

# Researchers release data from 20-year twins study

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Twin brothers from the study. So much alike; so different.

When identical twins take different paths in life, researchers take notice. And when foresighted and tenacious researchers have collected data on those twins, tracking measurements from birth through adolescence, the dataset serves as a treasure trove for geneticists and social scientists.

The husband-and-wife team of Avshalom Caspi and Terrie Moffitt set up such a study on identical and fraternal twins after moving after moving to the United Kingdom in the mid-1990s. Caspi, the Edward M. Arnett Professor of Psychology and Neuroscience, is a developmental psychologist whose research focuses on human development and mental health. Moffitt, the Nannerl O. Keohane University Professor of Psychology and Neuroscience, is a clinical psychologist specializing in the development of antisocial behavior.

Their study, known as the Environmental Risk Longitudinal Twin Study, or E-Risk, drew a sample of 1,116 families of same-sex twins born in England and Wales in 1994 and '95 from all walks of life. They collected data on the twins at ages 5, 7, 12, and 18 to investigate how genetic and environmental factors shape children's disruptive behavior.

Now Caspi and Moffitt are offering Duke faculty the opportunity to draw from the data at no charge. The data are [housed at SSRI](#), which has the capability to archive, curate, and disseminate the data in a secure computational environment.

"Our study provides SSRI with a model project to share with the wider community of researchers who will be able to work with the data in an ethically responsible way to generate new knowledge," Caspi said. "Our hope is that the data will be used for teaching purposes as well as discovery."

Caspi and Moffitt have been in the business of constructing longitudinal data for most of their careers. Measuring data from twins allows researchers to study the interplay of nature and nurture.

"When you have monozygotic twins who are different from one another, you can look closely at what environmental factors may have created differences between them," Caspi said.

Sharing the data with other Duke faculty began with a suggestion from Dan Belsky, an assistant professor in the medical school and SSRI. Belsky had drawn on E-Risk data for his studies on food insecurity and on mental health, so he knew that this unique resource existed. He also knew that SSRI at the time, early in 2014, was assembling the capacity for secure computing with sensitive data. He served as a catalyst for making the E-Risk data available to the Duke community. SSRI wanted to support integrative cross-disciplinary collaboration; at the same time,

the E-Risk data were maturing, and Caspi and Moffitt wanted to get more users involved in it.

"I saw sharing data as a way to bring these two sides together," Belsky said. "Integrating genetics and social science research is a major objective of my own research and something I want to work to cultivate at Duke. Something I've realized from my own experience is that serious integration across disciplines depends on seriously integrative data. A twin study that was both representative of the general population and that had really first-class social and behavioral measurements seemed like a perfect vehicle."

Caspi and Moffitt pulled together a team of psychologists, public health researchers, psychiatrists, and criminologists to collect the data. The process involved home visits with parents and their twins and teacher questionnaires to note factors in the home, family, school, and neighborhood that influence children's development and health.

Duke faculty may be interested in tapping the data to answer questions about [mental health](#), social development, experience in school and characteristics of students' environment. E-Risk also has worked hard to track exposure to violence in children.

Caspi and Moffitt have used the data in studies about the effects of childhood maltreatment on cognitive development; how early-developing psychological problems and psychiatric conditions impair children's ability to integrate into the labor force; and the effect of absent fathers on children's educational behavioral and cognitive development.

Working out the details of what would be shared and how took about a year, Belsky said, "which in science collaboration time is really fast."

A significant proportion of the research data social scientists work with

are considered sensitive. SSRI partnered with Duke's Office of Information Technology and the IT Security Office to create a protected network exclusively for sensitive research data. Rachel Franke, associate director of research data security at SSRI, said data security at SSRI has expanded to include an IRB specialist, a grants team, communications assistance, and a range of resources to support researchers.

"Rather than offer a locked safe," she said, using an analogy, "it's more like offering a bank with a range of services and a staff that understand why the security controls are in place and how to work with researchers."

Duke faculty interested in delving into the E-Risk study for research should become familiar with the codebooks and descriptions to learn what is and isn't available in the data and get a sense of what other researchers have done. The faculty member should submit a brief concept paper to Caspi, outlining the study idea and the kind of variables required. Caspi will be able to help researchers focus their ideas to make the best use of the data.

"It's very easy to get lost in data," he said, "especially when you have a lot of data and multiple waves and measurements and occasions."

Caspi and Moffitt continue to mine the data. By sharing their data with the wider Duke community, Caspi said, "other researchers, maybe an economist or sociologist, might use the data in ways we had not foreseen."

Duke researchers could shape the study into the future, he said. "By suggesting new measurements, and introducing new ideas and technologies and follow-ups, they keep the study fresh and interesting."

Provided by Duke University

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