



**PennState**  
Social Science  
Research Institute

# Annual Report

2016 - 2017

[www.ssri.psu.edu](http://www.ssri.psu.edu)

# Inside This Report

Letter From the Director .....	3
SSRI Centers and Institutes .....	5
People in the SSRI (2016 - 2017) .....	7
SSRI Events (2016 - 2017) .....	9
SSRI by the Numbers .....	11
Penn State project to help at-risk youth conquer chronic stress .....	15
Population Health Research in the Era of Big Data .....	17
Penn State study examines evidence of racial disparities in special education .....	19
Grant creates first national center for child maltreatment studies at Penn State .....	21
Study to measure effects of early environment on mental and physical health .....	23
What's in a face? Study shows puberty changes facial recognition .....	25
DOJ grant to develop Pennsylvania SAFE-T Center .....	27
Open source software valuable resource to Penn State researchers .....	29
Psychology professor is going back to class .....	31
Study explores military-family functioning before and after suicide deaths .....	33
Measuring and improving the impact of parks on health .....	35
Studying the effects of incarceration on women and their families .....	37

## Our Mission

The Social Science Research Institute fosters novel, interdisciplinary research in the social and behavioral sciences that addresses critical human and social problems at the local, national, and international levels. We do so by bringing together researchers from different disciplines around emerging areas of study and by providing consultation, financial support, and shared infrastructure and services to social and behavioral scientists at Penn State.



Housed within the Office of the Vice President for Research, the SSRI is one of five university-wide research institutes at Penn State.

## The SSRI Welcomes New Assistant Directors

### **Sheri A. Berenbaum, Ph.D.**

Dr. Berenbaum is a Professor of Psychology and Pediatrics at Penn State and has joined SSRI as an Assistant Director. Her research is centered around social and cognitive development, particularly from a neuroscience standpoint. The goal of Dr. Berenbaum's research is to understand how biological predispositions and childhood social environments influence each other to create individual differences in social behavior and cognition. She received her doctorate in Psychology from the University of California, Berkeley.

### **Leif Jensen, Ph.D.**

In addition to becoming an Assistant Director for SSRI, Dr. Jensen is Distinguished Professor of Rural Sociology and Demography. His research includes social stratification, with a focus on rural populations and rural-urban differences, demography, with emphasis on migration and immigration, and sociology of economic development, with focus on Latin America. Dr. Jensen holds a doctorate in Sociology, which he received from the University of Wisconsin.

### **Danielle Symons Downs, Ph.D.**

Dr. Downs is a Professor of Kinesiology and Obstetrics & Gynecology and has joined SSRI as an Assistant Director. Her research concerns theoretical determinants of exercise motivation and participation, evidence-based behavioral interventions to promote physical activity and health during preconception, prenatal, and postpartum periods, and excessive exercise and eating pathology behaviors. Dr. Downs has a doctorate in Health and Human Performance from the University of Florida.



# Letter From the Director

Since its launch in 2001, Penn State's Social Science Research Institute (SSRI) has promoted innovation and excellence in research within the social and behavioral sciences. The Institute's mission is to foster novel, interdisciplinary collaborations that address critical human and social problems at the local, national, and international levels and that translate and disseminate this knowledge into measurable outcomes for human behavior, health, and development. The SSRI advances its mission by bringing together researchers from a range of disciplines around emerging areas of study and by providing consultation, financial support, and shared infrastructure development and services to social and behavioral scientists at Penn State. It is one of five, cross-university research institutes supported by the Office of the Vice President for Research, including the Institutes for Energy and Environment, Huck Institutes for the Life Sciences, Institute for CyberScience, and Materials Research Institute.

Research in the social and behavioral sciences ranges from studies of large-scale social forces, including socio-economic, political, and socio-cultural processes and influences, to dynamics in smaller group settings such as families, school classrooms, and work organizations. It also encompasses research on behavior, ranging from overt actions to underlying psychological processes including cognitive, affective, and motivational functioning. And, there is an emphasis on the role of human behavior in adapting to change, in resilience in the face of challenge, and in effecting change—in the self as well as in the social and physical environments. Indeed, social science research extends from the genome to the globe, and its impacts range from the development of evidence-based social policies that target vulnerable populations, to education programs aimed at learning and skill building, to everyday behavioral practices that promote health and prevent disease.

The SSRI's 2016-2017 Annual Report presents some of the recent research by Penn State's social and behavioral scientists. We focus this year on projects that align with the Institute's 2014-2019 strategic research directions: the human system, social disparities, smart and connected health, innovative methods, and dissemination and implementation science (see page 4). These articles portray just a sampling of the many groundbreaking, interdisciplinary research projects led by Penn State's social and behavioral scientists. In describing these

projects, the Annual Report also highlights the SSRI's research units and activities, the growing number and scope of supports by the SSRI's units, and the success of the SSRI's seed program



Susan McHale, Ph.D.

in our faculty's efforts to win external funding for their research.

Within SSRI, a major accomplishment of this academic year is the funding and establishment of Penn State's new Center for Healthy Children, a signature project of the Child Maltreatment Solutions Network. Under the leadership of Dr. Jennie Noll, director of the Solutions Network and SSRI co-funded faculty member, 13 Penn State members from nine departments have embarked on a five year, \$7.7 million projected funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development and with generous matching support from the University. The project is aimed at reducing health disparities for abused and neglected children and promoting the capacity of Pennsylvania's child welfare system to better support children and their families. In this and other ways, the Child Maltreatment Solutions Network is poised to become a national and international resource for efforts to combat child maltreatment (see page 21).

Other significant achievements of SSRI co-funded faculty members this year include Charles Geier, Assistant Professor of Human Development and Family Studies, who was named the inaugural recipient of the Dr. Frances Keesler Graham Early Career Professorship. The award provides supplemental funding to faculty members working in developmental neuroscience.

Additionally, Jennifer Van Hook, former Population Research Institute director, was recently named the Roy C. Buck Professor of Sociology & Demography; Daniel Perkins, Director of the Clearinghouse for Military Family Readiness and Professor of Family and Youth Resiliency and Policy, received the 2016 Federal Update and Family Life Specialists' Career Impact Award; Joshua Smyth, Associate Director of SSRI and Professor of Biobehavioral Health and Medicine, was awarded the Penn State 2017 Faculty Scholar Medal for Outstanding Achievement in Social Science; Chad Shenk, Assistant professor of Human Development and Family studies, received the Mark Chaffin Early Career Research Award; and Koraly Pérez-Edgar, McCourtney Early Career Professor in

Psychology, received the 2017-2018 Cattell Sabbatical Award.

The SSRI also welcomed three new co-funded faculty members this year. Jennifer Glick, Arnold S. and Bette G. Hoffman Professor in Sociology, joined the faculty last fall and assumed the role of director of the Population Research Institute. Dr. Glick takes the reins from Michelle Frisco, Associate Professor of Sociology and Demography and SSRI co-funded faculty member, who earned wide appreciation for serving as interim PRI Director this year. In addition, joining the Solutions Network faculty this year are Sarah Font, Assistant Professor of Sociology, and Erika Lunkenheimer, Associate Professor of Psychology, who will be Associate Director of Education for the Solutions Network.

Professors Glick, Font, and Lunkenheimer join a vibrant group of investigators who comprise SSRI's co-funded faculty and whose interdisciplinary research is advancing social and behavioral science. SSRI's co-funded faculty reflect the partnerships between the Institute and academic units around the University. In total, SSRI provides salary support for 42 faculty members from 12 departments in five colleges (see page 8).

In another important development, the SSRI Executive Committee expanded this year to include three new assistant directors: Sheri Berenbaum, Professor of Psychology and Pediatrics; Leif Jensen, Distinguished Professor of Rural Sociology and Demography; and Danielle Symons Downs, Professor of Kinesiology and Obstetrics & Gynecology (see page 2). The Assistant Directors join Associate Directors Keith Aronson and Joshua Smyth in SSRI's efforts to promote interdisciplinary and translational social and behavioral science at Penn State.

As I hope this report communicates, the social and behavioral sciences remain a vibrant component of Penn State research. In the coming year, the Social Science Research Institute, through its infrastructure and support mechanisms, will continue to promote and enhance this vital work.

Susan McHale, Ph.D.  
Director

## 2014 - 2019 Strategic Research Themes



### The Human System

How environments and experiences affect stress and immune functions, social, cognitive, and affective neural processes, and gene-related mechanisms—and the ways in which these processes both shape and are shaped by human behavior, health and development



### Social Disparities

Discovery of causes and consequences and development of evidence-based policies and practices for remediating widening gaps in health, education, and resources



### Smart and Connected Health

Health and mental health promotion and disease prevention and treatment using novel technologies toward a sustainable health system



### Innovative Methods

Novel approaches to research design, data collection, security, and archiving, and modeling and analysis



### Dissemination and Implementation Science

The scientific study of best methods for translating knowledge into policies, programs, practices and products

# SSRI Centers and Institutes 2016 - 2017

## Child Maltreatment Solutions Network

Director: Jennie Noll, Professor of Human Development and Family Studies / [solutionsnetwork.psu.edu](http://solutionsnetwork.psu.edu)

The Solutions Network includes researchers and practitioners from across Penn State who produce new knowledge, foster innovative approaches to prevention and treatment, create educational opportunities, and engage with communities to combat child maltreatment.

Child Maltreatment  
Solutions Network

## Clearinghouse for Military Family Readiness

Director: Daniel Perkins, Ph.D. Associate Director: Keith Aronson, Ph.D. / [militaryfamilies.psu.edu](http://militaryfamilies.psu.edu)

The Clearinghouse works to foster and support interdisciplinary applied research and evaluation, translational and implementation science, and outreach efforts that advances the health and wellbeing of military service members and their families.

Clearinghouse for Military  
Family Readiness

## Center for Educational Disparities Research

Director: Paul Morgan, Professor of Education and Demography / [cedr.ssri.psu.edu](http://cedr.ssri.psu.edu)

CEDR conducts multi-disciplinary research aimed at closing the opportunity and achievement gaps often faced by children who are minorities, low-income, or have disabilities; CEDR is co-sponsored by the College of Education.

Center for Educational  
Disparities Research

## Information Technology Core

Director: Joe Broniszewski

The IT Core provides strategic IT vision, leadership, and solutions to the faculty, staff, and students within the SSRI to enable them to meet their research goals, deliver results, and enhance the SSRI's position at Penn State and throughout the research community.

Information Technology  
Core

## Communications Core

Director: Kristie Auman-Bauer

The Communications Core promotes the SSRI mission by engaging a broad community of stakeholders in the Institute's activities via news releases, news letters, social media and website development. Additional efforts are directed at increasing the visibility of important social science research to the broader community. The Communications Core also provides internal communications support to SSRI faculty, staff, and students.

Communications Core

## Administrative Core

Director: Sherry Yocum

The Administrative Core, in addition to its budgetary and human resources activities, is responsible for the tracking and evaluation activities pertaining to the SSRI's research supports. This includes Level 1 and Level 2 seed grants, facilitated research projects, Faculty Fellows Program, SLEIC and GIA Pilot Hours, grant proposal consultation with SSRI unit directors and co-directors around SSRI and external funding, and the SSRI co-funded faculty.

Administrative Core



### Computational and Spatial Analysis Core

## Computational and Spatial Analysis Core

**Director:** Guangqing Chi, Associate Professor of Rural Sociology and Demography, and Public Health Sciences / [csa.ssri.psu.edu](mailto:csa.ssri.psu.edu)

The CSA Core develops spatial statistics and analysis methods and infrastructure for integrating and analyzing large spatial, historical, individual, and contextual datasets. The CSA also provides consultations, programming, and analysis services.

### Federal Statistical Research Data Center

## Federal Statistical Research Data Center

**Director:** Mark Roberts, Professor of Economics / [psurdc.psu.edu](mailto:psurdc.psu.edu)

The RDC is one of 24 Federal Statistical Research Data Centers across the nation that provide researchers with secure access to restricted economic, demographic, and health data collected by US federal agencies. The RDC at Penn State, together with a branch in Philadelphia, is funded and operated by a consortium including Penn State, Drexel University, University of Pennsylvania, and the Philadelphia Federal Reserve Bank.

### Quantitative Developmental Systems Methodology Core

## Quantitative Developmental Systems Methodology Core

**Director:** Nilam Ram, Associate Professor of Human Development and Family Studies / [quantdev.ssri.psu.edu](mailto:quantdev.ssri.psu.edu)

QuantDev develops new methods for the study of human behavior and behavior change, including measurement, design, and analysis techniques that span multiple time-scales and levels of analysis.

### Population Research Institute

## Population Research Institute

**Interim Director:** Michelle Frisco, Associate Professor of Sociology and Demography / [pop.psu.edu](mailto:pop.psu.edu)

PRI supports and promotes innovative, interdisciplinary population research and is one of 21 centers across the US funded in part by a grant from the Eunice Kennedy Shriver National Institute of Child Health and Human Development.

### Social, Life, and Engineering Sciences Imaging Center

## Social, Life, and Engineering Sciences Imaging Center

**Director:** Michele Diaz, Associate Professor of Psychology and Linguistics / [imaging.psu.edu](mailto:imaging.psu.edu)

SLEIC fosters cutting edge research for which imaging methodologies play a central role by providing instrumentation, technological and substantive expertise, educational opportunities, and financial support.

### Survey Research Center

## Survey Research Center

**Director:** Joshua Smyth, Distinguished Professor of Biobehavioral Health and Medicine **Director of Operations:** Diana Crom / [survey.psu.edu](mailto:survey.psu.edu)

The SRC provides survey services, promotes and contributes to the science of survey research methodology, helps investigators prepare effective proposals for external funding, and educates members of the Penn State community on best practices and emerging developments in the survey research field.



# People in the SSRI (2016-2017)

## LEADERSHIP

**Susan McHale, Ph.D.**  
Distinguished Professor, Human Development and Family Studies and Professor,  
Demography

**Keith Aronson, Ph.D.**  
Senior Research Associate, Biobehavioral Health

**Joshua Smyth, Ph.D.**  
Distinguished Professor, Biobehavioral Health and Medicine

**Sheri A. Berenbaum, Ph.D.**  
Professor, Psychology and Pediatrics

**Leif Jensen, Ph.D.**  
Distinguished Professor, Rural Sociology and Demography

**Danielle Symons Downs, Ph.D.**  
Professor, Kinesiology and Obstetrics & Gynecology

## INTERNAL ADVISORY BOARD

**Kristie Auman-Bauer**  
Director, Communications Core

**Joseph Broniszewski**  
Director, Information Technology Core

**Guangqing Chi, Ph.D.**  
Associate Professor, Rural Sociology and Demography, and Public Health Sciences

**Diana Crom**  
Director of Operations, Suvey Research Center

**Michele Diaz, Ph.D.**  
Associate Professor, Psychology and Linguistics

**Michelle Frisco, Ph.D.**  
Associate Professor, Sociology and Demography

**Jennie Noll, Ph.D.**  
Professor, Human Development and Family Studies

**Daniel Perkins, Ph.D.**  
Professor, Family and Youth Resiliency and Policy

**Mark Roberts, Ph.D.**  
Professor, Economics

**Sherry Yocum**  
Director, Administrative Core

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Dean, College of Health and Human Development

**Mukund Kulkarni, Ph.D.**  
Chancellor, Penn State Harrisburg

**David Monk, Ph.D.**  
Dean, College of Education

**Leslie Parent, Ph.D.**  
Dean, College of Medicine

**Richard Roush, Ph.D.**  
Dean, College of Agricultural Sciences

**Susan Welch, Ph.D.**  
Dean, College of the Liberal Arts

## STEERING COMMITTEE

**Kathleen Bieschke, Ph.D.**  
Professor and Head, Education (Educational Psychology, Counseling, & Special Education)

**Kristin Buss, Ph.D.**  
Professor, Psychology

**Orfeu M. Buxton, Ph.D.**  
Associate Professor, Biobehavioral Health

**Soo-yong Byun, Ph.D.**  
Associate Professor, Education (Educational Theory and Policy)

**Jonathan Foulds, Ph.D.**  
Professor, Public Health Sciences

**Lisa Gatzke-Kopp, Ph.D.**  
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**Steven Haas, Ph.D.**  
Associate Professor, Sociology and Demography

**Denise Haunani Solomon, Ph.D.**  
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**Claudia Mincemoyer, Ph.D.**  
Professor, Agricultural Economics, Sociology, and Education

**Shannon Monnat, Ph.D.**  
Assistant Professor, Rural Sociology, Demography and Sociology

**Paul Morgan, Ph.D.**  
Professor, Education (Educational Theory and Policy)

**Daniel Perkins, Ph.D.**  
Professor, Family and Youth Resiliency and Policy

**Jennifer Savage Williams, Ph.D.**  
Assistant Professor, Nutritional Sciences

**Catherine Surra, Ph.D.**  
Professor and Director, Behavioral Sciences and Education at Penn State Harrisburg





## CO-FUNDED FACULTY

**Brian Allen, Psy.D.**

Assistant Professor, Pediatrics

**Rhonda BeLue, Ph.D.**

Associate Professor, Health Policy and Administration and Demography

**Kristin Buss, Ph.D.**

Professor, Psychology

**Orfeu Buxton, Ph.D.**

Associate Professor, Biobehavioral Health

**Soo-yong Byun, Ph.D.**

Associate Professor, Education (Educational Theory and Policy)

**Guangqing Chi, Ph.D.**

Associate Professor, Rural Sociology and Demography and Public Health Sciences

**Sy-Miin Chow, Ph.D.**

Associate Professor, Human Development and Family Studies

**H. Harrington Cleveland, III, Ph.D.**

Associate Professor, Human Development and Family Studies

**Michele Diaz, Ph.D.**

Associate Professor, Psychology and Linguistics

**Sarah Font, Ph.D.**

Assistant Professor, Sociology

**Jennifer Frank, Ph.D.**

Assistant Professor, Education, (Curriculum, and Instruction)

**Michelle Frisco, Ph.D.**

Interim Director, Population Research Institute/Associate Professor, Sociology and Demography

**Lisa Gatzke-Kopp, Ph.D.**

Associate Professor, Human Development and Family Studies

**Charles F. Geier, Ph.D.**

Assistant Professor, Human Development and Family Studies

**Jennifer Glick, Ph.D.**

Arnold S. and Bette G. Hoffman Professor, Sociology

**Christine Heim, Ph.D.**

Professor, Biobehavioral Health

**Marianne Hillemeier, Ph.D.**

Professor and Head, Health Policy and Administration and Demography

**Cynthia Huang-Pollock, Ph.D.**

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**Kent Hymel, M.D.**

Child Abuse Pediatrician

**Kathleen Keller, Ph.D.**

Assistant Professor, Food Sciences and Nutritional Sciences

**Derek Kreager, Ph.D.**

Associate Professor, Sociology and Criminology

**Erika Lunkenheimer, Ph.D.**

Associate Professor, Psychology

**Sheridan Miyamoto, Ph.D.**

Assistant Professor, Nursing

**Shannon Monnat, Ph.D.**

Assistant Professor, Rural Sociology, Demography, and Sociology

**Karen Murphy, Ph.D.**

Professor, Education (Educational and School Psychology and Special Education)

**Jenae Neiderhiser, Ph.D.**

Distinguished Professor, Psychology and Human Development and Family Studies

**Jennie Noll, Ph.D.**

Director, Child Maltreatment Solutions Network/Professor, Human Development and Family Studies

**Carlomagno Panlilio, Ph.D.**

Assistant Professor, Education (Educational Psychology, Counseling, and Special Education)

**Koralý Pérez-Edgar, Ph.D.**

McCourtney Early Career Professor, Psychology

**Daniel Perkins, Ph.D.**

Director, Clearinghouse for Military Family Readiness / Professor, Family and Youth Resiliency and Policy

**David Puts, Ph.D.**

Associate Professor, Anthropology

**Kai Schafft, Ph.D.**

Associate Professor, Education (Educational Leadership) and Rural Sociology

**Suzu Scherf, Ph.D.**

Assistant Professor, Psychology

**Hannah Schreier, Ph.D.**

Assistant Professor, Biobehavioral Health

**Idan Shalev, Ph.D.**

Assistant Professor, Biobehavioral Health

**Gregory Shearer, Ph.D.**

Associate Professor, Nutritional Sciences

**Chad Shenk, Ph.D.**

Assistant Professor, Human Development and Family Studies and Pediatrics

**Joshua Smyth, Ph.D.**

Associate Director, Social Science Research Institute / Distinguished Professor, Biobehavioral Health and Medicine

**Shedra Amy Snipes, Ph.D.**

Assistant Professor, Biobehavioral Health

**Robert Turrisi, Ph.D.**

Professor, Biobehavioral Health

**Jennifer Van Hook, Ph.D.**

Roy C. Buck Professor of Sociology and Demography

**Nicole Webster, Ph.D.**

Associate Professor, Agricultural and Extension Education

**Krista Wilkinson, Ph.D.**

Professor, Communication Sciences and Disorders

# SSRI Events (2016-2017)

## Persistent and Emerging Issues in Population Health Science

September 19 – 21, 2016

The 2nd annual Interdisciplinary Population Health Conference brought together researchers and scholars from a wide array of disciplines, from medicine to economics, as well as community groups. Over the course of the three-day event, these groups gathered to not only discuss research, but also to consider how to use this information to implement strategies that would improve Population Health. Sessions covered a variety of topics including emerging research in housing, neighborhoods, and health, how education influences morality, and how substance use is an emerging and alarming population health problem. In addition to SSRI sponsorship, it was supported by a grant from the Robert Wood Johnson Foundation, and was organized by the Population Research Institute, Institute for Policy & Social Research at the University of Kansas, and the Interdisciplinary Association for Population Health Science.

## Trauma Informed Schools: How child maltreatment prevention, detection, and intervention can be integrated into the school-setting

October 10 – 11, 2016

The 5th annual Child Maltreatment Solutions Network conference on child protection gathered top researchers from across the globe to discuss the ways in which schools could better address student difficulties that occur outside the classroom. The conference focused on the importance of educational professionals being equipped to understand and aid students who have experienced a traumatic life event. Studies featuring the impact of preventative teaching for children, detection training for educators, and self-care mechanisms for those experiencing second-hand traumatic stress were highlighted. Aiming to develop a suitable framework for trauma-informed schools, researchers and conference attendees held an open discourse throughout the two-day conference.

## 24th National Symposium on Family Issues - Sleep across the Lifecourse: Family Influences & Impacts

October 24 – 25, 2016

Renowned family and sleep specialists from across the nation gathered for the two-day conference, hosted by SSRI and the Population Research Institute. Quality of life and sleep are closely linked, and the conference explored the ways in which age, gender, stress level, culture and life experience connect to sleeping patterns and overall health. While often thought of as an individual act, sleeping patterns have the ability to influence family life as a whole, and discussion of moving sleep study forward in a way that incorporates family research was prevalent. This year's symposium was dedicated to Avi Sadeh, a pioneer in the field of pediatric sleep and a respected colleague and friend. The Family Symposium series is funded in part by a grant from the Eunice Kennedy Shriver National Institute of Child Health and Human Development and also receives support from Penn State's Clinical and Translational Science Institute, the Prevention Research Center, and the Child Study Center, and the Departments of Sociology and Criminology, Psychology, Human Development and Family Studies, Anthropology, and Biobehavioral Health.

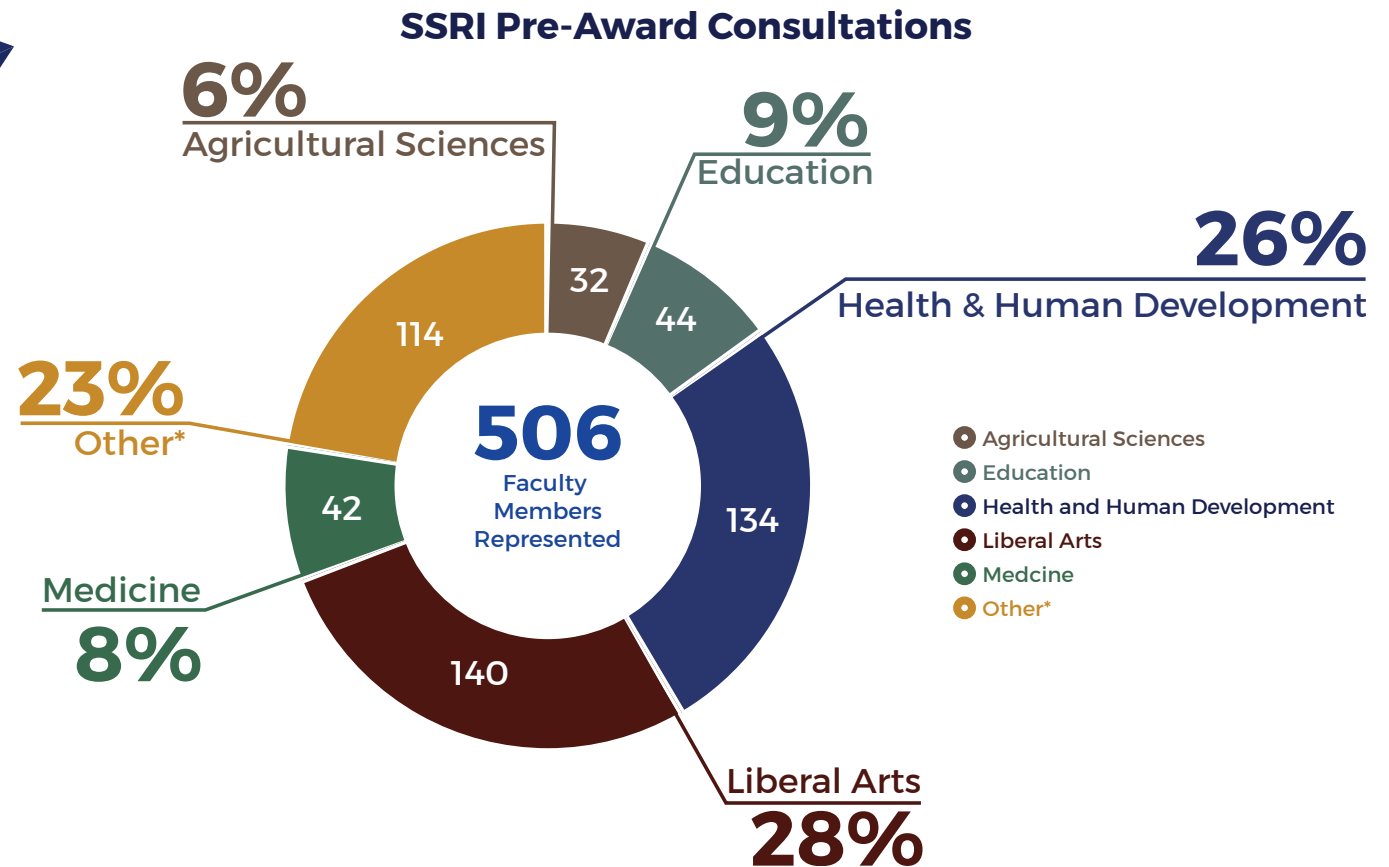




# SSRI by the Numbers

## SSRI CONSULTATIONS

An important service of the Social Science Research Institute is the provision of pre-award consultation by SSRI directors for faculty members pursuing grants in the social and behavioral sciences. During 2016-2017, SSRI Unit and Associate Directors met with 506 faculty members. Of these, 458 were affiliated with Penn State. The number of consultations by college is illustrated below.



\*Other includes Colleges of Arts & Architecture, Communications, Earth and Mineral Sciences, Engineering, IST, Law, Nursing, Office of the VP for Research, Penn State Commonwealth Campuses, Science, Libraries, Administrative units, and external faculty.



## SSRI SEED GRANTS

Here we provide an overview of the outcomes realized by Level 1, Level 2, and Facilitated seed grants since the inception of the SSRI grant program in 1998. The figures below describe “closed” projects only, i.e. projects that have been completed and are no longer being actively tracked for outcomes.

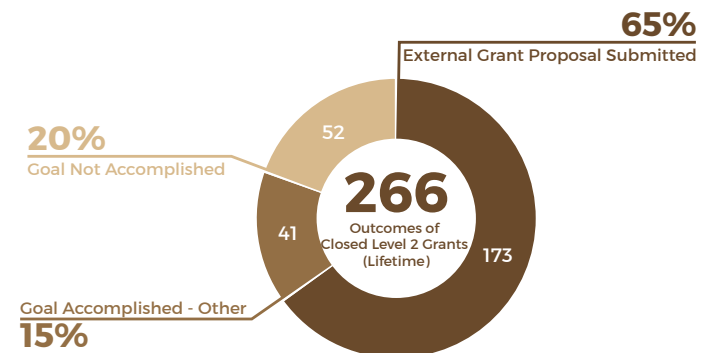
**LEVEL 1:** 361 Level 1 projects were closed as of June 30, 2017, representing a total investment of over \$1.5 million. From these 361 projects, 222 external grant submissions resulted, and 89 (40%) of these were funded. Awards from external grants based on Level 1 awards now exceed \$54.3 million, with an additional \$7.6 million pending as of June 30, 2017. In addition, nearly 11% of Level 1 projects progressed to Level 2 submissions. In most other cases, Level 1 projects were evaluated to have met goals either through establishing networking connections or providing professional development and support. As of June 30, 2017, each \$1 invested by the SSRI in Level 1 projects has yielded approximately \$16.77 of indirect return to the University. (See figure below.)

**LEVEL 2:** To date, 266 Level 2 projects have been completed with a total investment of \$4.9 million. From these Level 2 projects, 312 external proposals were submitted. Of the external proposal submissions, 123 (40%) were funded. The lifetime total grant awards for closed projects as of June 30, 2017 totaled \$89.5 million. Each \$1 invested in Level 2 projects has yielded approximately \$6.29 of indirect return to the University. (See figure below.)

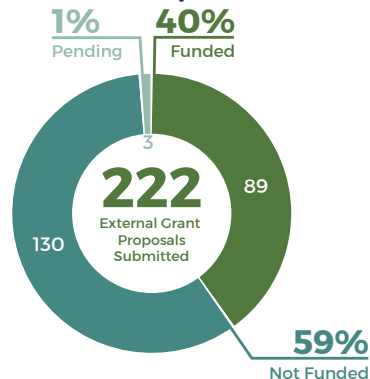
### Outcomes of Closed Level 1 Grants (Lifetime)



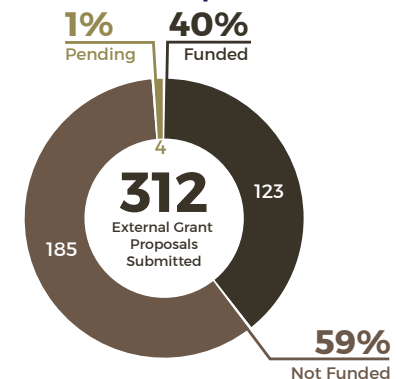
### Outcomes of Closed Level 2 Grants (Lifetime)



### Level 1 External Grant Proposals Submitted



### Level 2 External Grant Proposals Submitted



# **2014 - 2019 STRATEGIC RESEARCH THEMES**



## The Human System

Penn State project to help at-risk youth conquer chronic stress

Population Health Research in the Era of Big Data



## Social Disparities

Penn State study examines evidence of racial disparities in special education

Grant creates first national center for child maltreatment studies at Penn State

Study to measure effects of early environment on mental and physical health



## Smart and Connected Health

What's in a face? Study shows puberty changes facial recognition

DOJ grant to develop Pennsylvania SAFE-T Center

Open source software valuable resource to Penn State researchers



## Innovative Methods

Psychology professor is going back to class

Study explores military-family functioning before and after suicide deaths



## Dissemination and Implementation Science

Measuring and improving the impact of parks on health

Studying the effects of incarceration on women and their families



## Penn State project to help at-risk youth conquer chronic stress

**S**tress can cause numerous physical and mental health problems, but for children, stress from problems such as discrimination or poverty are especially harmful because they have little control over them. Fortunately, an intervention program is being expanded for youth facing chronic stress.

Building a Strong Identity and Coping Skills (BaSICS) is a program developed by the Penn State CaRES Lab designed to teach low-income and minority preadolescent youth healthy ways of coping with stress and divert them from negative outcomes.

Martha Wadsworth, director of the CaRES (Coping and Regulation of Environmental Stress) Lab, Associate Professor of Psychology, and her research team were awarded a \$1.1 million grant from the National Institute of Mental Health (NIMH) to expand and evaluate the effectiveness of the BaSICS program. If the team is successful in achieving their goals in first two years of the project, they will receive an additional \$1.7 million from NIMH for the second phase.

According to Wadsworth, the BaSICS program began as a pilot study with 50 youth three years ago in a Harrisburg community marked by persistent poverty, violence, and poorly funded schools. It was introduced as part of the Harrisburg Academy summer program for youth and now includes sessions during the school year.

“Children living in these conditions are exposed to toxic stress, which can set them on a trajectory for lifelong health problems, both mental and physical,” said Wadsworth. “Their brains and bodies are still developing, so toxic stress can ‘get under the skin’ and leave children vulnerable to developing problems such as depression, post-traumatic stress disorders, and substance abuse, along with physical health complications such as asthma, diabetes, and cardiovascular disease.”

According to Wadsworth, BaSICS is the first intervention program to integrate

individual and collective coping skills, training and positive identity development with the goal

of promoting positive youth development. The program, aimed at children ages 10 to 12, is eight-weeks long and community-based, taking place at youth-serving agencies in the children’s neighborhoods.

“It is a prevention program designed to give these at-risk kids the tools they need to manage stressful situations and grow strong minds and bodies. We teach kids coping and problem solving skills, as well as how to join with others in their community to take social action. The children utilize their new skills and capacities to work towards making their little corner of the world a little safer, cleaner, or more beautiful.”

Wadsworth explained the program is not just about helping children learn how to stay calm when they are upset. Rather, BaSICS incorporates insights from psychotherapy and empowerment theory and validates children’s natural emotional responses to unfairness and injustice. “We acknowledge that it is normal to feel angry and frustrated in the face of discrimination and violence, and emphasize that what they do about these feelings is important and can lead to ‘good’ or ‘bad’ outcomes. We teach them an array of skills to take positive action instead of anti-social action in response to the stressful events they encounter every day.”





**Martha Wadsworth, Ph.D.**

Associate Professor,  
Psychology

## Strategic Research Themes



**Social Disparities**



**Dissemination and  
Implementation Science**

The BaSICS program also helps kids explore their cultural and ethnic identities so that they can begin the task of figuring out who they are, where they came from, and where they are headed in the future. “We have kids in the group identify a problem or a need in their community and work together to come up with a solution,” Wadsworth said. “These activities help meet a child’s fundamental human needs for belonging, purpose, and agency.”

Wadsworth and her team recruited 150 fifth and sixth graders from the Harrisburg area to participate in the program, which is being held after school in biweekly, eight week sessions throughout the school year. Half of the children were randomly assigned to participate in BaSICS and the other half of the children will not receive the intervention.

The team will be assessing the children’s coping skill acquisition and mental health problems, along with salivary cortisol levels in response to a stressful task in the lab. “Cortisol is a hormone produced by the adrenal glands, which helps regulate the body’s response to stress. Moderate cortisol responses to stress are beneficial, but cortisol levels that are very high or very low signal that the stress response system is not operating properly,” Wadsworth explained.

The results from the pilot study are promising, and Wadsworth and her team are excited to expand the program. “In the pilot study, we observed positive changes in how the youth coped with stress and in their psychological symptoms.”

Wadsworth and her team found that after participating in BaSICS, the children showed improved coping skills, reduced symptoms of anxiety and depression, and remarkably, improved cortisol patterns—the children with blunted cortisol levels were able to develop better physiologic responses to stress than before, whereas the children with exaggerated cortisol patterns were able to regulate themselves better following a stressor.

Wadsworth hopes that the results of this large-scale study will confirm their promising preliminary findings that psychosocial intervention can affect not only children’s mental health, but can also impact how stress affects their bodies. “These findings will help us develop powerful interventions for kids facing toxic stress—powerful enough to help in our efforts to combat income- and race-based health disparities.”

Seed funding for this project was provided by SSRI as well as the Africana Research Center and the Justice Center for Research.

Other Penn State researchers on the project are Mark Feinberg, Research Professor of Health and Human Development; Jarl Ahlqvist, Lecturer in Sociology and Criminology; Gina Brelsford, Associate Professor of Psychology; and Damon Jones, Senior Research Associate in the Bennett Pierce Prevention Research Center.

# Population Health Research in the Era of Big Data

An individual's health can be affected not only by lifestyle, genetics, and access to health care, but also by social and physical environments. In multiple ongoing Penn State projects, researchers look beyond these correlates of health to construct a geo-referenced longitudinal database that combines individual medical records and contextual data that will be invaluable for studying a range of various health outcomes.

According to Guangqing Chi, Director of SSRI's Computational and Spatial Analysis Core, Associate Professor of Rural Sociology and Demography and Public Health Sciences and SSRI co-fund, research that systematically examines the social determinants of health outcomes has been lacking, largely because datasets comprised of all relevant factors are not available. "The relevant data are scattered among multiple sources, are at different scales, and are presented in a variety of formats. This project is an opportunity to bring together medical data with environmental data."

Chi says it is more feasible for such a database to be constructed now than it was in the past. "There are more public health data available as more individual medical records are now stored electronically. Additionally, advances in methods and software tools are now available to develop and analyze the data, and the ever-increasing power of inexpensive computers makes compilation and analysis of the data more practical and affordable."

One project involves identifying possible data sources related to health outcomes. The researchers utilized data from the U.S. Census Bureau, U.S. Department of Transportation, the Environmental Protection Agency, PaTH Clinical Data Research Network and other data sets to determine the causes of obesity and its role in asthma.

"We looked at individual characteristics such as age, gender, BMI, race, allergy history, and smoking status, and compared them to treatment, prescriptions, and ER admissions, to identify and visually explore how community

and environmental conditions modify the relationship of BMI to asthma occurrence and severity," said Chi.

In another project, the researchers are comparing the correlates and prevalence of high-risk opioid prescriptions among adolescents and young adults. Prescription opioid abuse is a critical public health issue and is the cause of increasing overdose deaths across the country.

The researchers will identify characteristics of patients, providers and geographic factors associated with increased high-risk opioid prescription. They will look at patient demographics, clinical factors, provider and geographic factors and examine the various outcomes across regions of Pennsylvania.

In a third project the researchers will examine the prevalence of type 2 diabetes, which is a growing problem in the U.S., affecting approximately eight percent of the population.

The researchers are also developing effective and efficient approaches for integrating data, and testing their approach by identifying spatial clusters of households at risk for diabetes. This will allow them to better understand mechanisms leading to development of diabetes and to suggest changes to the environment that can promote better health outcomes.

Eugene Lengerich, Department of Public Health Sciences, Penn State Hershey College of Medicine and a collaborator on the project, says he is most interested in using the health data generated as part of Penn State's efforts to establish its Cancer Research Institute as a National Cancer Institute. "The data will allow us to identify cancer risk areas, which will be a critical piece for Institute designation."

Additionally, the data collected will be available to the general public to look at cancer rates and health care options down to the county level as well as to cancer researchers for further analysis. "There are so many resources available at Penn State, and collaborations like this one allow us to capitalize on them," said Lengerich.

Other collaborators on the project from the Penn State Hershey College of Medicine are Cynthia Chuang, Vernon Chinchilli, Bari Dzomba, Wenke Hwang, Jennifer Kraschnewski, Faoud Ishmael, and Jed Gonzalo; and from Penn State Vasant Honavar, Shannon Monnat, and Rhonda BeLue. These projects are being funded by the Penn State Hershey College of Medicine's Pathways to Partnerships grant program.

Calories  
Heart rate  
Blood sugar  
Blood pressure



**Guangqing Chi, Ph.D.**

Director,  
Computational and Spatial Analysis Core  
Associate Professor,  
Rural Sociology and Demography and Public Health Sciences

## Strategic Research Themes



Innovative Methods



The Human System





Special education programs are designed to meet the needs of all students with cognitive, behavioral or physical disabilities, regardless of their race or ethnicity. However, a best-evidence synthesis led by Paul Morgan, Director of SSRI's Center for Educational Disparities and Professor of Education, found evidence that black children may not be receiving the special education services they are entitled to, even when they display the same clinical needs as white children.

Morgan and his research team's findings run counter to federal legislation as well as policies currently being considered to address minority over-representation



**Paul Morgan, Ph.D.**

Professor, Education (Educational Theory and Policy)



## Penn State study examines evidence of racial disparities in special education

in special education. “We found very little evidence in prior studies that minority children are over-represented in special education as a result of their race or ethnicity,” Morgan said. “On the contrary, our synthesis of the best-available studies indicates that white children are more likely to be identified as having disabilities and to receive special education services than black children. These disparities are evident even when black children were displaying the same disability-related symptoms as well as being otherwise similar on other background characteristics.”

The research team identified 22 studies meeting the review’s inclusion criteria that reported on black children’s representation in special education. The team found that studies with weaker designs were more likely to report that black children were over-represented in special education. According to Morgan, these studies have been used to direct federal legislation and policymaking, even though they often didn’t adequately control for potential confounding factors including greater exposure to poverty.

“We discovered that more rigorous studies, including those that controlled for poverty exposure as well as individual-level academic achievement, consistently showed that black children were less likely to receive special education services than otherwise similar white children,” said Morgan.

Morgan says that federal policies currently being considered by the U.S. Department of Education do not seem to be taking into account the best-available empirical evidence. “The policies are being designed to address minority over-representation in special education, but our findings show a clear pattern in which minority children are not being appropriately identified and helped.

These disparities in care and treatment may be contributing to racial achievement gaps.”

The team’s findings are similar to reports in public health of racial and ethnic disparities in disability identification, including for conditions such as autism spectrum disorder, attention deficit hyperactivity disorder, learning disabilities and other conditions.

The results also have important implications for special education practice, research, and policy. “The review indicates that methodological limitations in existing studies help explain conflicting findings as to whether minority children are over- or under-represented in special education,” Morgan explained. “Methodologically stronger studies find that black children are under-represented in special education. This suggests the need for federal legislation and policies that result in more equitable service delivery, possibly through universal screening efforts.”

“Black children, because of many societal inequities, often experience lower quality health care and are at greater risk for disabilities. Not providing care and treatment to children with disabilities on the basis of their race or ethnicity is discriminatory, and may be exacerbating educational inequalities, including achievement gaps and school dropout.”

The project was funded by a Spencer Foundation Midcareer Grant.

Other members of the research team were George Farkas, professor of education at the University of California; Natasha M. Strassfeld, assistant professor of special education at New York University; and Penn State researchers Marianne M. Hillemeier, department head and professor of health policy and administration; Deborah L. Schussler, associate professor of education; and Michael Cook and Wik Hung Pun, graduate assistants.

### Strategic Research Themes



Social Disparities



**R**oughly 2 million children experience maltreatment each year in the United States, with more than \$124 billion spent in the U.S. on child maltreatment-related costs.

Recognizing this, The Eunice Kennedy Shriver National Institute of Child Health and Human Development, the NICHD, part of the National Institutes of Health (NIH) completed a competitive process to fund, for the first time, an academic institution to function as a “Capstone Center.” Penn State was selected based on scientific merit to establish the Center for Healthy Children. The award of \$7.7 million will support the center as a national resource for child maltreatment research and training. To further this effort, Penn State has committed \$3.4 million in funds, to total more than \$11 million.

“Maltreatment is a critical issue requiring tangible solutions. There needs to be a heightened focus on raising the bar for research in this area so we can develop specific ways to prevent maltreatment and promote health and well-being for survivors,” said Jennie Noll, the principal investigator of the NIH award, Professor of Human Development and Family Studies, Director of the Child Maltreatment Solutions Network, and SSRI co-fund. “We don’t yet have a comprehensive understanding of exactly why maltreatment leads to such dire consequences for some, while others may exhibit remarkable resilience. This is why it is vitally important that we identify the mechanisms involved in these health disparities.”

The knowledge generated by this research will allow scientists, in conjunction with advocates and practitioners, to develop and



**Jennie Noll, Ph.D.**

Director, Child Maltreatment Solutions  
Network  
Professor,  
Human Development and Family Studies

## Grant creates first national center for child maltreatment studies at Penn State

implement novel, targeted and optimized interventions that will maximize the ability to impact lives and have relevance nationwide and through-out the world.

This grant is a direct outgrowth of an initial investment Penn State made in 2012 to create and support a network of researchers who have since come together to solve the complex problem of child maltreatment. Through this investment, the Solutions Network hired 12 faculty members across five colleges, each working from distinct, yet complementary angles in a highly unique trans-disciplinary effort.

The grant was established to fund cutting-edge research that focuses on child maltreatment and provides practical suggestions for preventative measures and recommendations that can spur legislative action. In one of the research projects, Noll and her team will invite approximately 1,200 children aged 8-13 from around the Commonwealth to participate in a study focused on eradicating health disparities for children who have been involved in the child welfare system. This large cohort study, led by Christine Heim, Professor of Biobehavioral Health and Professor and Head of the Department of Medical Psychology at the Humboldt and Free University of Berlin, will include health screenings, monitoring and education in the areas of emotional and behavioral well-being as well as physical health.

Another research project supported by the grant will be led by Dr. Kent P. Hymel, Child Abuse Pediatrician at Penn State Children's Hospital. Eight pediatric intensive care units from across the country will participate in a randomized clinical trial designed to assess the impact of a novel and highly sensitive screening tool for pediatric abusive head trauma. For the first time in any clinical setting, physicians will apply a recently validated screening tool to guide their decisions to launch or forgo child abuse evaluations in their young, acutely head-injured patients. By improving the accuracy of these difficult clinical decisions, implementing the screening tool could substantially reduce cases of missed or misdiagnosed

abusive head trauma, unnecessary abuse evaluations, abusive re-injury and death.

The center grant also supports a team, led by Max Crowley, Assistant Professor of Human Development and Family Studies, who will translate knowledge generated by the center's researchers into policy briefs and other communications about the fiscal costs of maltreatment to motivate larger public investment in prevention and treatment. In a unique partnership, the Penn State researchers will work in conjunction with collaborators within Pennsylvania's child welfare system to address pressing questions that are important to frontline social workers and administrators.

In addition to the new support from the NIH and continued support from the University, the center will be given dedicated space provided by the College of Health and Human Development on Penn State's University Park campus.

Other researchers working with Noll, Heim, Hymel, and Crowley on this project include Diana Fishbein, Professor of Human development and Family studies and Director of the Edna Bennett Pierce Prevention Research Center; Sarah Font, Assistant Professor of Sociology; Sheridan Miyamoto, Assistant Professor of Nursing; Chad Shenk, Assistant Professor of Human Development and Family Studies; Idan Shalev, Assistant Professor of Biobehavioral Health; Hannah Schreirer, Assistant Professor of Biobehavioral Health; Emma Rose, Research Assistant Professor, Edna Bennett Pierce Prevention Research Center; Vernon Chinchilli, Distinguished Professor of Public Health Sciences; Mark Dias, Associate Professor of Neurosurgery; and Ming Wang, Assistant Professor of Biostatistics and Bioinformatics.

### Strategic Research Themes



The Human System



Social Disparities



Dissemination and  
Implementation Science

# Study to measure effects of early environment on mental and physical health

A child's development is affected by numerous factors, including biological and environmental ones. As part of a multi-institutional collaboration, Penn State researchers will focus on understanding the effects of early environmental exposures and genetic factors on children's mental and physical health.

Jenae Neiderhiser, Distinguished Professor of Psychology and SSRI co-fund, along with Leslie Leve, Professor and Associate Dean for Research and Faculty Development at the University of Oregon, and Jody Ganiban, Professor of Clinical/Developmental Psychology at George Washington University, serve as principal investigator for a project that is funded by the National Institutes of Health (NIH) Environmental Influences on Child Health Outcomes (ECHO) program. This is one of 35 ECHO Pediatric Cohort awards being funded by NIH with the goal of enrolling more than 50,000 children from diverse racial, geographic and socioeconomic backgrounds to become part of a large consortium study aimed at examining early risk impacts.

According to Neiderhiser, their work will draw on a wealth of already collected data from the Early Growth and Development Study (EGDS), an adoption study of birth parents, adoptive parents, and adopted children that examines how heredity, prenatal environment, and rearing environment – including family, peer, and other relationships – affect children's adjustment.

"EGDS includes data from families all over the U.S. and measurements of the family social environment, the prenatal environment, medical records from birth parents and the adopted child, and DNA and salivary cortisol samples," said Neiderhiser. "Our project is unique because we are able to distinguish genetic from environmental influences. At birth, the children are placed into a rearing environment that includes genetically unrelated parents."

The first phase of the project will include a two-year planning period, during which the researchers will work closely with other members of the ECHO consortium and NIH to design the data collection phase of the project. The first phase will also require Neiderhiser, Leve, and Ganiban to conduct assessments and preliminary analysis of data from families in the EGDS project.

The researchers will also recruit additional family members from both birth and adoptive families, resulting in a total sample of over 1,000 children and over 900 sibling pairs. "A new and exciting part of our planned data collection is to add biological and adoptive siblings to the EGDS sample. Including siblings will allow us to compare siblings who are living together to those who are living apart and to compare siblings who are genetically related and unrelated. This adds to our ability to study how heredity and environment work together to influence children's development," Neiderhiser explained.

While the main focus of the project is on genetic and environmental effects on mental health and development, the researchers will also be looking at how these factors affect physical health concerns, including obesity and asthma. "It will be interesting to tease apart heritable and environmental effects to clarify environmental influences on child health and development on such a large scale. This has never been done before," Neiderhiser explained.

The research team will also collaborate with SSRI's Computational Analysis Core to develop a geocoding system of neighborhood-level stressors important to child development and health.

Neiderhiser anticipates that the large sample of diverse sibling pairings in EGDS, in combination with those participants across the entire ECHO consortium, will provide a rich data set that will enable identification of the specific mechanisms and processes that lead to emergence of health problems. "We hope that our data, combined with other ECHO-funded projects, will lead to improved prevention efforts to minimize health disorders and promote healthy development."

Seed funding for Neiderhiser's previous work was provided by SSRI.





**Jenae Neiderhiser, Ph.D.**

Distinguished Professor,  
Psychology,  
Human Development and Family Studies

## Strategic Research Themes



The Human System



Social Disparities



Innovative Methods



# What's in a face? Study shows puberty changes facial recognition

Faces are as unique as fingerprints and can reveal a great deal of information about our health, personalities, age, and feelings. Penn State researchers recently discovered that adolescents begin to view faces differently across pubertal development for the transition to adulthood.

Suzy Scherf, Assistant Professor of Psychology, Head of the Laboratory of Developmental Neuroscience and SSRI co-fund, and Giorgia Picci, graduate student in Developmental Psychology, published their findings in the journal, *Psychological Science*. "We know that faces convey a lot of different social information, and the ability to perceive and interpret this information changes through development," Scherf explained. "For the first time,

we've been able to show how puberty, not age, shapes our ability to recognize faces as we grow into adults."

According to Scherf, the ability of adolescents to retune their face processing system, from showing a bias toward adult female faces as children, to preferring peer faces that match their own developmental stage in puberty, is part of the social metamorphosis that prepares them to take on adult social roles. "In other words, it literally changes the way people see faces. This has been shown previously in research using animal models, but not in humans."

The researchers developed an innovative experimental design that



reveals a bias to remember peer faces that is reflected in the pubertal stage of the face, rather than the age of the face (which is how previous researchers investigated these biases). “We were able to show that puberty shapes the subtle emergence of social behaviors that are important for adolescents’ transition to adulthood. This likely happens due to hormones influencing the brain and the nervous system reorganization that occurs during this time,” said Scherf.



**Suzy Scherf, Ph.D.**

Assistant Professor,  
Psychology

## Strategic Research Themes



### The Human System

The researchers recruited 116 adolescents and young adults for the study and separated them into four pubertal groups depending on their own stage of puberty. Importantly, the adolescents in the study were all the same age, but differed in their stage of puberty. Therefore, any differences in the way they responded to faces were related to their pubertal status, not their age. Scherf and Picci determined adolescents’ stage of development through self-assessments as well as parent-provided assessments.

The researchers presented participants with 120 gray-scale photographs of male and female faces. The pubertal status of the faces in the pictures matched that of the participants. “In other words, there were images of pre-pubescent children, young adolescents in early puberty, young adolescents in later puberty, and sexually mature young adults,” Scherf explained.

Participants were asked to look at faces from all four pubertal groups, and the researchers measured their face-recognition ability using a computerized game.

After studying 10 target faces with neutral expressions, participants were shown another set of 20 faces with happy expressions and had to identify whether they had seen each face previously or if they were new.

Scherf and Picci found that the pre-pubescent children had a bias to remember adult faces, which they termed the caregiver bias.

“This is interesting because these are school-age children who spend lots of time with other children, yet they are still biased to remember adult faces,” said Scherf.

In contrast, adolescents had a bias to remember other adolescent faces, exhibiting a peer bias. According to Scherf, the most surprising finding was that among adolescents who were the same age, those who were less mature in pubertal development had better recognition memory for other similarly less mature adolescents, while those who were more mature in pubertal development had better recognition memory for peers who were similar in their level of development.

“This shows that adolescents are very clued into each other’s pubertal status. They can literally see it in each other’s faces, perhaps unconsciously, and this influences how they keep track of each other. This may explain a well-known finding that adolescents organize their peer groups according to pubertal status and is relevant for understanding how adolescents begin to think about each other as romantic partners.”

This research will help scientists uncover how puberty impacts the developing human brain and understand the timetable of behavioral and brain changes during adolescence. Such insights could guide mental health treatment and inform public health policy. In the future, Scherf and Picci plan to further investigate face processing changes that occur during puberty.

Support for this project was provided by SSRI, Penn State’s Department of Psychology, and a National Science Foundation Graduate Research Fellowship, which was awarded to Picci.



## DOJ grant to develop Pennsylvania SAFE-T Center

With funding from a 1.1 million U.S. Department of Justice, Office of Victims of Crime grant, Sheridan Miyamoto, Assistant Professor of Nursing and SSRI co-fund, along with Janice Penrod, Professor of Nursing, and Lorah Dorn, Professor of Nursing and Pediatrics, are using telemedicine technology to enhance access to sexual assault forensic exams in underserved populations.

Called the Sexual Assault Forensic Examination and Training (SAFE-T) Center, the project focuses on providing access to high quality forensic sexual assault exams and care for adult and adolescent victims in underserved communities. The Department of Justice cited results of an eight-year study completed by Miyamoto and colleagues at the University of California-Davis as a basis for funding the demonstration project.

Through telemedicine, or in this case, the use of high-resolution image display of live examination video conferencing, Miyamoto hopes to improve the quality of services afforded to victims of assault in rural hospitals across Pennsylvania, where sexual assault rates are higher than in urban settings. She calls the instant two-way communication a “rewarding partnership.”

“This program is not intended to rely on an expert on one side and eyes and hands on the other,” Miyamoto explained. “Instead, experienced nurse examiners have the opportunity to mentor those who are less experienced in a partnership designed to result in higher quality patient care and a more forensically defensible exam. The consultant nurse team offers 24/7 live exam guidance and mentoring to local nurses, who are meanwhile enhancing and developing their skills so they can become the local experts.”

The system provides support on an emotional level, too. Miyamoto said the nurses are often handling too many roles simultaneously and performing emotionally draining work in isolation, without colleagues. The creation of a network of colleagues who come together using telemedicine technology to share cases and challenges each month goes a long way to reducing that isolation. Miyamoto herself worked at a rural community health clinic as a nurse practitioner after graduate school. She found the lack of specialty resources stark, and she is eager to change that.

The SAFE-T Center is also working with Community and Expert Advisory Boards, made up of a multidisciplinary group of community leaders and researchers, to engage in planning for the success and future growth of a state-wide network. Miyamoto has enlisted the contributions of faculty members Jennifer McCall-Hosenfeld and Chris Sciamanna, physicians at the Penn State Hershey Medical Center; Daniel Perkins, Director of the Clearinghouse for Military Families; Dennis Scanlon, Director of the Center for Health Care and Policy Research Center; Gary Zajac, Director of the Justice Center for Research; and Casey McClain, Assistant Public Defender and Adjunct Clinical Professor. Miyamoto stresses the importance of role diversity within the coalition.

“Sexual assault is a multi-faceted problem,” she said. “We need law enforcement, district attorneys, health care, children and youth services and advocates all at the table. We need to ask how we can together build a solution, and ask how we can regionalize services to meet the needs of victims of assault. Together, we can produce the change we wish to see.”

The overall goal of the SAFE-T program is two-fold, according to Miyamoto, first to improve the quality of forensic examinations, and second, to establish the sustainability of the program. She considers Penn State the ideal setting for such an undertaking.

“The Penn State campuses are conveniently distributed across the state and there is a strong nursing presence both in educational programs and in the Community Based Research Network. I believe this effort could really grow into a much-needed solution in our largely rural state. Then, if research determines that this model improves access and quality of care and quality of forensic evidence, we will know it is the right thing to do, and ideally, a sustainability plan will follow. That is my great hope,”



Miyamoto  
said.

Additional funding for this project was  
provided by SSRI's Child Maltreatment  
Solutions Network and the Clinical and  
Translational Science Institute.



**Sheridan Miyamoto, Ph.D.**

Assistant Professor,  
College of Nursing

## Strategic Research Themes



The Human System



Dissemination and  
Implementation Science





Timothy Brick, Ph.D.

Assistant Professor,  
Human Development and Family Studies

## Strategic Research Themes



Innovative Methods

## Open source software valuable resource to Penn State researchers

**O**penMx provides free, open source software for data analysis and is hosted by the Quantitative Developmental Systems Methodology Core, with support from SSRI.

According to Tim Brick, Administrator of Open Mx and Assistant Professor of Human Development and Family Studies, OpenMx is intended for statistical analysis in the extended Structural Equation Modeling (xSEM) framework.

“Structural Equation Modeling (SEM) is broad framework for linear modeling that makes it easy to think of your model either in terms of a path diagram that represents the way measurements co-vary using circles, boxes, and arrows, or as a system of matrix equations that define the same phenomenon mathematically.”

OpenMx also extends the SEM framework by allowing researchers to specify sets, or ‘trees’, of models that interlock. “This is helpful when modeling the differences between single or multi-group models, as it allows you to model each component separately and compare how all of those fit together,” Brick explained.

Additionally, the extensions allow OpenMx users to specify many types of models, ranging from multiple-group (e.g. male/female) models, to behavior genetic models and dynamical systems models.

OpenMx was built with the R statistical computing language so it would be useful for a wide range of researchers. “R has recently become very popular in the behavioral sciences as a tool for data management, analysis, and visualization,” said Brick. “OpenMx has a library of R functions that integrate seamlessly into R, so it’s possible to use R’s existing tools to load in and set up your data, use OpenMx to fit some models, and R tools to visualize the results.” Integration with R also makes it an excellent tool for simulation or large-scale analysis, because it is easy to create, adjust, and re-fit OpenMx models in R.

OpenMx was also built to be expanded. Additional software packages, such as umx, are available to build newer and better xSEM models.

Additionally, OpenMx runs on several computer platforms including Mac OS X, Windows (XP, Vista, 7, 8), and several varieties of Linux. This means the same scripts written in Windows will run in Mac OS X or Linux, which can be very convenient for research teams whose members work on different platforms.

The OpenMx site gives examples of the both path model and matrix model specifications, as well as free downloads of the current software, description of its features, a user’s guide, resources, and a discussion forum. “The forum is for users of all types of software to discuss issues in multivariate statistical modeling and to work together to create open source scripts for use in a wide variety of biological, medical, epidemiological, genetic, and behavioral sciences,” said Brick.

OpenMx was funded by a grant from the National Institutes of Health Roadmap and was previously located in the Human Dynamics Lab in the Department of Psychology at the University of Virginia. Currently, the project is partially funded by a grant from the National Institute of Drug Abuse and involves a multisite collaboration between Penn State, University of Virginia, University of Oklahoma Health Sciences Center, Virginia Commonwealth University, and University of Edinburgh.

For more information on OpenMx and to get started, visit the website at <http://openmx.ssri.psu.edu/>.



## Psychology professor is going back to class

For many academics, a tenured post at a major research institution like Penn State is the pinnacle of career success. And Associate Professor of Psychology and SSRI co-funded faculty member, Koraly Pérez-Edgar, has all of the accolades that accompany that distinguished position.

She is the McCourtney Early Career Professor in Psychology, and as the principal investigator in the Cognition, Affect, and Temperament Lab, she leads research to explore factors that place children at increased risk for anxiety. With more than \$4 million in grants from the National Institute of Mental Health, she and her team are studying attention patterns in children, particularly a child's tendency to attend to perceived threats in the environment that may trigger, shape and reinforce cognitive and behavioral tendencies linked to anxiety.

But despite all of her success, Pérez-Edgar is trading her position in the front of the classroom for a seat in the back. This summer, she began a sabbatical that involves auditing research methods courses at Penn State and attending statistical and methodological workshops offered by professional organizations like the American Psychological Association.

"The technology we use in the lab today, including eye-tracking technology, produces a tremendous amount of data that can help us understand children as they navigate and respond to the environment around them," Pérez-Edgar explained. "But this kind of technology did not exist when I was

in graduate school, so I need to spend time learning new methods for statistical analysis so that we can make sense of all those data."

To make her full-year sabbatical possible, Pérez-Edgar applied for and was granted the 2017-2018 Cattell Sabbatical Award, sponsored by the James McKeen Cattell Fund and administered by the Association for Psychological Science. Melvin Mark, Professor and Head of Psychology, said, "The Cattell Award is a highly competitive award in psychology, typically with only three recipients per year. Koraly's work clearly stood out to the selection committee. She was a unanimous choice of the judges. I'm delighted that Koraly will be able to spend the time needed to enhance her methodological and statistical skills to keep her research, and our department, on the cutting edge of psychological research."

During the sabbatical, Pérez-Edgar will







Koraly Pérez-Edgar, Ph.D.

Professor,  
Psychology

## Strategic Research Themes



The Human System



Innovative Methods

spend

time with her

research collaborators, including Andy Field at

the University of Sussex in England, to do intensive work with the data their

research is generating. “Ultimately this sabbatical is about developing new skills so that we can get the most informative results from our research and improve our understanding of anxiety in children,” she said. “I think that working with my colleagues to apply new methods of analysis to our data is going to be one of the most rewarding parts of the experience.”

“In psychology and in the liberal arts more broadly, we emphasize the importance of lifelong learning to our students,” Mark explains. “Koraly Pérez-Edgar is the perfect example of how we practice what we preach.”

*Authored by Casey Fenton*

# Study explores military-family functioning before and after suicide deaths

For the first time in modern history, the suicide rate of active-duty service members exceeds that of the civilian population. This finding is even more alarming considering that the suicide rate for U.S. civilians hit a 30-year high in 2014, rising a staggering 24 percent during the preceding 15 years.

Neither the factors that contribute to service-member suicides, nor the impact of suicides on military families are well understood. “It has been assumed for a long time that the increase in military suicides was due to the high operational tempo of the Global War on Terror,” stated Keith Aronson, Associate Director of the Clearinghouse for Military Family Readiness and Senior Research Associate in Biobehavioral Health. “However, there are conflicting findings in the research with some studies finding the highest suicide rates are actually among those service members who never deployed.”

A study conducted by SSRI’s Clearinghouse for Military Family Readiness and supported by a grant from the U.S. Navy, examined non-deployment related factors that precede military suicide, and the impact of those suicides on spouses and families. The study’s findings were recently published online first in the journal, *Military Psychology*.

The researchers identified 70 surviving spouses of Marines who died by suicide, combat or accident from 2008 to 2010. Spouses were asked to report on

their personal and family functioning and attitudes toward the military both before and immediately after the Marine’s death. Spouses were also asked about their current health and well-being.

Spouses of Marines who died by suicide reported significantly lower family cohesiveness and were five times more likely to report family conflict in the year prior to the death compared to spouses of Marines who died in combat. Spouses of those who died by suicide also reported having poorer psychological health in the year prior to the suicide. There were no differences in spouse attitudes toward the military either before or after Marine deaths, and attitudes remained relatively positive.

These findings suggest that programs and policies that enhance military family functioning, which is a critical outcome in and of itself, may also have the additional benefit of reducing service member suicides. The military has universal programs designed to strengthen families, as well as targeted programs for at-risk families, such as the Family Advocacy Program, which provides services and support to reduce interfamilial conflict.

“Our study indicates that building a connection between family programs and services, particularly those designed to decrease conflict and increase closeness, and those efforts focused on reducing suicide risk among service members, such as individual therapy, could provide a stronger suicide-prevention framework in the military,” stated Daniel Perkins, Director of the Clearinghouse for Military Family Readiness, Professor of Family and Youth Resiliency and Policy and SSRI co-funded faculty member. “It may not be enough to simply treat the service member who is struggling with thoughts of self-harm, if there are family factors that are not being addressed.”

Compared to spouses of Marines who died in combat, those spouses whose Marine died by suicide reported having more difficulty immediately after the death, including experiencing greater levels of perceived social stigma. They also reported greater



**Keith Aronson, Ph.D.**

Senior Research Associate,  
Biobehavioral Health



**Daniel Perkins, Ph.D.**

Professor,  
Family and Youth Resiliency and Policy

## Strategic Research Themes



Social Disparities



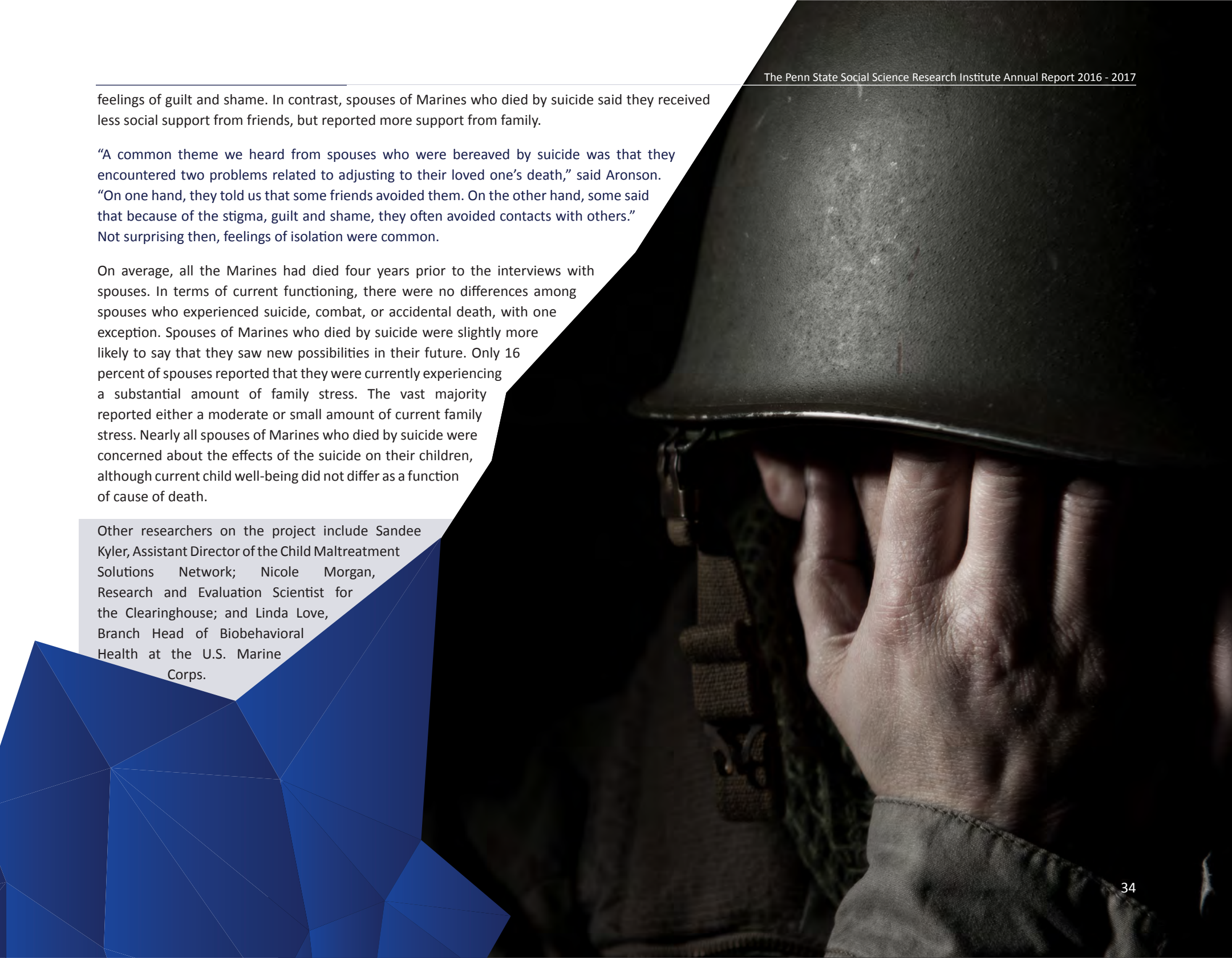
Dissemination and  
Implementation Science

feelings of guilt and shame. In contrast, spouses of Marines who died by suicide said they received less social support from friends, but reported more support from family.

“A common theme we heard from spouses who were bereaved by suicide was that they encountered two problems related to adjusting to their loved one’s death,” said Aronson. “On one hand, they told us that some friends avoided them. On the other hand, some said that because of the stigma, guilt and shame, they often avoided contacts with others.” Not surprising then, feelings of isolation were common.

On average, all the Marines had died four years prior to the interviews with spouses. In terms of current functioning, there were no differences among spouses who experienced suicide, combat, or accidental death, with one exception. Spouses of Marines who died by suicide were slightly more likely to say that they saw new possibilities in their future. Only 16 percent of spouses reported that they were currently experiencing a substantial amount of family stress. The vast majority reported either a moderate or small amount of current family stress. Nearly all spouses of Marines who died by suicide were concerned about the effects of the suicide on their children, although current child well-being did not differ as a function of cause of death.

Other researchers on the project include Sandee Kyler, Assistant Director of the Child Maltreatment Solutions Network; Nicole Morgan, Research and Evaluation Scientist for the Clearinghouse; and Linda Love, Branch Head of Biobehavioral Health at the U.S. Marine Corps.



# Measuring and improving the impact of parks on health

A team of Penn State researchers is helping the National Park Service measure and improve its human health impact. According to Derrick Taff, Assistant Professor of Recreation, Park, and Tourism Management (RPTM) and SSRI co-fund, although many people think parks provide health benefits, there is very little empirical evidence to support this assumption.

“We must improve our understanding of what aspects of nature, and in what doses, and in what contexts, provide for wellbeing,” Taff said. “Empirical evidence regarding the role of parks and nature on human health provides the necessary arguments to leaders and policy makers who play a key role in conservation.”



**Derrick Taff Ph.D.**

Assistant Professor,  
Human Development and Family Studies

## Strategic Research Themes



**Innovative Methods**



**Dissemination and  
Implementation Science**

With this in mind, Taff created a working group of experts from across Penn State whose mission was to advance knowledge around this topic. It includes researchers from multiple disciplines, including RPTM, kinesiology, landscape architecture, nutritional sciences, geography, biobehavioral health and psychology. Researchers from Harvard University, University of Montana and North Carolina State University also participated in the project.

Mallika Bose, associate professor of landscape architecture in the College of Arts and Architecture, said the project’s interdisciplinary examination of how parks impact physical and environmental health had a clear connection to her interest in place-making.

“Knowing how users relate to and are impacted by landscape features and park facilities will help us design and plan parks more effectively and allow us to create parks that help users to achieve a better quality of life,” Bose said.

Funding for the project came through a health and the environment seed grant from the Institutes of Energy and the Environment at Penn State, which fosters interdisciplinary scholarship and research to positively impact important energy and environmental challenges.

“Our project was a good fit for this grant,” Taff said. “Additionally, it was great timing to work with the National Park Service because they wanted to understand the health resources that parks provide.”

Diana Allen is Chief of the Park Service’s Healthy Parks Healthy People Program, which was established to reframe the role of parks and public lands as health resources, as well as promote the health of people and the environment.

“The interdisciplinary research that Derrick Taff is leading at Penn



State to support Healthy Parks Healthy People is invaluable in helping to better understand and act on the role of parks in promoting health,” Allen said.

Taff and his team conducted the research at two Park Service units, Gettysburg National Military Park and Catocin Mountain Park.

“We asked park visitors to complete a short survey that included a variety of health indicator questions,” Taff said. “Questions included topics such as nutrition, emotional response and general health.”

The surveys were implemented and completed on hand held devices using technology from SSRI’s Survey Research Center. The park visitor was then given a GPS tracker that documented information such as location and travel speed.

“When they returned with the GPS unit, the visitors were given a post-visit survey to discover whether their state of emotion and health had changed,” Taff said. “So, we have data that ties location back to an emotional response in a visit.”

Taff said that the group also tested health messages in the parks.

messages would affect behavior,” Taff said. “Visitors who read the sign were offered a healthy activity to participate in.”

“One key finding is how a seemingly very small change in communications with park visitors can encourage people to take a walk in the park,” Allen said. “The impact of messages in promoting physical activity in the park and having a high quality experience interpreting the significance of the battles that took place at Gettysburg is something that has applications for many of our parks and for how we can help develop fun, educational and healthy visitor experiences.”

Additionally, the group’s work is informing the Park Service’s Health Parks Healthy People Criteria Tool, which will be used by parks and protected-area managers in the U.S. and internationally to assess their own efforts to effectively manage parks as health resources for visitors and employees.

In addition to Taff and Bose, Penn State researchers who are members of the working group are Jacob Benfield, Associate Professor of Psychology, Penn State Abington; Melissa Bopp, Associate Professor of Kinesiology; Xiang Gao, Associate Professor of Nutritional Sciences; Brian King, Associate Professor of Geography; Andrew Mowen, Professor of RPTM; Peter Newman, Professor and Head of RPTM; Joshua Smyth, Distinguished Professor of Biobehavioral Health and Medicine and SSRI co-fund; and Heather Costigan, RPTM graduate research assistant.

*Authored by Kevin Sliman*

“Using simple signage, researchers explored whether  
signs with health



# Studying the effects of incarceration on women and their families

**T**he number of women in prison has increased dramatically in the last several decades, yet there is little research into women's experiences in prison and how they affect their families.

Derek Kreager, SSRI co-funded faculty member and Associate Professor of Sociology and Criminology, and multi-institutional researchers will explore the prison and re-entry experiences of women incarcerated in two Pennsylvania prisons as part of a three-year project funded by the National Institute of Justice.



**Derek Kreager, Ph.D.**

Associate Professor,  
Sociology and Criminology

## Strategic Research Themes



**The Human System**



**Social Disparities**



**Innovative Methods**

After several years of focusing on incarcerated men, for the first time Kreager and his research team will explore the social landscape in women's prisons. "There hasn't been a lot of research into women's experiences of being incarcerated, released, or being reincarcerated," Kreager explained. "We also don't know about the effects of incarceration on their families, including their children, as many of the women are mothers."

The impact of female incarceration on child well-being is of particular concern, as incarcerated women are much more likely than their male counterparts to be primary caregivers of minor children at the time of their imprisonment. "Previous research indicates that if a mother becomes incarcerated, it increases the child's risk of entry into the foster care system, which can further disrupt child well-being," said Kreager.

In the first phase of the project, the research team will work with prison staff to identify one unit in each of the prisons to conduct approximately 100 to 200 network and health interviews. The researchers will examine the unit's friendship network, hierarchy, and romantic ties, as well as to find associations between inmate networks and prison health outcomes.

In phase two, parole-eligible respondents will be interviewed about their future expectations and preparations for community re-entry. "This will give us a unique glimpse into the reentry process women undergo after being incarcerated and how it affects family reintegration, employment, post-release program participation, and relapse," Kreager said.

Additionally, child and caregiver interviews will be conducted for inmate respondents who are mothers. According to Kreager, "These interviews will capture the well-being, fears, aspirations, and preparation of

inmates'  
families and surrogate  
parents prior to prison release."

During the final phase of the project, the researchers will interview the previously imprisoned women to examine how they, their children and caregivers have adjusted to life after prison and if they were able to achieve their previously stated goals. The researchers will also compare the factors underlying successful re-entry into society versus those linked to reincarceration.

The process will be repeated for the second prison site in the second year of the project. "One of the prisons will be low security, with inmates serving shorter sentences, while the other will be high security with long term inmates, so it will be important to assess the differences in social structure and outcomes," said Kreager.

Kreager also expects to see several differences from his previous work with incarcerated men. "We know that incarcerated women are dealing with more victimization experiences and mental health and substance abuse issues. Often they have children for whom they are the caregivers, so we will learn more about child custody issues, the foster care system, and child protective services," Kreager explained. "Additionally, from what we've observed, there is often a clear hierarchy in men's prisons, while in women's prisons there are more egalitarian groups. Women tend to form more pseudo-families in prison, but with so many distinct groups there is also an increased chance for tension."

The researchers hope their work will affect policies for prisoner reentry and provide novel insights. "We'll be getting this information in the women's own words, which has been missing in previous research, so we'll have a better understanding of what they are going through and what they are feeling," said Kreager.

Other researchers on the project include Gary Zajac, Director of Penn State's Justice Center for Research, Dana Haynie, Professor and Director of the Criminal Justice Research Center at Ohio State, Sara Wakefield, Associate Professor of Criminal Justice at Rutgers University, and Michaela Soyer, Assistant Professor of Sociology at Hunter College.

The project also involves Penn State Criminology graduate students and research associates: Corey Whichard, Kim Davidson, Ted Greenfelder, Brianna Jackson, Elaine Arsenault, and Gerardo Cuevas.

The researchers worked with the Pennsylvania Department of Corrections' Office of Planning, Research, Statistics and Grants to obtain approval and support for the project, while the Justice Center for Research in the College of the Liberal Arts provided seed funding.





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