at the federal, state, and local government levels.**

NINR-supported research in climate change and health has the potential to impact policy at all levels of government. Such research could, for example, deepen our understanding of the impact of disaster-related policy changes on food availability, nutrition, and health. Such research could also inform policy changes related to improving resilience of healthcare systems, communities, public health systems, and many others. More work is needed to research the impact of recent government policy changes, particularly those made during the COVID pandemic, and to provide better evidence for future policy changes that could be needed to mitigate the effects of climate change on health.

**Recommendation 9**

**NINR should support research on improving the way that climate change and its impacts on health is communicated to the public.**

Climate change can be a controversial topic that requires clear communication to the public. NINR should research how the health impacts of climate change are communicated to improve the public’s understanding of the issue and to encourage uptake of strategies to mitigate these impacts. Specific topics could include testing communications strategies and methods that are adapted for different cultures, communities, and populations. Other research can explore how to frame messages that can cross societal divisions, including ideological and political boundaries.
APPENDIX A

Acronyms
NACNR National Advisory Council for Nursing Research
NIH National Institutes of Health
NINR National Institute of Nursing Research

APPENDIX B

Working Group Member List

Co-Chairs
- Betty Bekemeier, PhD, MPH, RN, FAAN, Professor, School of Nursing, University of Washington
- John Grason, PhD, Director, Division of Science Policy and Public Liaison, NINR

Members
- Alexandra Adams, MD, PhD, Director, Center for American Indian and Rural Health Equity, Montana State University
- Adelita Cantu, PhD, RN, FAAN, Associate Professor, UT Health at San Antonio
- Lauren Clay, PhD, MPH, Associate Professor and Department Chair, Department of Emergency Health Services, University of Maryland, Baltimore County
- Kelli DePriest, PhD, RN, Research Public Health Analyst, Program and Policy Evaluation to Advance Community Health, RTI International
- Katie Huffling, DNP, RN, CNM, FAAN, Executive Director, Alliance of Nurses for Healthy Environments
- LaRon Nelson, PhD, RN, FNP, FNAP, FNYAM, FAAN, Associate Dean for Global Affairs & Planetary Health, Yale School of Nursing
- Julie Postma, PhD, BSN, Associate Dean for Research, College of Nursing, Washington State University
- Teddie Potter, PhD, RN, FAAN, FNAP, Clinical Professor, Director of Planetary Health, School of Nursing, University of Minnesota
- Daniel Jackson Smith, PhD, AGPCNP-BC, CNE, Weingarten Endowed Assistant Professor, M. Louise Fitzpatrick College of Nursing, Villanova University

NINR
- Hristina Denic-Roberts, PhD, MSc, RN, Presidential Management Fellow, Health Specialist, NINR
- Bill Duval, PhD, Deputy Director, Division of Extramural Science Programs, NINR
- Catherine Timura, Health Science Policy Analyst, Division of Science Policy and Public Liaison, NINR
BETAH Associates

- Joanna Case
- Tamara Henry, Ed.D
- Wayne Pereanu
- Lyriq Robinson
- Sean Tolliver