



Healthy State of Mind and Body

*Center for Health and Behavior researchers
explore the relationship between
the mind and body in
studies designed to
improve overall
health*

By Kathleen Haley

ILLUSTRATION BY CHRIS BUZELLI

At a Syracuse area senior living facility, psychology professor Martin Sliwinski and his research team delve into connections between stress and intellectual functioning in older adults. In one study, 100 residents from the facility and the community were asked about their daily experiences, underwent physiological testing, and completed a set of mental exercises each day for six days, every six months. The results were revealing. "Our ability to pay attention and concentrate goes up and down from one day to the next, depending upon how much stress we have that day," Sliwinski says. "A very heavy stress day, as compared to a day with no stress, produces an effect on these tests that's roughly equivalent to aging four years."

Sliwinski and his colleagues at the Center for Health and Behavior (CHB) are making these and other curious discover-



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PROFESSOR MICHAEL CAREY

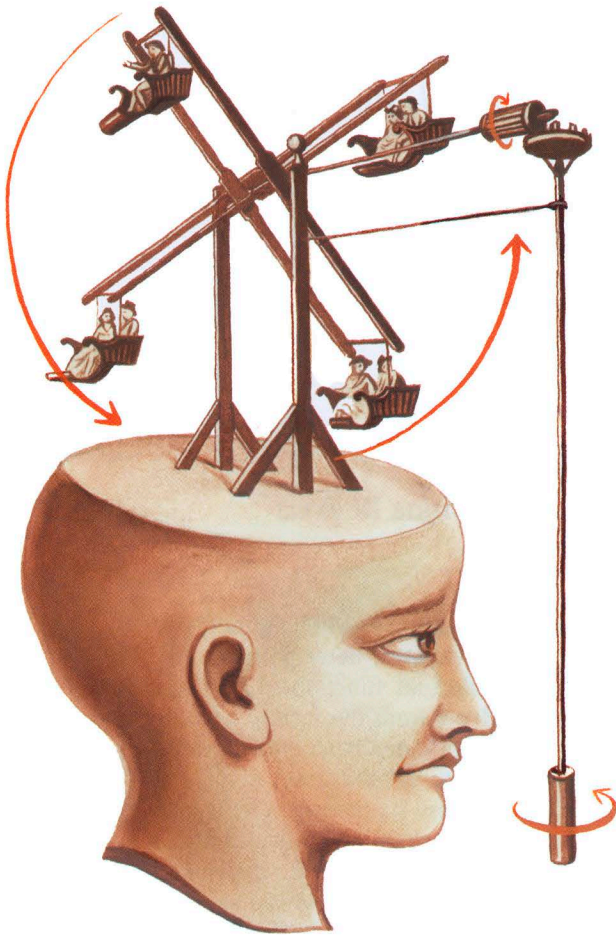


Fig. 7

ies in the realm of mind over matter. Nested within the Department of Psychology at the College of Arts and Sciences, the CHB’s senior scientists, research faculty, and students are contributing new ways of thinking about disease prevention and intervention and mental and physical wellness. As psychologists, they do some work in traditional mental health contexts, but their scope is much broader and interdisciplinary, says Professor Michael Carey, the center’s director. “We believe the mind and the body are interdependent,” Carey says. “We generate scientific evidence about the impact of thoughts, feelings, and behavior on important health outcomes.” CHB researchers routinely collaborate with nurses, nutritionists, and physicians to tackle a variety of issues, including stress and cognition, smoking and alcohol misuse, and HIV prevention. In exploring the mind-body connection, many of the scientists test such interventions as counseling and group sessions to promote healthier behaviors. Their research takes them into the community and beyond, working with scientists at other institutions in the United States and abroad.

The notion that psychology may impact disease and health is relatively new. “The field of medicine resisted the idea that thoughts and emotions could influence physiological conditions,” psychology professor Craig Ewart says. As research expanded in the early ‘90s, health professionals more fully recognized the theories of health psychology. “A lot of solid evidence shows that behavior is strongly implicated in morbidity and mortality of the major diseases that are killing us today,” Carey says. He notes chronic illnesses—heart disease, diabetes, cancer—can result from the long-term effects of poor diet, physical inactivity, smoking, and stress. “It’s possible to significantly reduce the prevalence of those diseases by making changes in lifestyle and behavior,” he says. In addition, some infectious diseases can be avoided through lifestyle practices, such as washing hands frequently to prevent the spread of the flu or using condoms to protect against HIV transmission.

Some population groups represent the best of healthy lifestyle practices that are believed to be at the root of a long life. For instance, the people of the Japanese island of Okinawa have the longest life expectancy on Earth, which researchers attribute, in part, to their healthy lifestyle. “They eat many vegetables, keep active, practice tai chi to manage stress, and have strong social and family networks,” Carey says. “Certainly longevity is determined by genetics, but it can also be profoundly influenced

by lifestyle. If we implement healthier behaviors, we can reduce disease morbidity and optimize longevity in the United States and globally.”

Research may reveal the healthiest practices, but people must be willing to adopt those practices into their lives. “Our role is to obtain scientific evidence with strong research methods, and present it dispassionately so that it can influence public policymakers and be acted upon by citizens,” Carey says. Encouraging behavior change to improve health—whether through counseling, media campaigns, or other types of interventions—continues to grow as a research focus. The success of CHB scientists in breaking new ground in this field is apparent in the funding they have received. “The center’s growth rate for sponsored research is one of the highest on campus,” says Gina Lee-Glauser, associate vice president for research at the University’s Office of Research, which oversees the administration of funded projects. In 2005, CHB received six new awards totaling more than \$4.6 million. Total new and continuing awards include 23 projects that will bring in more than \$23 million to SU and the center’s partners during the lifetime of the projects. Most of the support comes from the prestigious National Institutes of Health (NIH) and its component institutes, including the National Institute of Mental Health; the National Heart, Lung, and Blood Institute; and the National Institute on Aging. CHB also accepts private funding to support its general operations.

STRENGTHS AND TRENDS

CHB was established in 1999 to capitalize on the strengths of department faculty, recognizing the trends in the field of public health and health psychology and the increasingly important role of behavior with respect to health outcomes, Carey says. Ewart, then psychology department chair, and Carey formally proposed the formation of the center with an administrative staff to facilitate the timely completion of the department’s growing portfolio of grants. As a consequence of the CHB, faculty applications for NIH funding are even more compelling because a strong infrastructure helps attract funding. “The criteria for NIH funding is not only in terms of science and innovation, it’s also the feasibility and whether you have the support to carry it out,” says Professor Barbara Fiese, chair of the psychology department.

Today, the center’s administrative staff members oversee grants that average \$1 million and more annually. Computer support staff members maintain the center’s networks and servers, which hold mountains of research data collected from phone interviews, web-based surveys, PDAs, e-mail, and audio- and videotaping. “With this strong research

support, the center enables us to recruit the best faculty,” Ewart says.

Professor Monica Webb, who joined the psychology department last fall, considers CHB as a crucial factor in her decision to come to SU. “The center has a strong infrastructure for grant acquisition and support from a research perspective,” she says. “The research is in line with my interests.” Webb examines individualized and group interventions for smoking cessation, including smoking behavior among African Americans. “On average, African Americans have a higher rate of smoking and have a higher rate of morbidity and mortality from smoking than the general population,” Webb says. “There’s a huge health disparity.”

The center’s work also provides opportunities for undergraduate, graduate, and post-doctoral students to join research teams (see “Training the Next Generation of Researchers,” page 32). In addition to CHB, Ewart established the Allport Project to help undergraduates develop research skills through new opportunities created by the center’s work and expanding resources. “All of the students gain invaluable experience working on state-of-the-science projects,” Carey says. “The scientists get to work with enthusiastic, bright young people who bring a lot of good ideas.” The community gains from the center’s work in collaboration with other universities, hospitals, community-based organizations, and school districts. “With certain projects, they get the benefit of what we believe to be the best intervention for health behavior change, stress management, or coping with chronic illness,” Carey says. The center also contributes to community learning by sponsoring an annual lecture. This year, for example, internationally recognized human longevity scholar S. Jay Olshansky explored the topic, “Will Human Life Expectancy Decline in the 21st Century?”

RESEARCH DIVERSITY

In the quest to understand what it takes to live long, healthy lives, the center’s scientists focus on an array of health-related topics in different settings inside the lab and out in the world. At Syracuse’s Henninger High School, for instance, Ewart directs Project Heart, a program he started at Johns Hopkins University in Baltimore to investigate how social stress early in life contributes to the development of heart disease. Ewart and his team measure the cardiovascular reactions of students by having them wear ambulatory blood pressure monitors for two days and fill out questionnaires about their activities and emotions on a Palm Pilot, which they get to keep in return for completing the project.

Ewart’s research examines young people’s “self-endeavors,” which involve goals, strategies for



Training the Next Generation of Researchers

Student researchers at the Department of Psychology's Center for Health and Behavior (CHB) learn the latest research techniques and begin to see the connections between psychology and health. The scientists they work with gain enthusiastic assistants, eager to assist with labor-intensive research projects, often in collaboration with community partners. "It's a reciprocal relationship," says psychology professor and CHB director Michael Carey. "Students benefit a great deal in terms of their intellectual, social, and emotional development. They see how to implement the discipline of psychology in the real world, which prepares them extremely well for their next step. The senior scientists benefit from the students' energy and their fresh take on things."

Clinical psychology doctoral student Jennifer Brown serves as a research assistant for Professor Peter Vanable, who examines HIV prevention and health promotion. Because of her positive research experiences, Brown plans to pursue a research position after completing a master's degree. "I have gained a foundation of research skills," she says. "I enjoy the research process and working collaboratively with faculty to assist with research. I especially enjoy working with the participants in the studies and seeing firsthand the impact that the research has on their lives."

Research assistant Lindsey Ross '06 worked with Vanable, Professor Joshua Smyth's Stress Health and Daily Experiences (SHADE) lab, and Professor Craig Ewart on Project Heart, a heart-related study involving young people. She appreciated the scientists sharing their insights and expertise. "The research process and the high degree of creativity and ingenuity that go into these studies is fascinating," Ross says. "It is amazing to think of all the different applications and uses for psychological research, especially within clinical health."

Lance Weinhardt G'97, G'99 developed his research skills, writing, and mastery of his specialty while working at Carey's lab and the CHB. "These abilities put me in a position to jump into complex, large-scale research projects upon graduation and to quickly develop my own lines of research," says Weinhardt, an associate professor of psychiatry and behavioral medicine at the Medical College of Wisconsin in Milwaukee. He researches approaches to HIV prevention and ways to help people with HIV maintain their health. "Perhaps, most importantly, Professor Carey's lab was a fantastic environment for learning how to bridge disciplines—in my case, psychology and public health," he says. "This has been invaluable in succeeding in an academic medical setting."

The center's scientists collaborate with colleagues among various disciplines, which makes for stimulating work, Carey says. "For our students, it takes them out of the traditional academic silo and allows them to contribute to the solution of real-world problems," he says. "This is a boon to their professional development."

achieving them, and how these goals affect social relationships and emotional experiences. The team discovered that young people who are often stressed because they're trying to control other people and social relationships have higher blood pressure than young people who stress about such issues as improving a skill or performance in school. Interpersonal—or “agonistic”—stress appears to be especially damaging to cardiovascular health. “The stresses of living in a difficult school or family environment and agonistic self-endeavors combine to affect neural and hormonal regulation in the vascular system and heart,” Ewart says. “The discovery of the agonistic pattern suggests that, for many young people, heart disease prevention should include early training in relationship skills.”

In other CHB research, college students are the focus of the Substance Use Risk Education Project, a series of studies evaluating brief interventions designed to reduce risky drinking. Professor Kate Carey, the lead investigator who works with professors Michael Carey (her husband) and Stephen Maisto on the project, is interested in how social drinking turns into problem drinking. “The negative consequences might be as minor as having a hangover or missing a class, or as serious as sexual assault and getting in trouble academically,” Kate Carey says.

College drinkers make changes in the quantity and style of their drinking frequently, and this fluidity provides opportunities for risk reduction. Researchers provide them with personalized feedback on how alcohol abuse affects their reaction times, memories, and cognition, and how it may lead to negative consequences. “We lay out their self-description as a point of departure about the role alcohol is playing in their lives,” Kate Carey says. “It gets them to think about how drinking fits with their long-term goals, and we work with them to implement risk reduction plans.” Scientists want to learn whether motivational interventions are a positive experience for students and provide an effective risk reduction tool for college campuses. “The data show that interventions reduce riskier behavior and decrease the number of problems students report,” she says.

Targeted interventions for improving health are the focus for many CHB scientists. Professor Peter Vanable, who studies HIV and coping with chronic illness, is collaborating with Michael Carey and Dr. Donald Blair of SUNY Upstate Medical University to develop an intervention to improve the health and adjustment of HIV-infected people. In partnership with the Upstate Medical University Infectious Disease Clinic, trained facilitators lead

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PROFESSOR JOSHUA SMYTH

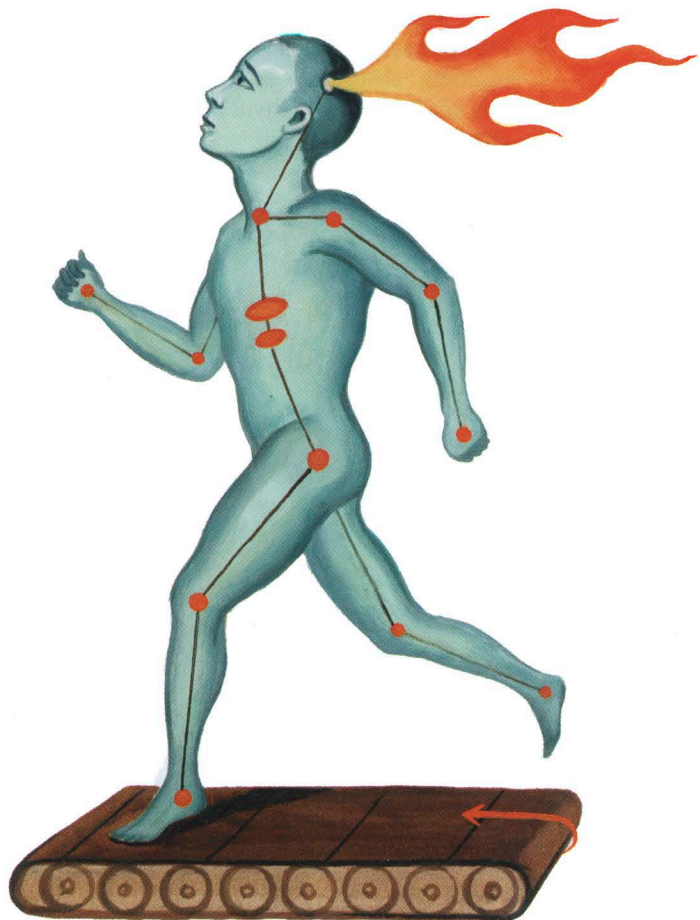


Fig. 12

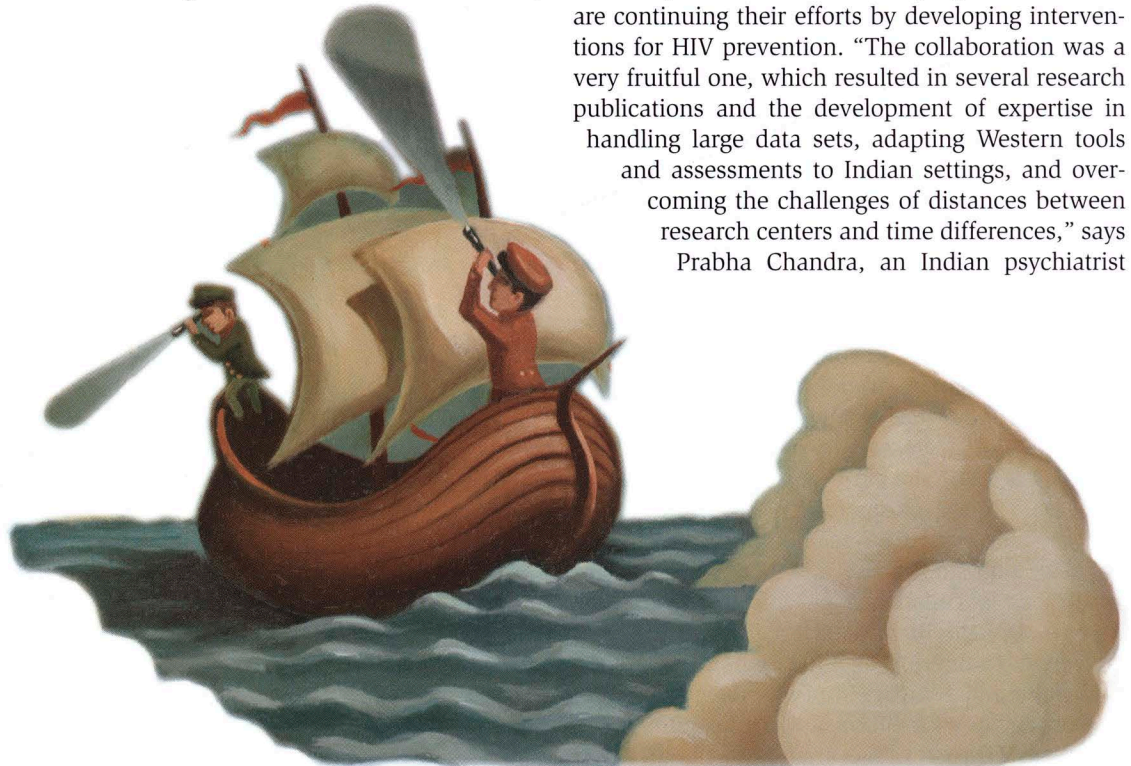
group sessions to help patients cope with their illnesses. "A big part of my work is developing interventions to promote health behavior change," Vanable says. "The goal is to help people living with HIV disease to develop and maintain healthy intimate relationships."

Working with investigators from Brown University, the University of Pennsylvania, Emory University, the University of South Carolina, and Wayne State University, Vanable and Michael Carey are also testing an HIV prevention strategy for high-risk youths. "The focus is to develop an approach to help sustain behavior change among African American teens, a group that has been disproportionately affected by the epidemic," Vanable says. The researchers are working with the Philadelphia media firm MEE Productions to test the effectiveness of a mass media campaign featuring culturally tailored radio and television spots designed to appeal to urban youth. The firm will launch the campaign in Syracuse and Providence, Rhode Island, this fall with ads that promote abstinence and sexual risk reduction. The media campaign will be combined with small group interventions implemented at the Southwest Community Center and other centers in Syracuse and three other cities, where young people will learn about HIV and other health concerns. "Our interest," Vanable says, "is in testing whether a culturally tailored media campaign can augment the effects of small group interventions."

In another large-scale intervention initiative,

Michael Carey is lead investigator on a five-year collaborative research project in partnership with the University of Rochester and the Monroe County Health Department, whose aim is to develop an effective HIV prevention strategy for use in sexually transmitted diseases (STDs) clinics. In the two-stage intervention, nurses gather information on a participant's medical history, conduct an exam, and give a brief motivational counseling session. Patients return for a four-hour workshop to develop interpersonal skills to protect themselves in intimate relationships. "We're sponsored by NIH, but the Centers for Disease Control in Atlanta has expressed a lot of interest," says Carey, who is collaborating at SU with Vanable and post-doctoral fellow Theresa Senn. "If our findings are encouraging, we will disseminate the program nationally."

Internationally, Michael and Kate Carey are collaborating with scientists at the National Institutes of Mental Health and Neuro Sciences (NIMHANS) in Bangalore, India, on the Health Improvement Project-India. Michael Carey first traveled to India in 1999 as part of a delegation from the NIH to share research methods with the Indian Health Ministry. As a result of the visit, a project emerged on HIV risks in persons with mental illness and a history of substance use. Two thousand people participated in studies designed to determine the prevalence of HIV and other STDs in India, describing sexual health practices and risk behavior, and testing the feasibility of a risk reduction program. Scientists are continuing their efforts by developing interventions for HIV prevention. "The collaboration was a very fruitful one, which resulted in several research publications and the development of expertise in handling large data sets, adapting Western tools and assessments to Indian settings, and overcoming the challenges of distances between research centers and time differences," says Prabha Chandra, an Indian psychiatrist



and NIMHANS scientist. “Hopefully, this will be a prelude to ongoing collaboration.”

STRESSED OUT?

Stress, like unprotected sex and smoking, can be linked to human disease. In the Stress Health and Daily Experiences (SHADE) Project, Professor Joshua Smyth and his team research how stress from day-to-day life impacts health and emotional-psychological well-being, especially for those with chronic diseases (such as asthma or rheumatoid arthritis). Participants record their daily experiences—including mood, stress, diet, sleep habits, and symptoms from any chronic illnesses—on a Palm Pilot, and researchers then download the information for analysis. “People with a high frequency of negative emotional states or stress experience physiological changes that we know put them at risk for negative outcomes, such as becoming ill from infectious diseases like cold or flu,” Smyth says. “For individuals with chronic diseases, we see that these short-term negative emotional states can increase the severity of their disease-specific symptoms.” As part of the study, scientists are developing and administering interventions to manage stress and negative emotions, Smyth says. “We find we can teach people better emotional stress management techniques that, in turn, improve their emotional well-being and reduce their disease-specific symptoms.”

Instead of looking at the effects of stress on disease, Professor Sliwinski examines stress as it relates to cognitive functioning. His ongoing project, the Cognition Health and Aging Process, explores how physical and mental health can influence the kinds of changes in memory and concentration that are attributed to aging. “It’s understanding why some people are able to maintain a high level of functioning into extremely old age, while other people fail to do so,” he says. “We are identifying the underlying physiological and health processes that cause age-related declines.”

Research at the Nottingham, a senior living facility in Syracuse, indicates cognitive functioning changes rapidly from day to day, possibly because of stress levels. “If stress has a deleterious impact on mental functioning in older adults, that could suggest avenues for interventions to optimize mental functioning,” Sliwinski says. “For example, cardiovascular exercise can protect you from Alzheimer’s disease and keep you mentally sharp. Similarly, we’re looking for other types of interventions that help in this same way.”

In examining stress in children, Professor Fiese and her team are looking at factors that reduce stress and promote better health for children with asthma. They are researching why asthmatic chil-

dren ages 5 to 12 adhere better to taking their medications if they are part of a family with routines. “If there are more regular routines in the home, they will take their medicines more regularly and there are less disruptions in the home,” Fiese says. “And the children are better regulated biologically.” Fiese’s study, which is part of the Family Health and Child Well-Being Project, involves interviewing families at the project’s research site on Ostrom Avenue in Syracuse, a former residential home with a comfortable living area and kitchen. The team also collaborates with Dr. Ran Anbar, chief of pediatric pulmonology at Upstate Medical University. The families are videotaped at their homes during mealtimes, allowing researchers a glimpse into family patterns. “Mealtimes provide a sense of belonging and refuge, which reduces stress and brings predictability,” Fiese says. “That means children are more likely to stick to complicated medical regimens.”

RESEARCH RECOGNITION

To share their findings on reducing stress and improving health practices, Fiese and other CHB scientists publish their work in a variety of scholarly journals covering medicine, nursing, public health, and psychology, and in such interdisciplinary journals as the *Annals of Behavioral Medicine*. Based on the scholarly research and the impact of the work, the Department of Psychology’s doctoral program in clinical psychology—of which every faculty member in the program is a CHB member—was recently ranked 17th out of 150 such doctoral programs in the United States, according to a Louisiana State University study. “CHB brings the University prestige and recognition because of its research, publications, student mentoring, and community engagement,” Lee-Glauser says. The center’s impact on society is not only in academe, but also in the scientists’ intervention programs that serve underrepresented groups with educational outreach. “They are not just ‘ivory tower’ researchers,” Lee-Glauser says. “They translate their research to everyday citizens.”

In the study involving patients at a Rochester STD clinic, more than 1,000 people have already volunteered to learn self-management skills to prevent contracting an STD, protect themselves from relationship violence, and optimize the quality of their relationships. “We see similarly high interest across CHB projects by participants who see the relevance of the research,” Michael Carey says. “The work speaks to people’s interest in self-care as well as complementary and alternative medicine. The idea is to be an active participant in your own health care, educate yourself, and collaborate with your health care provider.”