

The National Cancer Institute: A Hub for Psychological and Behavioral Sciences

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Psychology and other behavioral sciences have long helped address important social issues. Health — specifically cancer — is no exception. Psychological research elucidates the way in which people make health decisions, the effects of stress and other psychosocial factors on the development of disease, and the role that communication plays in the adoption of health behaviors. The National Cancer Institute (NCI) is at the forefront of funding and promoting research in these and many other related areas. NCI is committed to advancing basic and applied research in the behavioral sciences that, independently or in combination with biomedical approaches, reduces the burden of cancer. NCI's Division of Cancer Control and Population Sciences (DCCPS) fosters transdisciplinary collaboration to accelerate progress in cancer control in areas such as tobacco use, cancer screening, health communication, dietary behavior, physical activity, and sun protection.

NCI and You

The breadth and depth of psychological and behavioral science research conducted and supported by NCI is remarkable. In Fiscal Year 2008, NCI funded an investment of \$292,073,805 in behavioral and social science grants for scientists at various stages of their career. For example, the Established Investigator Awards (K05) (<http://grants.nih.gov/grants/guide/pa-files/PA-09-088.html>) provide senior investigators protected time to devote to research and to act as mentors for young investigators. K05 awards are reserved for established scientists who sustain a high level of research accomplishments in cancer prevention, control, and population sciences. Barbara Andersen, Michael Andrykowski, and William Redd are exemplar psychological and behavioral scientists that have received this award.

The DCCPS encourages psychological scientists to consider NCI as a funding source. Researchers can find information online (<http://dccps.nci.nih.gov/index.html>) about programmatic priorities in the Behavioral Research Program and the Office of Cancer Survivorship, two programs within the Division that house most of NCI's psychological and behavioral science research.

A Fertile Platform to Test Emerging Theory

An overarching emphasis of the NCI program in behavioral research is the development and evaluation of improved health behavior theories and interventions to promote healthy behavior (http://cancercontrol.cancer.gov/brp/theories_project/index.html). NCI actively recruits scientists with strong theoretical backgrounds into cancer control research and identifies opportunities for theory-focused research and novel collaborations. Emerging challenges in cancer prevention and control are fertile platforms to test classic and novel theoretical perspectives from social and personality psychology. Although behavioral science has been successful in developing interventions to initiate behavior change, interventions that sustain long term behavior change are still needed. Research to examine the ongoing cognitive, affective, and physiological processes that underlie decision making in

initiating and maintaining healthy behaviors is paramount.

Health numeracy, the ability to understand and apply quantitative health information to make effective decisions, is one example of an area that is ripe for the development and application of psychological scientific theories. In the 2007 *Psychological Science in the Public Interest* report, “Helping Doctors and Patients Make Sense of Health Statistics,” Gigerenzer et al. discuss health numeracy and its impact on health care. Multiple studies have found low numeracy to be associated with adverse health outcomes, inferior disease management, greater hospital utilization, and poor medication compliance. However, much of the research on health numeracy to date has been descriptive and unmotivated by theory, allowing great opportunity for those interested in this research area, such as cognitive psychologists.

NCI supports prolific programs of research grounded in social and personality psychology. In addition to those investigators featured in the sidebars, many social psychologists have found NCI to be a funding source for strong research, including Geoffrey Fong’s work on tobacco policies and warning labels, Joel Cooper’s work on applications of cognitive dissonance theory to sunscreen use, Marie Helweg-Larsen’s work on the moralization of smoking, and John Updegraff’s testing of message framing hypotheses in the context of cancer screening.

Teamwork Across the Cancer Continuum

NCI recognizes that integration of theoretical, methodological, and empirical perspectives from diverse disciplines strengthen transdisciplinary approaches to cancer control. NCI has invested in several large transdisciplinary research initiatives with solid psychological foundations, including:

Transdisciplinary Tobacco Use Research Centers

(http://dccps.nci.nih.gov/tcrb/research_topic-transdisciplinary.html)

Transdisciplinary Research on Energetics and Cancer Centers (<http://dccps.nci.nih.gov/trec/>)

Centers of Excellence in Cancer Communication Research

(<http://dccps.nci.nih.gov/hcibrb/ceccr/ceccr-index.html>)

The study of transdisciplinary collaborations is a rapidly emerging field. NCI is invested in supporting research to understand and manage circumstances that facilitate, or hinder, the effectiveness of large-scale research, training, and translational initiatives

(<http://dccps.nci.nih.gov/brp/scienceteam/index.html>). Research related to small groups, social networks, and relationships is likely to be useful in understanding successful team-based scientific collaborations.

NCI offers research opportunities and resources for psychological scientists in decision making, health communication and informatics, and survivorship, among other areas. NCI supports research to enhance the understanding of the human decision making process, so that individuals can make more informed and satisfying choices regarding their health, health care, and quality of life

(http://dccps.nci.nih.gov/bbrb/ba_decision_making.html). This priority area evolved from a series of NCI-sponsored meetings that examined how decision making can inform cancer prevention and control efforts; participants included George Loewenstein, Baruch Fischhoff, Peter Ubel, Donald Redelmeier, and Ellen Peters.

Areas of opportunity in survivorship research include designing and testing interventions that have the potential to improve quality of life, prevent or diminish adverse treatment-related symptoms, promote healthy lifestyle behaviors, lengthen survival, and decrease the need for medical care among survivors. Psychological science can contribute to our understanding of cancer caregiving in the familial context.

Researchers are encouraged to stay informed about funding opportunities, policies, and announcements at <http://cancercontrol.cancer.gov>. For more information about psychological and behavioral research at NCI, please contact Paige Green McDonald, Chief, Basic and Biobehavioral Research Branch, Behavioral Research Program, Division of Cancer Control and Population Sciences, NCI (mcdonalp@mail.nih.gov).

Featured NCI-Funded Behavioral and Psychological Researchers

Angela D. Bryan

University of New Mexico

My evolution as a social psychologist studying health behavior was somewhat convoluted. I was originally interested in changing health behavior, and, thus, my interest in social psychology was a way of understanding health behaviors that were uniquely “social” in nature, like condom use. What I quickly learned was that social psychological theories and methodologies uniquely suited a wide range of health behaviors. Across the years, I’ve applied those theories and methodologies to behaviors including sexual risk reduction, breast self-exam, resistance training, and aerobic exercise.

My interests in health behavior have progressed into a truly biopsychosocial perspective, one that incorporates biological, psychological, and social domains. The main focus of my research is the development of theory-based models of health behavior that are informed by basic social psychological theories (e.g., health belief model, theory of planned behavior, social cognitive theory) as well as behavior predictors for specific sub-populations. Recently, these models have broadened, in line with the biopsychosocial approach, to include genetic, physiological, neurocognitive, and affective predictors.

As an example of this transdisciplinary approach, my research team has developed a program to assess differential psychological and physiological responses to exercise and the possible genetic and biological substrates of those responses. In a first set of studies funded as Small Research Grant (R03) by NCI, we tested the influence of responses to cardiovascular exercise on future exercise behavior. The promising initial results supported our transdisciplinary model of exercise behavior. More importantly, the work from this R03 laid the groundwork for a Research Project Grant (R01) from NCI to implement and evaluate an intervention to increase exercise behavior among sedentary participants. Had it not been for NCI’s Small Grants Program, I would not have set a course for what has become a very exciting and productive line of work in cancer prevention research. NCI, and Robert Croyle in particular, support not only the work of the social psychologist, but the important and necessary efforts of social psychologists to become integrated into health behavior change through interdisciplinary collaboration. This is where the future of health research lies, and social psychologists—with their strengths in theory and strong methodology—have a huge role to play.

Jamie Arndt

University of Missouri

I have always been excited by studying “big” questions about fundamental aspects of the human condition, particular those with an existential flavor. But like many starting out, upon arriving at the University of Missouri 10 years ago, I was confronted with the career relevant reality of seeking extramural funding. For those with basic science interests, this can be a daunting reality, even more so with the current funding climate. Combing through possibilities, Jamie Goldenberg and I noticed two curious reflections of the current health and social psychology literatures. First, that terror management theory — a theory focused on the psychological implications of peoples’ awareness of death — had been mute about anything pertaining to physical health, and second, that the health literature was just as silent about the potential motivational role that awareness of death may play in people’s health decisions. This struck us as surprising given that death would seem to be rather hazardous — if not relevant— to physical well-being.

We pitched our ideas to Robert Croyle from NCI, and his encouragement inspired us to articulate the applicability of the terror management analysis to understanding health decisions people make as they navigate through daily affairs. We set off with a proposal to NIH/NCI and were fortunate to get funded, and this support has illuminated the benefits of taking basic science theories into health domains. We find that, in many cases, playing in a health relevant ballpark can narrow one’s operational options and, in so doing, actually facilitate creative research. This harks back to Eric Fromm’s classic idea that too much freedom can restrict creativity as one ponders what to do instead of the best way to do it given a certain framework. We’re also seeing that as we traffic in health affairs — in the cancer relevant fears that people confront on a daily basis — it compels a more critical examination of the conceptual constructs that your theory considers. This can stimulate theoretical growth, while also inviting ways to enhance healthy decision making.

To be sure, these discoveries and growth would not have been possible were it not for the support of NCI. NCI has, for us, provided a means to put the archaic distinction between basic and applied research in the closet, and they’ve opened the door to recognizing that each can enrich the other.

Alexander J. Rothman

University of Minnesota

Throughout its history, social psychology has been poised to provide insights into the factors that underlie important practical problems and to guide the design and implementation of interventions that enhance our world. A vexing challenge has been how to capitalize on this knowledge — what can be done to facilitate the application of basic behavioral science principles to an applied problem, and do so in a manner that informs both practice and theory? As a young assistant professor at the University of Minnesota, I initiated a program of research that focused on the intersection of basic and applied behavioral science (with an emphasis on models of health communication, health judgment, and behavior) and had nurtured collaborations with colleagues in disciplines outside psychology (e.g., epidemiology, medicine). These initial efforts reflected my doctoral training in psychology. Yet, as I reflect today on how my research program has evolved, it is clear that the structure of my work has been shaped by the NCI-led initiatives that I have participated in.

In 2000, I helped launch an initiative designed to promote innovations in the development, application, and evaluation of theories of health behavior. Through my work on the Theories Project (http://cancercontrol.cancer.gov/brp/theories_project/index.html), I have had the invaluable opportunity

to participate in a broad series of projects, including the Advanced Training Institute on Health Behavior Theory, the Stimulating Advances in Behavioral Theory: Applications to Cancer Screening workshop, and the Using Mediation and Moderation Analyses to Enhance the Link Between Psychosocial Models and Behavioral Interventions program, that have helped me to develop the knowledge base and skills necessary to pursue questions that sit at the intersection between disciplines and work collaboratively on multi-disciplinary teams. Through these initiatives, the NCI/DCCPS, under the leadership of Robert Croyle, has challenged me to articulate how the methods and theory that comprise social psychology can reduce the burden of cancer. Because of this work, I have become more confident that social psychology has a tremendous amount to contribute to improving health throughout the cancer care continuum. Yet, at the same time, this work has led me to be more humble about what we have achieved and more mindful of the evidence base that is needed if advances in the basic behavioral sciences are to enhance the design, implementation, and evaluation of intervention programs.

William Klein

University of Pittsburgh

Health is a fruitful and exciting context in which to test, develop, and apply many theories in social psychology. It is domain relevant throughout the life span, and it offers many interesting behavioral variables. Health is a fertile platform for doing the kind of cross-cutting basic and applied research that Kurt Lewin envisioned as central to a thriving discipline.

Throughout my career I have been interested in a variety of social psychological concepts — social comparison, self-perception, self-affirmation, unrealistic optimism, and perceptions of ambiguity — all of which have lent themselves well to examination in a health context. In earlier work, I investigated the ways in which people protect cherished beliefs about their health attributes and the implications of these defensive processes for behavior and other outcomes. This work derived from the theoretical traditions of motivated reasoning, positive illusions, and social comparison; contributed to theory development in these areas; and concomitantly offered potentially useful strategies designing effective health communications.

In recent work, I was funded by NCI to test how self-affirmation and social comparison information might be used to encourage adherence to colorectal cancer screening guidelines. Years ago, I might not have sought out NCI to fund my work — I was trained at a time when NIMH and NSF provided most of the funding for social psychologists. NSF has continued to do well, but as we know, NIMH is no longer a viable option for most. Enter NCI, whose Division of Cancer Control and Population Sciences is directed by a fellow social psychologist, Robert Croyle. Over the last 10 years, NCI has staked out an impressive place at the table of many discussions about behavioral and social science research, aided by Croyle's vision and buttressed by the largest budget at NIH. One need not reflect long to see the many ways our theories and findings are relevant to cancer, given the multiple behaviors linked to cancer (tobacco use, viral exposure, sunscreen use, diet, physical activity), the role of communication in health care, and the importance of personal relationships in health outcomes. That NCI has recognized the role that social psychology and other behavioral sciences can play in research on these topics is much to our benefit. I have certainly been one such beneficiary, and I am deeply appreciative to have the support to do theory-driven experimental work that can also help solve a problem.