

# Unpredictability a major factor in risky sexual behavior

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Family studies professor Bruce J. Ellis addressed members of a think tank, Evolution Institute, about his research on risky behavior among some adolescents.

(PhysOrg.com) -- University of Arizona family studies professor Bruce J. Ellis has developed a theoretical framework for understanding how elements of change and stress often guide the behavior of young people.

Researchers at the University of Arizona are trying to understand how childhood experiences, especially stress, affect young peoples' development, in particular their sexual development.

Bruce J. Ellis, a professor of family studies and human development at the UA, is engaged in ongoing research, trying to separate out the effects

of noxious, harsh environments, such as those associated with poverty and depressed neighborhoods, from unpredictable events such as moving, changing schools and changing parental arrangements.

The findings may have implications for reducing hazards associated with youth, drug and [alcohol abuse](#) and [early pregnancy](#).

Ellis, who studies pubertal timing and sexual behavior, is the John and Doris Norton Endowed Chair in Fathers, Parenting and Families in the Norton School of Family and Consumer Resources at the UA. His work centers around how evolution has shaped the brains of children to detect and encode information from their environment, information that guides their development.

"One of the most striking things about human sexual development is simply its variation," Ellis said. "If you visit a fifth grade class you'll see that some kids haven't started [puberty](#) yet, and some look like small adults. In high school – tenth and eleventh grade – some, particularly boys, still look like children. Some of the girls look like they could be 21 years old. There's tremendous variation."

There also is variation when young people start forming relationships. Ellis said some of them will form long-term, committed relationships that last a lifetime. Others end up with many different sexual partners and engage in behaviors that are much more problematic. Likewise, some will become pregnant or father children in their teens, and others will wait several years before they have children or may not at all.

Traditionally, Ellis said, the thought has been that stress is cumulative. Growing up in poverty and sketchy neighborhoods, living with abusive parents or other adults, poor child care and other forms of adversity all add up to induce "disregulated behavior and malfunctioning."

Ellis's body of theoretical work and experimentation contrasts with standing theory. His most recent published article, "Fundamental Dimensions of Environmental Risk: The Impact of Harsh versus Unpredictable Environments on the Evolution and Development of Life history Strategies," appeared in the journal *Human Nature*. The journal's editors described Ellis's paper as "... a seminal contribution to life history science."

At its annual meeting in August, the American Psychological Association gave Ellis the 2010 George A. Miller Award, which recognizes the best recent theoretical paper in general psychology. It was the second time in five years that Ellis has received the award, the only scientist to win it twice.

In the article, Ellis and contributing authors Aurelio Jose Figueredo in the UA psychology department, Barbara H. Brumbach in the psychology department at Northern Arizona University, and UA research scientist Gabriel L. Schlomer synthesized theory and data from the field of life history evolution to advance a new theory of variation in human development. They examine how harshness (externally caused levels of death and disability) and unpredictability (variation in harshness over time and space) influence the rates at which individuals physically develop and reproduce.

"What I'm arguing is that harsh environments are important, as is cumulative exposure to stress. But above and beyond that there is something critically important about the level of change in unpredictability in the child's environment," Ellis said. "The developing brain appears to be especially attuned to environmental change and ready to accelerate development – go to seed early – when those changes indicate that the future is uncertain.

"We measure how many times a child has moved, how often a child has

changed schools, how many times have the parents changed jobs. And perhaps most important of all, how many parental changes has the child experienced?"

Those parental changes may result from divorce, remarriage, living in foster homes or with other relatives. Ellis said changes in the care-giving environment can be added to form a measurement of the level of unpredictability or change in a child's life that goes beyond poor neighborhood environments or a lack of resources in the household. Unpredictability also impacts parents.

"It's very predictive of the growth of depression in mothers, for instance. And in turn it is predictive of the quality of parenting that the mother and father provide the child. That in turn predicts things about the child, such as how early they go through puberty and how much sexual risk-taking is there." he said.

"In a nutshell, what we find is that children who experience more changes in and around the family environment and have more unpredictable lives tend to engage in earlier, more risky sexual behavior."

Data for Ellis's work comes from the Eunice Kennedy Shriver National Institute of Child Health and Human Development that in 1991 began to follow at birth children from 1,359 families across the nation and in every socio-economic background. Information on parenting came from direct observations of parent-child interactions rather than interviews. Socio-economic background was determined by census data.

Gathering information about sexual activity was another story. "The place where it is most challenging is trying to measure [sexual behavior](#) because there is only one way to ethically obtain that information: directly ask the teenagers."

Nonetheless, he said, teenagers tend to provide good information when they are teens. Asking the same questions 10 years later and getting essentially the same answers provides good evidence of reliability, Ellis said.

He added that experimental evidence elsewhere has shown that – for instance, in a study aimed at young girls involved in the juvenile justice system – those who were assigned to an alternative program designed to reduce unpredictability began to shift their behavior toward longer-term goals, control of their own behavior and developing patterns of success, productivity and stability. The teenage pregnancy rate in this group also fell by 50 percent.

Said Ellis: "The implications are that when designing programs, youth activities and interventions to help kids, taking into consideration the fundamental importance of having a predictable contingent environment is going to make a large difference."

Provided by University of Arizona

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