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2019 **TRENDS REPORT**

OUR ANNUAL GUIDE TO CHANGES
AHEAD FOR PSYCHOLOGISTS
IN PATIENT CARE, RESEARCH,
TECHNOLOGY, SOCIAL
JUSTICE AND MORE





10 TRENDS TO WATCH IN 2019

This year's report on the trends emerging in the psychology field features areas where psychologists' research and interventions are transforming patient care, as well as emerging areas that have the potential to change psychology itself.

Not surprisingly, several of this year's trends focus on technology.

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Even if we could halt greenhouse gas emissions tomorrow, the carbon dioxide already in the atmosphere will fuel warming for decades to come. We have no choice but to deal with the fallout.

1

CLIMATE CHANGE IS OUR CALL TO ACTION

Organizations and policymakers are tapping into psychologists' expertise to find ways to mitigate climate change and help people adapt to a warming world **BY KIRSTEN WEIR**

VEETERZY/UNSPLASH

WHEN IT COMES TO THE SCIENCE of climate change, psychology has long taken a backseat to the geophysical sciences. Now, more organizations and policymakers are recognizing the vital role that psychology can play in finding solutions to mitigate global warming—and helping people adapt to the inevitable changes to come. ¶ “Psychology is about contributing to human well-being—climate change is a significant present and emerging threat to that well-being,” says Patricia Winter, PhD, a research social scientist at the U.S. Forest Service’s Pacific Southwest Research Station, in Albany, California. “There’s a place here for every subspecialty within psychology, if we work together to find it.” ¶ Traditionally, much of psychologists’ work on climate change has been in areas of behavior change, environmental decision-

making and how to effectively communicate pro-environmental messages: How do you get people to reduce energy use? What incentives encourage people to buy electric cars?

Such research continues to be essential, says Robert Gifford, PhD, a psychologist at the University of Victoria, British Columbia, who studies the interface of environmental, social and personality psychology.

“Climate change is a human problem. It’s the result of 7.6 billion people making decisions every single day. That right there makes it a psychological problem,” he says. And psychology has the tools to address that problem, he adds. “We’re the experts on individual behavior, we know about messaging and how to create interventions.”

Those interventions can promote sustainable behaviors among individuals, as well

as societies, organizations and governments. Psychologists are behind such efforts as rewarding employees’ sustainable behaviors, working with cities to reduce their carbon footprint and conducting research to understand why and when people engage in green behaviors. (Read more about these approaches in the May *Monitor* article “Building a Sustainable Future.”)

HELPING PEOPLE ADAPT

Yet even if we could halt greenhouse gas emissions tomorrow, the carbon dioxide already in the atmosphere will fuel warming for decades to come. We have no choice but to deal with the fallout.

“We certainly need to keep doing the work we’ve been doing, trying to change behavior,” says Susan Clayton, PhD, a professor of psychology and environmental studies at the College of Wooster in Ohio.

FURTHER READING

Psychology and Climate Change

Clayton, S., & Manning, C. (Eds.)
Academic Press,
2018

Climate Change: What Psychology Can Offer in Terms of Insights and Solutions

Van Lange, P.A.M., et al.
Current Directions in Psychological Science, 2018

Mental Health and Our Changing Climate: Impacts, Implications, and Guidance

Clayton, S., et al.
APA and
ecoAmerica, 2017

Beyond the Roots of Human Inaction: Fostering Collective Effort Toward Ecosystem Conservation

Amel, E., et al.
Science, 2017

“[But] we also need to start thinking as a professional community about adaptation. The idea of psychological impacts is really beginning to gain interest and attention.”

Psychologists have recently begun to study climate-related factors as sources of psychological stress, and early findings are alarming. Researchers have long been aware that the suicide rate increases in the warmer months—and an increase in warming could drive those rates higher. A 2018 analysis by Marshall Burke, PhD, an assistant professor of earth system science at Stanford University, and colleagues projected that unmitigated climate change could result in 9,000 to 40,000 additional deaths by suicide in the United States and Mexico by 2050 (*Nature Climate Change*, Vol. 8, No. 8, 2018).

Researchers also predict that climate-related effects such as more frequent natural disasters, increased migration as well as loss of a sense of place will result in mental health impacts including feelings of loss and hopelessness, more mental health emergencies, and higher rates of aggression and violence, according to a 2017 report by APA and ecoAmerica titled *Mental Health and Our Changing Climate*.

Such findings highlight a reality that many working in the climate change space have already realized: Climate change

isn't just a problem for environmental psychologists; it's a matter that clinical psychologists, too, cannot ignore.

MOVING FORWARD

For 30 years, the United Nations' Intergovernmental Panel on Climate Change (IPCC) has been the world's authority on the science of climate change. In the past, their reports have focused primarily on the geophysical aspects of global warming. For the next installment of its assessment report, due out in 2021, the IPCC has made an effort to include psychologists in the outlining and writing process.

"The IPCC, for the first time in its history, has acknowledged the relevance and importance of psychological theory to helping build a more resilient future," says psychologist John Fraser, PhD, president and CEO of the social science think tank NewKnowledge and president of APA Div. 34 (Society for Environmental, Population and

"CLIMATE CHANGE IS ... THE RESULT OF 7.6 BILLION PEOPLE MAKING DECISIONS EVERY SINGLE DAY. THAT RIGHT THERE MAKES IT A PSYCHOLOGICAL PROBLEM."

—ROBERT GIFFORD, PHD, UNIVERSITY OF VICTORIA, BRITISH COLUMBIA

Conservation Psychology). "That is a radical departure from what we witnessed in the past."

Beyond the IPCC, climate change experts and activists in other disciplines are finally appreciating what psychology has to offer, says Clayton. "I'm seeing a lot of interdisciplinary organizations and projects where people are asking psychologists to be part of the team. There has definitely been an increase in the recognition by nonpsychologists that psychology has an important role to play in addressing climate change."

And the climate problem needs all the help it can get, from experts across disciplines,


Thousands of protesters came to Ocean Beach in San Francisco on Feb. 11, 2017, to send a message regarding administration policies: "Resist!!"

says Linda Silka, PhD, a social and community psychologist and a senior fellow at the University of Maine's Sen. George J. Mitchell Center for Sustainability Solutions.

"This is a challenge that is so complex, just having more data isn't going to lead directly to solutions that everyone will agree on," she says, adding that psychologists can help bridge cross-disciplinary gaps to work toward solutions. For instance, she's working on a National Science Foundation-funded project with engineering faculty and climate scientists at the University of New Hampshire. The project aims to use climate models to inform infrastructure development—understanding how higher temperatures will affect asphalt, for instance, or how to build bridges that will withstand rising seas. But the engineers and climate scientists weren't used to speaking the same professional language, so they called on social scientists including Silka to help them work together more effectively.

"More people are seeing that they need someone who can help them find common ground—and that's one of the tools psychologists have in their toolkit," Silka says. ■





Two factors are leading physicians to increasingly seek psychologists' expertise in pain care: the opioid crisis and a greater awareness of the psychological factors involved in pain.

2

*THE RISE OF **NON-DRUG** PAIN TREATMENT*

As the United States fights an opioid crisis, psychologists are in demand for nonpharmacological treatment options for chronic pain—though hurdles remain **BY LEA WINERMAN**

MILADA VIGEROVA/UNSPASH

ABOUT 100 MILLION AMERICANS live with some form of chronic pain—more people than are affected by diabetes, heart disease and cancer combined. For nearly two decades beginning in the late 1990s, the first-line treatment for many of these patients was opioid drugs. But over the past several years, as physicians and health officials realized that opioid overprescription had spiraled into an addiction crisis, the tide has turned. The Centers for Disease Control and Prevention altered its guidelines for prescribing the drugs in 2016; several states have passed laws limiting their use; and opioid prescriptions decreased 22 percent between 2013 and 2017 as physicians' awareness of their risks increased. ¶ These changes have wrought a powerful new incentive for doctors to look for non-drug treatments for pain, including psychological

treatments, says psychologist Beth Darnall, PhD, a clinical psychology professor in the department of anesthesiology, perioperative and pain medicine at Stanford University and author of the new APA book "Psychological Treatments for Patients With Chronic Pain."

"We've always known that pain is best treated biopsychosocially, with an integrated approach," Darnall says. "When we talk about treating pain in a way that has the lowest risks, it necessarily involves behavioral and psychological treatment."

Now, the opioid crisis has spurred new interest in these long-standing treatment options—as well as some new funding. That includes an \$81 million investment by a collaboration of three government agencies—the National Institutes of Health (NIH), the Department of Veterans Affairs (VA) and the Department of

Defense (DOD)—to study non-pharmacological pain treatments for veterans.

"There's a growing appreciation for the psychosocial aspects of pain," says Sean Mackey, MD, PhD, an anesthesiologist and director of the division of pain medicine at Stanford. "It's growing for two reasons: One is just a greater awareness of the psychological factors that play a role in pain. The second is the opioid crisis. It's going to be a tragic benefit of the opioid crisis that it will bring attention to pain psychology."

EVIDENCE-BASED TREATMENTS

Research into psychological and behavioral treatment for pain dates back decades. The most common psychological treatment for pain is cognitive-behavioral therapy (CBT). Through CBT-based programs, Darnall says, patients can learn

to steer their thoughts away from "catastrophizing" pain and toward thinking of pain as a manageable problem that they can address through treatment and self-care. CBT-based programs provide education about pain, self-management skills and psychological tools to help patients manage symptoms, become more active and live better within the context of pain.

In a new comprehensive literature review, the Agency for Healthcare Research and Quality (AHRQ, 2018) found that CBT can lead to long-term improvements in patients with lower back pain and fibromyalgia. (The review also looked at neck pain, osteoarthritis and hip pain, but found either no long-term improvement due to CBT or insufficient evidence to make a determination.)

Other psychological and behavioral treatments include acceptance and commitment therapy, hypnosis and mindfulness-based stress reduction (MBSR), among others. In one recent randomized clinical trial, for instance, researchers found that two months of either mindfulness training or CBT could improve symptoms and functioning in 342 patients with chronic lower back pain, relative to usual care (*Journal of the American Medical Association*, 2016).

And importantly, no studies have found documented harms from these psychological treatments, as opposed to the definite

RESOURCES

Core Competencies for the Emerging Specialty of Pain Psychology
Wandner, L., et al.
American Psychologist, 2018

Psychological Treatments for Patients With Chronic Pain
Darnall, B.
APA, 2018

Pain Psychology: A Global Needs Assessment and National Call to Action
Darnall, B., et al.
Pain Medicine, 2016

risks of opioids and other pharmacological treatments.

Armed with these results, physicians are eager to prescribe behavioral pain treatments, says Darnall, who offers continuing-education lectures to national physician groups. “Physicians are intensely interested in how to connect their patients to behavioral pain management,” she says. “Their questions are: How do I implement this? And who do I refer them to in my community?”

CHALLENGES

Those questions often have no easy answers. “The barriers are implementation, access and insurance,” says Darnall.

First, there are simply not enough psychologists trained in pain psychology, a problem Tennessee pain psychologist Ted Jones, PhD, sees daily at a medical pain clinic in Knoxville. While the clinic has an active patient load of 1,600 people, it has only two psychologists to provide services to them.

“We’re seeing more and more patients here, and we’d like to offer more services,” says Jones, who evaluates potential candidates for drug treatments and provides psychological treatments like CBT in group and individual sessions. He would like to hire another psychologist—but he can’t find a good candidate.

“We haven’t yet built the incentives that would encourage enough psychologists to go into this field,” says Robert Kerns, PhD, a professor at Yale University and former national program director for pain



management at the VA.

In an article in *Pain Medicine*, Kerns, Darnall, Mackey and their co-authors cited the need for more pre- and postdoctoral training programs in pain psychology, with the goal of making it an APA specialization (*Pain Medicine*, 2016).

In addition to training, another challenge is reimbursement. Some insurance companies and public insurance programs don’t cover behavioral treatment for pain, or they reimburse for it at a lower rate than physical treatments such as medications or injections, which makes it more difficult for some patients to access these treatments.

The issue is not universal and varies by location—Jones, for example, says that he generally has not had problems with reimbursement, including from TennCare, Tennessee’s Medicaid program.

But Mackey says the Stan-

ford pain clinic loses money on the services that its five psychologists provide. “I could force them to cover their expenses by giving them less time to see patients, but then they can’t provide the services the patients deserve,” he says. “So I’ve made a decision to lose money on it for the greater good. We would like to see reimbursements increase.”

Those structural issues will take time to address, but in the meantime, research continues on expanding access to behavioral treatment for pain. For example, the \$81 million NIH-VA-DOD collaboratory will fund 11 large-scale “pragmatic clinical trials” to look at how military and veteran health-care providers can add nonpharmacological treatments, including psychological treatments like mindfulness and CBT, to the care they provide.

Meanwhile, Darnall is working to bring behavioral pain treatment to more patients by developing shorter treatments and treatments that can be delivered online. She has developed a single-session, two-hour CBT-based pain psychology class and is conducting a randomized clinical trial to compare its effectiveness with that of a standard eight-week course of CBT. In another clinical trial, she’s investigating whether an online CBT-based class can help reduce recovery pain in surgical patients.

Overall, the aim is to bring the benefits of pain psychology treatment to as many patients as possible. “Psychology is already integrated into the definition of pain,” Darnall says. “It is not an ‘alternative’ treatment, it is a primary treatment for pain.” ■

Psychological and behavioral treatments include cognitive-behavioral therapy, acceptance and commitment therapy, hypnosis and mindfulness-based stress reduction.



While improving performance remains a cornerstone of sport psychology, it's only a slice of what sport psychologists are now doing to support athletes.

3

*A GROWING DEMAND FOR **SPORT PSYCHOLOGISTS***

With the issues of mental health, violence and activism in sports on the rise, more athletes and teams are seeking the expertise of sport psychologists

BY KIRSTEN WEIR

AMR/GETTY IMAGES

SPORTS ARE A MICROCOSM of society, as the old maxim goes—and that’s never been more apparent. When elite athletes such as swimmer Michael Phelps and basketball player Kevin Love speak out about their mental health struggles, it reflects a growing awareness of mental health among society at large. When football players like Colin Kaepernick kneel during the national anthem, it sparks a national conversation about social justice. When Olympic champions speak out about the sexual abuse they endured from USA Gymnastics national team doctor Larry Nassar, it adds gold-medal weight to the #MeToo movement. ¶ As athletes navigate these difficult topics, sport psychologists are playing an expanded, and increasingly important, role. ¶ Sport psychologists are best known for helping athletes overcome mental roadblocks and

improve their performance: for example, helping a baseball player snap out of a hitting slump or supporting a runner as she regains confidence postinjury. While that performance emphasis remains a cornerstone of sport psychology, it’s only a slice of what sport psychologists are now doing to support athletes. Their expanding roles include helping athletes navigate interpersonal issues and addressing mental health problems such as anxiety, depression and eating disorders.

The practice of sport psychology is also finding fans beyond athletics. Sport psychologists’ skills are increasingly sought out by professionals in high-stress jobs, such as surgeons, firefighters and performing artists. In fact, the U.S. Army is now the country’s largest employer of sport psychology professionals, who help soldiers learn to focus in combat and deal with stressful situations. “Sport psychology

has become more widely recognized as being beneficial to address a variety of needs,” says Sari Fine Shepphird, PhD, a Los Angeles-area sport and performance psychologist. And demand is growing, she adds, even among youth athletes and serious amateurs. “There’s increased demand for sport psychologists to address sports performance as well as mental health concerns, which is fantastic not just for the field of sport psychology but for athletes and for the general population.”

PERFECTING PERFORMANCE

Technically, only licensed clinical and counseling psychologists can describe themselves as “sport psychologists.” (APA approved a proficiency in sport psychology in 2003.) This field is growing as today’s athletes realize that psychologists can help them gain a mental edge that translates to

better performance. Pro sports teams—especially in Major League Baseball (MLB)—have expanded access to performance psychology resources in recent years, says Courtney Albinson, PhD, a sport psychologist at Northwestern University and president of APA Div. 47 (Society for Sport, Exercise & Performance Psychology). In 2018, for instance, a record 27 of 30 MLB teams employed “mental skills coaches” to help players deal with the mental challenges of the game.

Stigma once kept athletes from seeking help for mental health issues. As athletes are exposed to sport psychologists to improve performance, it helps chip away at that stigma, making it easier for them to seek help for mental health problems. Prominent athletes like Phelps, Love and others who disclose their own mental health challenges are also bringing attention to the issue of mental health in sports. “By discussing their mental health concerns, they have opened the door for athletes of every age and background to seek help for theirs,” says Shepphird.

Even superstar athletes are susceptible to the same mental health issues as nonathletes. And sometimes athletes face unique struggles, including the psychological pressure to perform at an elite level, or dealing with a culture in which eating disorders are common.

FURTHER RESOURCES

Mental Health Best Practices: Inter-Association Consensus

Document: Best Practices for Understanding and Supporting Student-Athlete Mental Wellness

NCAA Sport Science Institute, 2016

Attitudes Toward Sport Psychology Consulting in Athletes: Understanding the Role of Culture and Personality

Ong, N.C.H., & Harwood, C. *Sport, Exercise, and Performance Psychology*, 2018

APA Div. 47 (Society for Sport, Exercise & Performance Psychology) Resources

www.apadivisions.org/division-47/about/resources/index.aspx

Fortunately, athletic organizations are getting the message that mental health and mindset are as important as an athlete's physical condition. In May, the National Basketball Players Association launched a new Mental Health and Wellness Program, headed by a psychologist, to assist players with mental health challenges. And the National Collegiate Athletic Association (NCAA) has made mental health for college athletes a strategic priority, Albinson notes. In 2016, the NCAA issued its Mental Health Best Practices document, outlining steps colleges and universities should take to better promote and support student athletes' mental health.

Sport psychologists are also poised to help with other pressures and challenges familiar to athletes, including violence and anger issues, says Mitch Abrams, PsyD, a New Jersey-based sport psychologist who specializes in anger management, violence and trauma in athletes. While it's a myth that athletes are more prone to violence than nonathletes, he says, there are factors that increase the risk of violent behavior and sexual misconduct among male athletes. Among them: adoption of traditional concepts of male roles, groupthink in teams and the proverbial locker room talk that teaches young men that women are objects for conquest. But those problems can be overcome, Abrams says. "Most aggressors can be rehabilitated, but we need more prevention, risk assessment and treatment."

On the other side of the

equation, sport psychologists may serve as important resources for the victims of assault and violence, such as the members of USA Gymnastics and USA Swimming who have spoken out recently about sexual abuse and misconduct in their sports.

Psychologists can also help athletes manage the emotions and decisions involved in speaking out or becoming activists, Abrams says. Athlete activists like Kaepernick draw both praise and criticism for voicing issues of social importance. When aligning themselves with a controversial cause, athlete activists can experience public backlash, professional repercussions and all kinds of emotional upheaval. "We're at a time where athletes are given a platform to have a real voice with regard to social justice. Sport psychologists have to be standing side by side with athletes on this," Abrams says.

BEYOND THE PLAYING FIELD

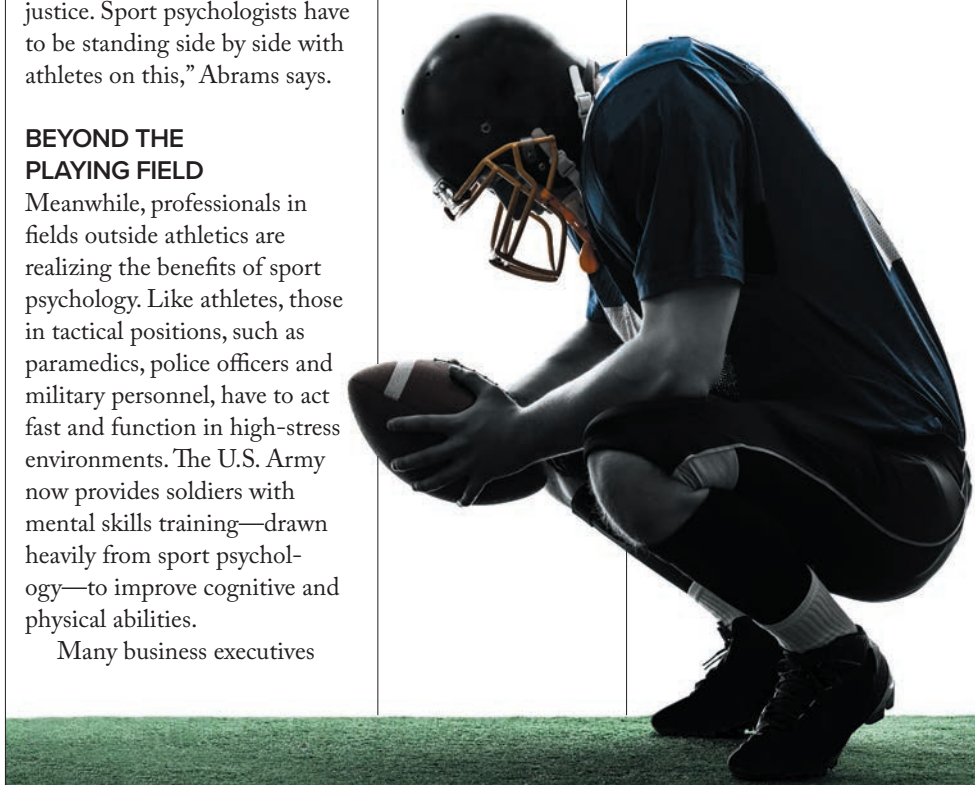
Meanwhile, professionals in fields outside athletics are realizing the benefits of sport psychology. Like athletes, those in tactical positions, such as paramedics, police officers and military personnel, have to act fast and function in high-stress environments. The U.S. Army now provides soldiers with mental skills training—drawn heavily from sport psychology—to improve cognitive and physical abilities.

Many business executives

also consult with sport psychologists to help them perform at their peak in the boardroom. Even The Juilliard School has a sport psychologist on faculty to help students overcome performance anxiety.

That growth is good news for those interested in a career in sport psychology. Not every sport psychologist will find work with Olympic athletes, but interesting opportunities are out there, says Jamie Shapiro, PhD, associate professor of sport and performance psychology at the University of Denver. "To work in sport psychology, you often have to be a bit entrepreneurial," says Shapiro. "But the skill set you develop during graduate and postgraduate training is applicable to almost any performance area." ■

Athletes can struggle with the pressure to perform at an elite level.



OSTILL/GETTY IMAGES

Research shows that nutrition, biology and family factors—such as mealtime rituals and child involvement in food preparation—interact to predict dietary habits.



4

A GREATER ROLE IN NUTRITIONAL HEALTH

Both what we eat—and how we eat it—directly influence our mental health, according to growing research in the integrative field of culinary medicine **BY ZARA GREENBAUM**

CAJU GOMES/UNSPLASH

A GROWING BODY OF NEW RESEARCH is supporting the adage that we are what we eat—not only physically but psychologically. For example, studies have linked diets high in processed meat, fast food and sugar to depression (*Psychiatry Research*, Vol. 253, 2017) and attention-deficit hyperactivity disorder (*Pediatrics*, Vol. 139, No. 2, 2017). And the physical health problems associated with poor diet, such as diabetes, can come with accompanying mental health concerns. ¶ “All food is not created equal, and the dietary choices we make affect our bodies and minds over the weeks, months and years,” says Lauren Broch, PhD, a clinical health psychologist based in New York City who specializes in dietary and sleep issues. ¶ And it’s not just what we eat. How we eat can also influence our physical and mental health. Psychologist

Barbara Fiese, PhD, a professor of human development and family studies and director of the Family Resiliency Center at the University of Illinois at Urbana-Champaign (UIUC), for example, has shown that nutrition, biology and family factors—such as mealtime rituals and child involvement in food preparation—interact to predict dietary habits later in life (*Appetite*, Vol. 126, 2018).

Now, practitioners and health-systems administrators are using these insights to improve patient care in a variety of ways: through culinary medicine programs for clinicians, which combine cooking skills with nutritional science; hands-on learning initiatives for children; and integrated-care programs for patients.

“Psychologists are a crucial part of the interdisciplinary effort to improve diet quality, which in turn improves overall

physical and mental health,” says Leanne Mauriello, PhD, director of behavioral science and lifestyle management at Spectrum Health, an integrated health system based in Grand Rapids, Michigan. “Their expertise in human behavior allows them to help patients make successful and sustained changes to their dietary behaviors.”

The training psychologists pursue to work on nutrition issues is varied. While some earn doctorates in clinical health psychology then earn a master’s in nutrition, others get less formal training. Here are some of the efforts psychologists are spearheading to apply culinary health insights to boost population health.

CULINARY MEDICINE

One of the leaders in supporting nutritional health is Spectrum Health, which serves nearly 1 million members with 12

hospitals and 3,600 providers in western Michigan. The health system’s culinary medicine program, launched in 2017, offers a curriculum for medical residents as well as continuing education for licensed clinicians, including nurses, psychologists and dietitians. Classes combine nutritional education with hands-on cooking instruction to give participants the knowledge, skills and confidence to cook healthy and affordable meals at home. Spectrum Health also began offering classes to its patients in October.

Psychologists are central to the effort, both in educating medical residents and clinicians about the behavioral principles associated with nutrition and dietary change and in working directly with patients who need support maintaining healthier diets and implementing the skills learned during culinary medicine classes.

“Psychologists know that when patients leave, there’s still a whole set of barriers and routines that can either help or hinder them translating what they’ve learned into their home kitchen,” says Mauriello, whose expertise in behavior change stems from her training in experimental health psychology. “The power of the clinical health psychologist is in coaching the patient to overcome those barriers and in providing continued support throughout the behavior-change journey.”

FURTHER READING

What Is Culinary Medicine and What Does It Do?

La Puma, J.
Population Health Management, 2016

Time Allocation and Dietary Habits in the United States: Time for Re-evaluation?

Fiese, B.H.
Physiology & Behavior, 2018

Towards Microbiome-Informed Dietary Recommendations for Promoting Metabolic and Mental Health: Opinion Papers of the MyNewGut Project

Sanz, Y., et al.
Clinical Nutrition, in press

Spectrum Health's team-based approach involves a collaborative effort among psychologists, dietitians, chefs and physicians. To follow patients' progress, the health-care team relies on ongoing electronic communication with patients, reviewing photos of meals, sending healthy recipes and prescribing mobile applications such as MyFitnessPal to help patients monitor their own progress.

A PRACTICE TOOL

Clinical health psychologists are also incorporating new culinary health findings into their work with patients. After 20 years in clinical psychology practice, Broch earned a master's in nutrition after observing a pattern in her patients and personal life: Digestive issues appeared closely linked to feelings of poor mood and low energy.

"I often suggest an elimination diet that challenges patients to cut out foods they may be sensitive to," such as dairy, gluten and red meat, she says. Broch monitors how patients respond and instructs them to reincorporate foods slowly over a period of several weeks.

Nicole Bereolos, PhD, MPH, a clinical health psychologist and certified diabetes educator based in Dallas, helps patients make dietary changes to address both chronic illness and the associated psychological issues. Diabetes, for instance, can present with obsessive-compulsive disorder or disordered eating because of the numerous metrics patients must monitor, such as blood sugar levels and insulin-to-carbohydrate ratios.



She helps patients reduce unhealthy eating habits by making small, manageable changes. For example, one patient's dietitian instructed her to monitor water intake, exercise, steps, calories consumed and more than 12 different macro- and micro-nutrients to lose weight. "She was going to get tired of that in about three days," Bereolos says. "My job was to take those instructions and psychologically set her up for success." They picked two items to track: protein and exercise. Bereolos says the patient achieved a minor success early on, increased her confidence and ultimately met her weight-loss goal.

TEACHING KIDS HEALTHY BEHAVIORS

Psychologists are also key to the Illinois Junior Chefs program, which is run by the University of Illinois Office of Extension and Outreach and teaches low-resource children ages 8 to 13 the importance of a healthy diet as well as how to

Psychologists are now designing and testing programs that teach children about nutrition—as well as how to cook.


cook. Typically administered in five two-hour lessons during summer break, the experiential program, which began in 2016, will go nationwide next year.

"We know that culinary skills have gone by the wayside in the last decade—adults cook much less than they used to," says Fiese, whose doctoral student is evaluating the program's effectiveness. "This is beginning to have an impact on kids because they don't have opportunities to model these skills early on."

"Regardless of their background, it's important for kids of all ages to develop independent cooking skills so that they can make healthy choices when they're on their own," says Jessica Metcalfe, MPH, a doctoral candidate in human development and family studies at UIUC and research coordinator for the program.

According to research by Fiese and Metcalfe, children who participate in the one-week class show significant improvements in cooking skill, attitudes toward cooking, healthy cooking behaviors and preferences for fruits and vegetables (*Journal of Nutrition Education and Behavior*, Vol. 49, No. 7, 2017).

Moving forward, Bereolos suggests that dietitians, physicians and psychologists collaborate more in their work on dietary behavior change. "Integrating our continuing education and practice is the best way to identify gaps in our training. This will allow us to continue opening our eyes about the relationship between food and mental and physical health," she says. ■



New federal regulations call for greater attention to the mental health and behavioral needs of long-term care residents.

5

RE-ENVISIONING LONG-TERM CARE

By fostering more person-centered care in these settings, psychologists are improving life for residents and caregivers

BY TORI DEANGELIS

CRISTIAN NEWMAN/UNSPLASH

THE NURSING HOME REFORM ACT of 1987 led to major improvements in the quality of long-term care in the United States by emphasizing patient rights and beefing up federal standards, inspections and enforcement. Now, new regulations issued by the Centers for Medicare and Medicaid Services in 2017 go a step further in boosting care by emphasizing the need for facility staff to learn more about who residents are as people, provide greater support for resident preferences and give residents increased control and choice. ¶ The new regulations also require increased attention to the mental health and behavioral needs of residents, among other changes. ¶ Psychologists are playing an important role in realizing these reforms, both in creating new care models that better serve both residents and staff and in implementing these ideas on

the ground, says geropsychologist Kelly O'Shea Carney, PhD, co-author with Margaret P. Norris, PhD, of "Transforming Long-Term Care: Expanded Roles for Mental Health Professionals" (APA, 2017).

"Mental health professionals are uniquely equipped to assist, support and perhaps even lead the evolution in care that is taking place across the long-term-care continuum," says Carney, of Acts Retirement-Life Communities, a nonprofit serving 10,000 older adults at 23 locations in nine states.

Carney has developed one of the approaches that is leading to better care: the Eldercare Method, which fosters well-being among long-term-care residents by teaching interdisciplinary professional staff—administrators, aides, nurses, social workers and others—to incorporate knowledge of residents into their services. For

example, staff might discover that a resident enjoys eating ice cream before dinner, and they'll make sure to supply that. Or, they may find out a resident grew up on a horse farm and bring in a picture book with horses. "It all has to do with changing the external triggers to a challenging behavior and increasing the chances of more desirable behavior with the ultimate goal of enhancing quality of life and well-being for each resident," Carney says.

Studies show that the model improves outcomes for both residents and caregivers. Among residents, it reduces falls, the use of psychotropic medications and challenging behaviors. For staff, it decreases injuries and turnover.

Increasingly, psychologists are essential to such person-centered programs—as well as to the evaluation of their effectiveness and the development of interprofessional teams to implement and assess them.

FURTHER READING

Transforming Long-Term Care: Expanded Roles for Mental Health Professionals

Carney, K.O., & Norris, M.P.
APA, 2017

Effectiveness of Expanded Implementation of STAR-VA for Managing Dementia-Related Behaviors Among Veterans

Karel, M.J., et al.
The Gerontologist, 2016

Identifying Barriers to Cultural Change: A Qualitative Analysis of the Obstacles to Delivering Resident-Centered Care

Engle, R.L., et al.
Psychological Services, 2017

FINDING MORE JOY

A similar program aimed at promoting the ideals of person-centered, homelike care is the Montessori-Based Dementia Programming method, developed by applied geropsychologist Cameron Camp, PhD. It applies principles of the Montessori education method and behavioral psychology to help people with Alzheimer's disease develop more agency in their daily lives, connect with others and find joy in living.

At the Veterans Health Administration's Community Living Centers, or nursing homes, staff psychologists are among those implementing the STAR-VA program, which uses interdisciplinary behavioral approaches to manage dementia-related behaviors. These include identifying and resolving behavioral problems using "ABC" (antecedents, behaviors and consequences) methodology; building in events that residents find pleasurable—such as going for a car ride, listening to music or discussing past events, depending on the individual; promoting effective communication between staff and older adults; and fostering realistic expectations of what residents are capable of. In a study examining the uptake and effectiveness of this program in 17 centers, VA psychologist Michele J. Karel, PhD, and colleagues found that veterans in these nursing homes were significantly less depressed,

anxious and agitated after a six-month staff training (*The Gerontologist*, Vol. 56, No. 1, 2016).

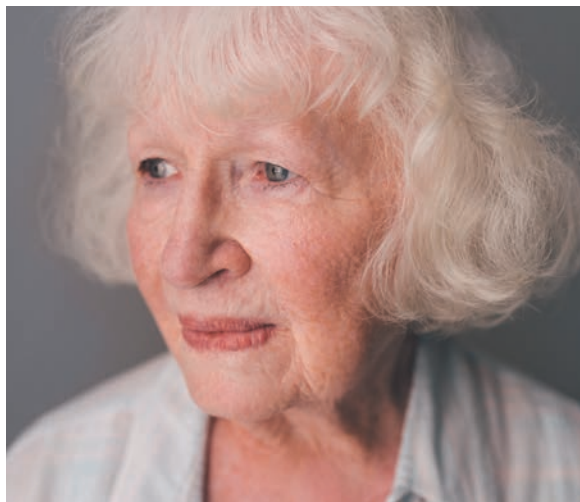
Psychologists are implementing these ideas in a range of other long-term-care settings, adds Carney's co-author Norris, an independent practitioner and past-president of Psychologists in Long-Term Care (PLTC), a national nonprofit organization. Individual interventions with residents continue to be a powerful approach to improving both resident and staff well-being, she says. "Residents get better, their roommates get better, the aides caring for them get better, and their families become more relaxed," Norris says.

Systems-level interventions can also provide dramatic results. In that capacity, psychologists train staff in behavioral principles and encourage them to treat residents as human beings rather than as "the hip in room 303," as Carney puts it. They also foster agency and communication among staff members.

This communication creates an atmosphere in which team members feel free to discuss what works and what doesn't. "The interdisciplinary team process becomes a forum for learning among staff members, as well as for care planning," Carney says.

REMAINING BARRIERS

Yet despite those and other benefits, many psychologists continue to face reimbursement challenges in these settings. Medicare regulations, for example, still don't require facilities to provide psychological services



as they do the services of social workers, recreational therapists and rehabilitation therapists, says long-term-care consultant Eleanor Feldman Barbera, PhD, author of "The Savvy Resident's Guide" (Psychology Insights Press, 2012), a guide for residents starting out in nursing homes. And while Medicare reimburses physicians for conducting staff training and care-plan meetings, it doesn't do the same for psychologists, meaning psychologists often work as consultants in these capacities, Barbera says.

On a more positive note, nursing homes are now more willing to pay such consulting fees to psychologists, and Medicare reimbursement for long-term-therapy services has improved and stabilized in the last several years, says Norris.

That's largely due to advocacy by APA and other organizations, which helped to gradually reduce all Medicare Part B mental health co-payments from 50 percent in 2008 to 20 percent starting in 2014, including those involving long-term care.


When psychologist-designed programs are implemented with residents, not only do residents get better, the aides caring for them get better and the residents' families become more relaxed.

What's more, a greater number of young psychologists are entering geropsychology thanks to expanding opportunities in health-care settings, says PLTC President Craig H. Schweon, PhD. Training in the area is improving, too: A survey of 100 graduates of geropsychology doctoral and postdoctoral training programs by the VA's Karel and colleagues found that most graduates of these programs reported receiving strong training for providing geropsychology services, though they wanted more training and practice in supervisory roles (*Training and Education in Professional Psychology*, Vol. 10, No. 1, 2016).

Those who do work in these health and long-term-care settings say they're an option more psychologists should consider, offering an up-close look at residents' relationships with staff, roommates and family members. Cultural differences are also part of the mix. "It's unbelievably fascinating," Barbera says.

She recalls a woman who initially resisted being in a nursing home but adjusted thanks in part to Barbera's help in making the experience more like home. Barbera connected the woman with other residents who were sewing a quilt for Haitian refugees, and she had the woman's family bring beloved objects from home, including her electronic piano.

"She'd play it, and staff and residents would gather around her door to listen," says Barbera. "And she said to me, 'I know people say terrible things about these places—but I'm having a ball here.'"



A boy and father from Honduras are taken into custody by U.S. Border Patrol agents near the U.S.-Mexico border in Mission, Texas, on June 12, 2018.

6

SHINING A SPOTLIGHT ON EQUITY

In an era of increased activism, psychologists armed with research are raising their voices on behalf of vulnerable populations **BY REBECCA A. CLAY**

JOHN MOORE/GETTY IMAGES

PSYCHOLOGY'S VOICE was in full force in 2018 when the administration began separating immigrant children from parents at the U.S.-Mexico border. Armed with decades of their research, psychologists spoke out about the harms of the policy, sought to assist children and families, and expressed their shock in mainstream media and social media, among other actions. ♣ "That's our mission—taking care of the psychological health of folks, not just on an individual client basis but in our communities and society as well," says Jeff R. Temple, PhD, a board member of the Texas Psychological Association who has urged his colleagues to fight against family separation. ♣ Activism by psychologists has moved into a higher gear, especially when it comes to the most vulnerable populations, says Kevin L. Nadal, PhD, a psychology

professor at John Jay College of Criminal Justice in New York.

"Since the 2016 election, I've seen an increase in psychologists' activism—from organizations releasing policy statements to social media engagement to participation in protests and rallies," says Nadal. "The more that seasoned psychologists engage in activism, the more that early career psychologists and students will know that activism is acceptable and even encouraged."

Of course, such activism is not new to psychologists. Their research was key to buttressing the landmark Supreme Court decision on school desegregation in 1954, the removal of homosexuality as a psychiatric disorder from the Diagnostic and Statistical Manual of Mental Disorders in 1973 and the Supreme Court decision on marriage equality in 2015, points out Nadal in *American*

Psychologist (Vol. 72, No. 9, 2017).

Today, top on psychologists' list of public interest advocacy priorities is advocating for the nation's most vulnerable people, such as immigrants and refugees. "Family separation is not a liberal or conservative issue," says Temple, who helped push the Texas Psychological Association to issue a statement condemning family separation. "It's a humanitarian issue." The Arizona Psychological Association also issued a statement strongly opposing the "atrocities" of family separation and noting that the policy's termination does nothing to alleviate the suffering already caused.

Others are ensuring that psychologists are prepared to assist undocumented immigrants. One leader in the area is Elizabeth Hernandez, PhD, who co-chairs the California Psychological Association's

APA ACTION ON FAMILY SEPARATION POLICY

As soon as psychologists discovered that the Trump administration was separating immigrant children from their parents at the Mexican border, APA President Jessica Henderson Daniel, PhD, issued a statement of concern about the psychological harm the policy would cause, which was cited in *The New York Times* and beyond. Daniel and APA Chief Executive Officer Arthur C. Evans Jr., PhD, followed up with a letter to President Trump, urging him to end the policy.

Immigration Task Force. The task force has developed recommendations for psychologists working with undocumented immigrants and their families and has created a database of culturally competent psychologists willing to provide low- or no-fee services to immigrants.

In a similar vein, psychologists are working with refugees through the Refugee Mental Health Resource Network (www.refugeementalhealthnet.org). Initiated in 2016 by several APA divisions, the network's interactive database of volunteer psychologists and mental health professionals is aimed at filling the need for evaluations, psychosocial support services, training and research concerning this underserved population worldwide. "This growing pro bono APA project exemplifies innovative outreach to benefit society," says Elizabeth Carll, PhD, chair of the network. The project was funded in part by a grant from the Committee on Division/APA Relations.

Another priority for psychologists is keeping front-line activists safe. St. Louis University associate professor of psychology Kira Hudson Banks, PhD, for example, offers

● **To get involved** in APA's advocacy efforts, visit www.apa.org/advocacy/index.aspx.

● **To learn more** about APA's Multicultural Guidelines, go to www.apa.org/about/policy/multicultural-guidelines.aspx.

therapy to burned-out activists and uses de-escalation strategies to help defuse conflict, calm tempers and prevent violence at Movement for Black Lives protests. She has served as a consultant to the Ferguson Commission, a group brought together by Missouri's governor to study the issues brought to light by the death of Michael Brown and recommend ways of making the St. Louis area a better, fairer place. And she testified in a lawsuit that resulted in police being required to give protesters adequate warning before using tear gas during peaceful protest.

Psychologists are also making sure their peers have the cultural competence they need. In 2017, for example, APA released updated Multicultural Guidelines, which urge psychologists in all settings to consider individuals' multiple intersecting identities and to understand the roles of power, privilege and oppression in their relationships with clients and in their clients' lives.

To complement these "umbrella" guidelines for overall cultural competence, an APA task force is now developing a companion document with guidelines focused on race and ethnicity.

"Since the original Multicultural Guidelines were developed in 2002, there has been an enormous amount of scholarship on race and ethnicity," says University of Massachusetts Boston psychology professor Karen L. Suyemoto, PhD, who chairs the task force for the race and



ethnicity guidelines. A draft for public review should be out shortly and then will be considered by APA's Council of Representatives in February. Going beyond the one-on-one level of therapy, these guidelines urge psychologists to consider the systemic bias of institutions

Same-sex marriage demonstrators rally outside the U.S. Supreme Court before oral arguments on same-sex marriage on April 28, 2015.

and society and how that bias may hinder well-being and access to treatment.

"You can't just pay attention to differences," Suyemoto adds. "You have to pay attention to the meaning of those differences in relation to things like access and equity." ■

KEN CEDENO/GETTY IMAGES



7

BIG DATA GETS BIGGER

Large data sets—generated by social media, wearables and other sources—are opening more avenues for researchers to explore real-world human behavior **BY LEA WINERMAN**

OTTO STEININGER/KON

TWO DECADES AGO, a psychology experiment with millions of participants was nearly impossible to imagine. Gathering data was expensive and time-consuming, requiring dozens or maybe hundreds of people (often college undergraduates) to troop into a physical lab to take part. ¶ Today, researchers can create an online survey and watch it gather hundreds of thousands of responses from diverse participants around the world. They can access millions of tweets with a few lines of computer code. And they can use newly powerful computer-analysis techniques to glean insight into human behavior from these and other large data sets. ¶ Propelled by these tools, big data research is taking off in fields as diverse as cognitive, personality, social and industrial/organizational psychology. ¶ “Five years ago, many people were talking about big data psychology, but I

wondered whether they would actually do it,” says Samuel Gosling, PhD, a personality researcher at the University of Texas, Austin, who has been gathering data online since the late 1990s. “But to my happy surprise, they did. At this point it’s well under way.”

FERTILE RESEARCH GROUND

Big data has become a buzz phrase, but what does it mean? How big is big? There’s no one answer to that question, researchers say. When computer scientists talk about big data, they are usually talking terabytes, petabytes or larger—amounts that require distributed computing systems to analyze, says psychologist Sean Wojcik, PhD, a senior data scientist at the digital media company Upworthy and co-author (with Eric Chen, PhD) of “A Practical Guide to Big Data Research

in Psychology” (*Psychological Methods*, Vol. 21, No. 4, 2016).

Psychologists, however, rarely work with data sets that large. “We often just use it to mean ‘data that’s much bigger than we’re used to,’” Wojcik says. “There’s no threshold.”

That’s because even large data sets that might not impress a computer scientist can provide fertile ground for psychological research. What those data sets consist of varies by subfield in psychology.

Often, they involve online surveys or social media postings. For example, in their research on personality, Gosling and his colleagues combined meteorological data from every ZIP code in the United States with data from more than 1.6 million participants who took an online personality test. They found that people who grew up in more temperate climates were more likely to be agreeable, open and

emotionally stable than people who grew up in colder areas (*Nature Human Behaviour*, Vol. 1, 2017).

At the University of Pennsylvania, meanwhile, a consortium of psychologists and computer scientists is working on the World Well-Being Project—founded by positive psychology pioneer Martin E.P. Seligman, PhD—an attempt to measure worldwide well-being by analyzing social media postings. In one recent study, they found that by analyzing the language in millions of tweets they could predict which U.S. counties consume more alcohol than others (*PLOS ONE*, online publication, April 2018).

In a different field, cognitive psychologist Brendan Johns, PhD, is exploring texts, not tweets. Johns, an assistant professor in the communicative disorders and sciences and computational linguistics departments at the University at Buffalo, uses big data analysis methods to analyze Wikipedia, publicly available ebooks and other digital troves of written language. His goal is to understand how people learn the meanings of words from the structure of language, and how that learning affects memory and other forms of cognition.

“We can train our models on a corpus of 2 billion words, and that’s been a big change,” he says.

FURTHER READING

Special Issue: Big Data in Psychology

Harlow, L.L., &
Oswald, F.L. (Eds.)
*Psychological
Methods*,
2016

**Using
Smartphones
to Collect
Behavioral Data
in Psychological
Science:
Opportunities,
Practical
Considerations,
and Challenges**
Harari, G.M., et al.
*Perspectives on
Psychological
Science*,
2017

**Can Twitter
Be Used to
Predict County
Excessive Alcohol
Consumption
Rates?**
Curtis, B., et al.
PLOS ONE,
2018

PROMISE AND CHALLENGES

So, what do these far-flung applications of big data have in common? Broadly speaking, large data sets change the kinds of questions that psychology can seek to answer, researchers say.

For Lyle Ungar, PhD, a professor of computer science and psychology at the University of Pennsylvania who co-leads the World Well-Being Project, that change is embodied in a shift from “hypothesis testing” to “hypothesis generation.” Most of psychology research, he points out, involves coming up with an experiment to test one hypothesis. “But that’s only half of science,” he says. “And that’s not big data—which is primarily data driven, not hypothesis driven.” In a typical study, for example, Ungar might collect millions of tweets from people with attention-deficit hyperactivity disorder (ADHD), then explore those data to find ways that the tweets of people with the disorder differ from the tweets of people without it, all while having no particular hypothesis in mind (*Journal of Attention Disorders*, 2017). That kind of insight into the daily experiences of people with ADHD could help lead to better treatments.

Kevin Grimm, PhD, a research methods psychologist at Arizona State University, agrees that searching for the unexpected is an important aspect of big data research, but adds that the key is that big data analysis methods provide a systematic way to do that. “It’s important that we test our hypotheses with



confirmatory methods, but also [that we] test for other trends that wouldn’t be found unless you explored.”

Another advantage of big data, says Gosling, is that the high-powered studies allow researchers to come closer to understanding the complexity of real-world human behavior.

“Most of human behavior is extremely complicated and you simply cannot examine the interactions of so many things unless you have sufficient power to do it,” he says. In traditional psychology research, researchers could examine only a few factors or do studies in extremely controlled environments that may not approximate the real world. “Until the advent of the big data age, we didn’t have tools that were well matched to the complexity of the phenomena we wanted to study.”

The potential rewards of exploring large data sets are great, but for many psychologists the barriers to entry can be high.

A key advantage of big data is that it allows researchers to come closer to understanding the complexity of real-world human behavior.

“The question of where to start is a very big hurdle to people,” Wojcik says. “A lot of psychologists’ training is in SPSS, and that’s not an ideal tool for analyzing very large data sets.”


Learning a new programming language that’s a better fit, like R or Python, can seem daunting. But Wojcik suggests thinking of the time investment as similar to the data-gathering stage of traditional psychology research. Once you learn R or Python, “data collection can be incredibly fast,” he says. “In a traditional lab, you might devote several months to collecting data. You can devote that time to learning R instead.”

On a broader scale, big data collection—particularly from social media postings—brings up a host of ethical and privacy challenges for psychology and other fields. “I do think about it a lot—what it means to consent,” says Ungar. “For example, when participants give me access to their [Facebook] posts, I don’t take what their friends post on their page because those people haven’t consented.”

Overall, says Gosling, psychologists can contribute to the debate over data privacy by being good stewards of data themselves and by using their expertise to help understand the factors that play into people’s decisions about privacy and data security.

“How do people decide when they feel safe and don’t feel safe sharing data? That’s a question psychology can help answer.” ■

● **Interested in learning more?** APA conducts an annual Advanced Training Institute on big data. The next one will be held in 2019.

A young boy with dark hair is shown in profile, looking down at a tablet computer he is holding. The scene is dimly lit, with the primary light source being the screen of the tablet, which casts a soft glow on his face and hands. The background is dark and out of focus.

Psychologists have become integral to ensuring that technological devices are easy to use and helpful to those they serve.

8

DESIGNING SMARTER TECH TOOLS

New technology in educational gaming, health-care communication, robotics and more is benefiting from psychologists' input **BY TORI DEANGELIS**

FZANT/GETTY IMAGES

TECHNOLOGY OFFERS tremendous opportunities to help people learn, manage their health and connect with others. But technological devices, products and services are only as good as their design—and psychologists have become integral to ensuring that these tools are easy to use and helpful to those they serve. ¶ “Psychologists have an important role to play both in developing these tools to accomplish positive changes for people, and in understanding the outcomes of technology on things like health and well-being, life satisfaction, productivity, interpersonal relationships, education and health care,” says industrial/organizational psychologist Tara Behrend, PhD, director of the WAVE (Workplaces and Virtual Environments) lab at The George Washington

University. Some of the many arenas where psychologists are playing leading roles include:

■ Drawing kids into science.

Psychologists are increasingly tapping the power of technology to enhance education on every level. An example of collaborative work in the area is a National Science Foundation-funded project headed by computer scientist H. Chad Lane, PhD, an associate professor of educational psychology at the University of Illinois at Urbana-Champaign. Working with developmental psychologist K. Ann Renninger, PhD, of Swarthmore College in Pennsylvania, and astrophysicist Neil Comins, PhD, of the University of Maine, Lane is using the popular game “Minecraft” as a context for generating interest in science among children. The team is helping children explore questions like what the Earth would be like

if it didn’t have a moon (brief answer: extremely windy and not very habitable). Their version of “Minecraft” allows players to move freely throughout a world that Lane and his team have configured as a moonless Earth. Children are invited to post virtual signs in locations that look odd to them—where, for example, tides are behaving strangely or there is a lack of plant life—and then they receive brief education on the topic.

Lane’s research is framed by the work of Renninger and her collaborator Suzanne Hidi, PhD, of the University of Toronto, which finds that when people’s interest is effectively triggered by compelling experiences, learners will return to the subject again when given the opportunity. Lane’s challenge was to parlay children’s interest in “Minecraft” into a focus on science.

“For the ones who get it, you can see when it clicks,”

says Lane. “On the surface, kids might act like they aren’t interested in the science,” he adds, “but then they start asking questions.”

■ Improving health-care

communication. Psychologists are also among those testing different technology vehicles for delivering vital health-care information. In a study reported online in June 2018, psychologist Susan J. Persky, PhD, an associate investigator at the National Human Genome Research Institute (NHGRI), and colleagues at the NHGRI and the National Cancer Institute compared the way patients reacted to genomics-related information about their weight when they received it either from an internet-based virtual physician or from a virtual physician in immersive 3-D technology (a form of virtual reality).

Those receiving the information in immersive 3-D reported greater self-efficacy in managing their weight and greater intentions to engage in dietary and physical activity than those receiving it over the internet, the team found.

“It’s essential to figure out how we can best use technology to fill the gaps in current models of care,” says Persky, “while also providing a better experience for patients and helping them to optimize their decision-making and their health.”

RESOURCES

APA Technology, Mind and Society Conference

www.apa.org/members/your-focus/science/technology-mind-and-society-conference/index.aspx

Cognitive Development in Digital Contexts

Blumberg, F.C., & Brooks, P.J. (Eds.)
Elsevier, 2018

■ **Expanding the reach of psychological research.** Other psychologists are jumping into the world of big data—using techniques for collecting and analyzing large data sets to uncover patterns, trends and associations that might not otherwise be apparent.

Psychologists at the University of Pennsylvania's World Well-Being Project, for example, are using the methodology to examine stress at the county level. (For more on psychologists' use of big data and the work of the World Well-Being Project, see the article on page 20.)

First, they built and tested a model for predicting individual-level stress by examining the language patterns of 2,700 consenting Facebook users who took Cohen's Perceived Stress Scale. Those with high stress levels talked more about feeling depressed and ignored and having regrets, they found, while those with low stress levels were more likely to share pleasant or positive activities like taking trips with family. Applying this model to more than 6.5 million Twitter users and some 40 billion tweets, the team then found that stress levels were higher in some U.S. counties than others, and that those counties tended to have higher rates of smoking and diabetes and fewer opportunities to exercise than others, for example.

"These large data sets allow us to see that stress can be a feature of communities and not just of individuals," with myriad potential applications in public health, precision medicine and other

ROBOTS THAT PEOPLE STEREOTYPED AS HIGHLY WARM AND COMPETENT LOOKED LIKE HUMANS RATHER THAN MACHINES.

arenas, says Anneke Buffone, PhD, lead research psychologist for the World Well-Being Project, who conducted the study with project colleagues Sharath Chandra Guntuku, PhD, Johannes Eichstaedt, PhD, and Lyle Ungar, PhD. (These data and more can be seen on a map



PSYCHOLOGISTS AT THE TABLE APA'S TECHNOLOGY, MIND AND SOCIETY CONFERENCE

Recognizing the interdisciplinary nature of today's technology, in April APA gathered psychologists, computer scientists, roboticists, neuroscientists, clinicians, education scientists and others in Washington, D.C., to share their findings and discuss the future of technology at the association's Technology, Mind and Society (TMS) Conference.


Along with new products and ideas, ethical issues were on the table, such as the need to protect user privacy, to keep technology from creating undue stress and distraction, and to ensure that technology is multiculturally sensitive. "Like any tool, technology can be used or misused, so you have to be smart about it," says Tara Behrend, PhD, director of the WAVE (Workplaces and Virtual Environments) lab at The George Washington University. APA is planning to host TMS in fall 2019 in Washington, D.C. —*Tori DeAngelis*

for use by citizens, policymakers and others.)

■ **Designing better robots.** Still other psychologists are working with robotics designers to make these electronic helpers more relatable for humans. Key to that work is understanding what people think of social robots. In a study under review, Stanford University psychologist Jeff Hancock, PhD, and Stanford University colleagues Byron Reeves, PhD, and Xun "Sunny" Liu, PhD, asked 4,035 participants to rate social robots' personal attributes on a variety of dimensions.

Intriguingly, participants rated robots in the same way that social psychologist Susan Fiske, PhD, of Princeton University, and others have shown that people rate people: They instantly judge them on dimensions of warmth, competence or both. What's more, robots that people stereotyped as highly warm and highly competent looked like humans rather than machines—and they tended to be white. Such findings imply that stereotypes play a part in people's perceptions of robots, and that designers should build accordingly, says Hancock.

"If you're designing robots to enhance children's sense of belongingness," for example, "you want the appearance of the robots to be similarly inclusive," he says. ■



Problematic smartphone use has been linked with depression and anxiety in a recent literature review.

9

TREATING THE MISUSE OF DIGITAL DEVICES

Psychologists are spearheading efforts to help wean people off technology **BY REBECCA A. CLAY**

RAWPIXEL/UNSPLASH

PEOPLE'S LOVE OF SOCIAL MEDIA, emails and texts has created a new category of tech users: “constant checkers,” who relentlessly scan their smartphones, computers and tablets for the next wave of messages. And it is fueling some people’s anxiety. According to APA’s 2017 Stress in America survey, 43 percent of Americans qualify as constant checkers and almost a fifth of Americans report that technology use is a very or somewhat significant source of stress for them. ¶ Increased stress is just one of the negative side effects that can come with too much technology use. Problematic smartphone use—addiction-like behavior in which excessive smartphone use results in negative outcomes in daily life—has been linked with depression and anxiety in a review of the literature by University of Toledo psychology professor Jon D. Elhai, PhD,

and colleagues (*Journal of Affective Disorders*, Vol. 207, 2017). “We can’t determine cause and effect, because most of the studies were correlational,” says Elhai.

And while problematic device use in general does not yet qualify as an addiction, there is enough evidence about internet gaming in particular that the World Health Organization (WHO) added gaming disorder to the latest update of its International Classification of Diseases, and the American Psychiatric Association lists it as a condition that warrants further study in the latest version of the Diagnostic and Statistical Manual of Mental Disorders. In response to these controversial moves, APA’s Div. 46 (Society for Media Psychology and Technology) issued a statement expressing concern over WHO’s decision, noting that the research base is still insufficient; APA’s

Div. 50 (Society of Addiction Psychology) created a task force to come up with a response.

In the meantime, a growing number of psychologist-led efforts aim at helping people develop healthier relationships with technology.

Children’s media use is of special concern. A 2017 United Nations Children’s Fund (UNICEF) report found that children under 18 represent a third of all internet users globally. And adolescents and young adults ages 15 to 24 are the most connected cohort, with 71 percent online versus just 48 percent of the overall population.

APA has issued guidance for promoting healthy technology use for children, which emphasizes the need for parents to discuss the benefits as well as the risks of technology with their children. The guidelines urge parents to monitor the websites their children are visiting, teach

good online citizenship and discuss digital decision-making.

Now, a new Device Management and Intelligence Committee of Div. 46 is developing guidance for the public and psychologists on device and social media use. The document will address such topics as good online citizenship on social media and recovery from online embarrassment. One key concern is “absent presence”—the phenomenon of being physically present with other people but paying more attention to a phone or other device than to them, says Joanne Broder-Sumerson, PhD, a committee co-chair.

“One of our taglines is ‘Unplug and hug,’” she says. “Technology helps facilitate our relationships with people far away, but not the people sitting next to us.”

Of course, screen time isn’t always a negative. In one study, Facebook use was associated with increased face-to-face communication, especially for introverts (*Psychology of Popular Media Culture*, online first publication, 2017). Facebook may help introverts develop trust and rapport in a less threatening environment before they venture into real-life relationships, speculates lead author Alexander Spradlin, PhD, an instructor in the department of psychology at Washington State University.

Other psychologists are developing measures that clinicians can use to assess whether

RESOURCES

APA Digital Guidelines: Promoting Healthy Technology Use for Children
www.apa.org/helpcenter/digital-guidelines.aspx

Media and Child Health Clinician Toolkit
<http://cmch.tv/clinicians>

APA Div. 46 (Society for Media Psychology and Technology)
www.apa.org/about/division/div46.aspx

patients have a problematic relationship with digital technology. Sarah E. Domoff, PhD, an assistant professor of psychology at Central Michigan University, has developed and validated the Problematic Media Use Measure, which clinicians can use to assess whether screen-based media use is causing difficulties for children ages 4 to 11 (*Psychology of Popular Media Culture*, online first publication, 2017).

“If a child becomes upset or has a meltdown when a parent tries to take away a tablet or screen, that could indicate a problem,” says Domoff.

Other red flags include disruption of family events by video games or other media, missing out on opportunities because of screen time and screen time as the only activity a child looks forward to.

For kids whose results indicate a problem, Domoff encourages a gradual weaning from devices coupled with alternative activities that help fill gaps in a child’s development. If a child is excessively gaming, for instance, Domoff recommends that parents provide opportunities to engage with peers offline. A family approach to reducing screen time is key, she adds. “A lot of times parents are also struggling with putting down their phones,” she says, adding that her clinic at the Center for Children, Families and Communities treats children with problematic screen media use and serves as a practicum site for training future psychologists on how to assess and treat the problem.

Helping pediatricians screen



for problematic digital media usage during well-child visits is the goal of the Media and Child Health Clinician Toolkit, developed by research scientist David Bickham, PhD, and colleagues at Boston Children’s Hospital’s Center on Media and Child Health. The toolkit helps pediatricians, parents and children assess whether media use is contributing to such problems as aggression, obesity and attention deficit.

“Rather than saying, ‘Are you having trouble with media use?’ it is ‘Do you have these behaviors or experience these things, and how might media use be related to that?’” explains Bickham, also an instructor in pediatrics at Harvard Medical School.

The toolkit tries to get at the complexity of children’s media use and its impact, says Bickham, explaining that the problem may be either the content a child is exposed to via media or the amount of time a child spends on a device. “There are kids who are playing video games all night and missing school,” says Bickham. “There are kids who are viewing a lot of porn and being exposed to

APA recommends that parents discuss the benefits as well as the risks of technology with their children.

violent porn. There are information seekers who get drawn down rabbit holes of Wikipedia and YouTube, which leads to huge amounts of use.”

Adults often have different media use problems than their children, says Paula Durlofsky, PhD, a private practitioner in Bryn Mawr, Pennsylvania, who has seen the number of adults with social media concerns soar in recent years. Durlofsky urges these adult patients to reflect on what they hope to get out of social media, whether it is new friends, deeper connections or networking. She counsels patients to use social media to enhance offline friendships, not replace them. She also advises patients to find alternative responses to feelings of boredom or whatever emotion is driving overuse of social media and to schedule social media breaks.

Specialized treatment clinics are also springing up. In Santa Monica, California, Don Grant, PhD, who co-chairs the Div. 46 Device Management and Intelligence Committee, runs an intensive outpatient program for adolescents called Resolutions Teen Center, which combines device-management help with mental health and substance use treatment. In addition to therapy, he encourages patients to connect with the present—to look at the ocean instead of taking a selfie with it, for instance. Meanwhile, a parents’ group he runs helps families create healthier household media environments.

“You can write ‘LOL’ all you want,” says Grant. “It’s not going to have the same effect as laughing with people.” ■



Unlike most wellness apps marketed directly to consumers, digital therapeutics follow an R&D path that looks more like drug development.

10

THE ASCENT OF DIGITAL THERAPIES

Evidence-based apps could enhance—and in some cases, replace—medications for treating a range of mental health disorders **BY KIRSTEN WEIR**

MARCO PIUNTI/GETTY IMAGES

WHEN IT COMES TO TREATING mental health and behavioral disorders, there have traditionally been two choices: medication and psychotherapy/behavioral interventions. Get ready for a third option: digital health devices, software and applications collectively known as “digital therapeutics.” ¶ These therapies aim to treat a variety of diseases and disorders, from asthma and diabetes to depression and attention-deficit hyperactivity disorder. Some digital therapeutics are designed to be used in conjunction with medication or behavioral interventions. Others aim to replace traditional treatments altogether. Examples include web-based cognitive-behavioral therapy (CBT) programs, digital dashboards that allow patients and providers to closely track indicators of health, and even game-based interventions. ¶ What the therapies have in common is

a commitment to evidence-based medicine. Unlike most wellness apps marketed directly to consumers, digital therapeutics follow an R&D path that looks more like drug development. The tools are evaluated in clinical studies and prescribed by a medical provider. And many of the companies producing digital therapies are seeking regulatory approval.

Mental and behavioral disorders lend themselves particularly well to digital interventions, suggests psychologist Colin Espie, PhD, a professor of sleep medicine at the University of Oxford and co-founder and chief medical officer of the digital therapeutics company Big Health. “Digital medicine is really personalized behavioral medicine,” he says.

MOBILE CBT

Big Health centers on a web-based program called Sleepio,

an evidence-based intervention that uses CBT for insomnia, or CBT-I. Instead of being delivered in an office by a psychologist, Sleepio’s six-week intervention is led by an animated virtual sleep expert named The Prof and his narcoleptic dog Pavlov. “It’s designed to feel entertaining, but it’s actually full-octane CBT,” Espie says.

He and his colleagues tested the intervention in a randomized, placebo-controlled trial of people with chronic insomnia. More than 70 percent of participants who completed the online CBT intervention had healthy sleep eight weeks after the program ended, compared with less than 30 percent of participants who received a placebo in the form of visualization exercises (*Sleep*, Vol. 35, No. 6, 2012). Further randomized controlled trials have been published since then, including a study of more than 3,700 participants that showed

improving sleep also improves mental health (*The Lancet Psychiatry*, Vol. 4, No. 10, 2017).

Big Health is working with more than two dozen self-insured corporations in the United States to offer Sleepio to their employees. The aim, Espie says, is to close a treatment gap. Guidelines from groups such as the American College of Physicians indicate that CBT-I should be first-line treatment for people with chronic insomnia, but there aren’t enough providers to meet the demand. “Anyone in America with chronic insomnia can go to the doctor and get a sleeping pill, but they very seldom have access to CBT,” says Espie. “Our goal is to create a new digital medicine that can replace sleeping pills.”

Other companies are designing tools that patients and their health-care providers will use collaboratively. For example, Pear Therapeutics, a company based in Boston and San Francisco, is developing prescription-based digital treatments for substance use disorder, post-traumatic stress disorder, generalized anxiety disorder and schizophrenia.

In 2017, Pear’s reSET therapy for the treatment of substance use disorders became the first prescription digital therapeutic for disease treatment cleared by the Food and Drug Administration (FDA). A similar product for the treatment of patients with opioid use disorder,

FURTHER READING

FDA’s Digital Health Innovation Action Plan
www.fda.gov/downloads/MedicalDevices/DigitalHealth/UCM568735.pdf

reSET-O, to be used in combination with the medication buprenorphine, is now under review by the FDA. In April, Pear announced a deal with Sandoz, a division of the health-care company Novartis, to commercialize the two products.

reSET centers around a mobile app that leads patients with alcohol, cocaine, marijuana and stimulant use disorders through CBT-based tools and allows them to track substance use, cravings and triggers such as social pressure and loneliness. The system requires a physician's prescription, but it's designed for patients who are undergoing outpatient therapy for treatment of their substance use disorder. Clinicians such as psychologists or psychiatrists who are working with those patients can log on to a dashboard to access a patient's data and monitor his or her progress. The application also comes with a label, akin to a prescription drug label, that contains instructions for clinicians about how to integrate the tool into their therapeutic practice, says Yuri Maricich, MD, MBA, Pear's chief medical officer.

High-quality CBT for substance use treatment is time-intensive and intentionally repetitive so that patients can strengthen the neural circuits involved in resisting the substance of misuse, Maricich says. With reSET, patients can undertake the straightforward components of the treatment on their own and focus in-person therapy on more complicated issues, such as exploring why particular settings cause cravings. "reSET isn't



psychoeducation or self-help," Maricich says. "It's an actual treatment intended to improve outcomes and enhance the therapeutic alliance between the patient and the clinician."

STAMP OF APPROVAL

As digital therapeutics and other new technologies gain in popularity, the FDA is tasked with determining how best to evaluate them. Software that aims to diagnose or treat medical conditions falls under the category of medical devices. But because such software is so different from existing devices, the route to approval isn't straightforward. The reSET system was evaluated through a "de novo" premarket review pathway, a regulatory pathway for some low- to moderate-risk devices that are so novel they have no equivalents on the market.

Recognizing the need for a better approach, in 2017 the FDA published a Digital Health Innovation Action Plan and launched a new Software Precertification Pilot Program to develop a regulatory model for software technologies. The pilot program will evaluate digital

One digital therapeutic app leads patients with alcohol, cocaine, marijuana and stimulant use disorders through CBT-based tools and allows them to track use, cravings and triggers.

health companies, including manufacturers of digital therapeutics, and certify companies to go through a more streamlined review. Precertified companies could potentially send low-risk products to market without a specific product review. "This pilot program is the first step in redesigning how the FDA regulates digital health products," says Bakul Patel, associate director for digital health in the FDA's Center for Devices and Radiological Health.

Requiring a prescription and seeking FDA approval involve extra effort for developers of digital therapeutics, but those efforts are worth it to ensure patient safety, Maricich says. When treating high-risk conditions such as substance use disorder, patients can face significant harm from treatments that don't do what they claim, he adds. An official stamp of approval indicates that the digital therapeutic has been rigorously evaluated. "All medications and devices need to be evaluated to make sure they're safe and effective. There's no reason to presume that software is any different," Maricich says. Regulatory approval is also an important step toward getting insurance companies to cover the costs of digital therapeutics, he adds.

While regulatory and insurance wrinkles still need to be ironed out, digital medicine pioneers say it's only a matter of time before physicians are regularly prescribing digital therapeutics. "I don't think we're far from an environment where digital medicine is a first-line option," Espie says. ■

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