

Psychological Science in the Public Interest

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Lead authors of two recent issues of *Psychological Science in the Public Interest (PSPI)* present their findings at this year's APS Annual Convention

Interactions of Neurotoxins and Social Environments in Cognition

Laura Hubbs-Tait, Oklahoma State University, led the team that produced the December 2005 PSPI report, "Neurotoxicants, Micronutrients, and Social Environments: Individual and Combined Effects on Children's Development." Her team consisted of specialists in child development and social environments (herself), pediatrics and nutrition (Nancy F. Krebs, University of Colorado Health Sciences Center), and neurotoxicology (Jack R. Nation, Texas A&M University, and David C. Bellinger, Harvard).

Hubbs-Tait explained her team's goal was to present the current state of knowledge across these different domains, and to present a model for studying the interacting effects of neurotoxic metals with other factors in the physical and social environment that may either worsen or lessen their harmful effects. In the past, she said, neurotoxicologists have been good about controlling for social factors, but the record of nutritionists and psychologists is much poorer: Psychologists seldom, if ever, take toxic substances or nutrients into account when studying the impact of social environments.

Lead, which became an environmental hazard during the last century from industrial pollution, paint, and car exhaust, has been known for a few decades to harm children's cognitive development. A 2005 study found that an increase of blood lead from 2.4 to 10 micrograms/deciliter could account for 3.9-point drop in IQ. (Decades ago, before lead was removed from paint and gasoline, much higher blood-lead levels were quite common in urban children and were considered "normal.")

There is a growing understanding of the cellular mechanisms whereby lead harms cognition, revealing ways in which other factors can also come into play.

Lead impedes the expression of the NMDA receptor, which is believed to be crucial to cellular processes of learning and memory. But positive social stimulation may protect against this: Studies with rats suggest that stimulating social environments and maternal nurturing may offset lead's effects by increasing expression of the NMDA receptor. Nutrient metals like iron and zinc may also have a protective effect. Zinc, for instance, is an essential building block of the NMDA receptor and may similarly block lead's effects on cellular learning mechanisms.

The catch, Hubbs-Tait said, is that children who are at the greatest risk for lead exposure — poor and minority children living in inner cities — are also the ones most likely to experience impoverished social environments at home and at school, and to receive diets poor in beneficial micronutrients. Low-income children, for example, are four times more likely than middle-income children to have elevated lead

levels in their blood.

Hubbs-Tait also discussed how mercury, an industrial pollutant, causes cognitive and behavioral problems as a result of pregnant mothers' consumption of fish. Its effects are different, but like lead, mercury has a similarly complex web of mitigating and exacerbating factors in the social and physical environment.

Those at highest risk of mercury poisoning, Hubbs-Tait said, are ethnic minorities (such as American Indian and Hispanic Americans) who fish for subsistence in polluted waters; lower educational level contributes to their lack of awareness about fish advisories. Much of the complexity of mercury's impact comes from the fact that many beneficial nutrients that mitigate the metal's effects — such as DHA, selenium, and iodine — may be consumed in the same fish that contain mercury.

Using Psychological Science in Child Custody Evaluations

Robert Emery, University of Virginia, discussed the findings and conclusions of the PSPI report, “A Critical Assessment of Child Custody Evaluations: Limited Science and a Flawed System” — which he wrote last year with Randy K. Otto, University of South Florida, and William T. O'Donohue, University of Nevada.

Psychologists are increasingly called upon to help determine “children's best interests” in court cases over custody. After opening with a case study he had recently encountered — a couple with two teenage kids divorcing after the wife discovered her husband had been unfaithful — Emery posed a series of questions: What is the best role of a psychological expert in helping to determine custody in a case like this? Should that psychologist be a custody evaluator, and if so, what should he or she evaluate? And what is the science that can actually help that expert in making a custody assessment?

States make their own divorce guidelines, Emery explained, but the prevailing standard is the “child's best interest” standard. Such a standard sounds good in theory because it implicitly is taken to mean psychological best interests (i.e., well-being), it is focused on the child and not either the mother or father, and it seems like it will result in an individually tailored solution. But there are many practical weaknesses, he said.

“Best interests” are presumed to be psychological best interests, but could just as easily be, for instance, “monetary best interests.” People would naturally object to such an interpretation, he pointed out, but this only underscores the problems with a vague and noncommittal definition of psychological best interests: It provides no guidelines for judges to follow in making custody decisions — hence their reliance on mental health experts like psychologists — and it potentially lets bias into their decisions.

Custody is an area in which, according to Emery, “we have no clear social or legal guidelines.”

The position of family court judge having to decide a custody case is an unenviable one, he said, and the word of the psychological experts is generally what settles the case. Unfortunately, there is precious little science available to help psychologists. Scientific evidence does not show a clear benefit, other things being equal, to living with the mother as opposed to the father, for instance, or living with the same-sex parent as opposed to the opposite-sex parent. And there is only very limited (and inconclusive)

data to help with such controversial questions as whether or not small children should be have overnight visits with their nonresidential parents.

Various popular tests designed to evaluate parenting skills and parental suitability have no scientific justification, according to Emery. Constructs often used by evaluators, such as “Parental Alienation Syndrome” (one parent turning the child against the other), have no way of being objectively measured. And commonly used assessment tools that do have scientific legitimacy (e.g., intelligence tests or measures of psychopathology) have questionable relevance to the question before the court.

Because it provides so little meaningful guidance, the “best interests of the child” standard actually increases parental conflict during or following a divorce, Emery said — and “we know that one of the most toxic things for children in divorce is conflict.”

Thus, in the absence of helpful psychological science, and coupled with an adversarial system of justice that encourages parents to selfishly take opposing sides rather than work together toward compromise, the “best interests” standard does more harm than good.

Emery recommended changes to the existing system. Parents should, whenever possible, settle custody outside of court, perhaps with the help of mediators. He cited his own research on the effectiveness of mediation, showing for example that nonresidential parents who had gone through mediation were far more likely to have contact with their children as much as 12 years down the road than were those who had settled in the traditional adversarial way.

He also recommended that state legislatures replace the “child’s best interests” rule with some clearer standard. One possibility is the “approximation rule,” in which the custody arrangement reflects as closely as possible the balance of parenting involvement before the separation. Lastly, he said psychologists’ role in custody cases should be more circumscribed to presenting only scientifically supported evidence and using scientifically supported tools for evaluation.