

survey that asked 9,000 Chicago adults about the strength of social networks in their neighborhoods. The investigators then developed mathematical models to determine the probability that a given child would engage in a violent act, and to understand which factors raised or lowered his or her likelihood of violence.

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olence than any other factor, including poverty, ethnic background, and IQ. "It's just a whopping effect," he says. Of people born in other countries, he notes, "First-generation immigrants are 45 percent less likely to commit violence than third-generation immigrants, and second-generation immigrants are about 22 percent less likely [to do so] than the third generation." Mexican Americans were the least violent among those studied, in large part because they were the most likely to be first-generation immigrants, Sampson adds. The study also revealed that neighborhoods matter. "Kids living in neighborhoods with a high concentration of first-generation immigrants have lower rates of violence," he explains, "even if they aren't immigrants themselves."

What makes new arrivals more law-abiding? Sampson theorizes that people who relocate here for the sake of greater opportunity come with a strong work ethic: "They may have a certain motivation to work and not get arrested," he says. The young Latinos in Sampson's study were also more likely to live with married adults, which correlated with a lower risk of violence, and to hold conservative opinions regarding drug use and crime, all of which might deter them from breaking the law. Finally, living in a neighborhood with many first-generation immigrants—who appear to bond over their shared experience—generates a dense social network that may steer young people away from crime. It's likely, Sampson adds, that many of these immigrants are in the country illegally, which may give them "extra

incentive to keep a clean record and not commit crimes, in order to avoid deportation." After a few generations here, however, America's tradition of "frontier justice" may prompt greater violence, he speculates. "It's that notion of reacting to insults and taking the law into your own hands," he says. "You would expect more exposure to that over time."

When immigration increases, "the culture of violence is diluted," Sampson sug-

gests. Indeed, he wonders if the last decade's spike in immigration nationwide might explain the drop in crime in American cities around the same time, an idea he explored in an op-ed piece for the *New York Times* ("Open Doors Don't Invite Criminals," March 11, 2006) published as Congress began to debate immigration reform.

The column prompted a flood of e-mails

and letters, including angry rebuttals from groups favoring strict immigration controls and hate mail from individuals. Sampson says he wasn't surprised: another portion of this research indicates that preconceived notions about foreigners and minorities are tremendously difficult to shake. He and his colleagues found that the presence of Latinos and blacks in a neighborhood creates a perception of disorder, even when levels of crime and disorder are actually low. "People make inferences about neighborhoods very quickly," he says.

Still, Sampson believes that America's history as a nation of immigrants means that those who have arrived in the most recent wave will ultimately be accepted into the fold. "At the end of the day,

I'm optimistic that this debate will resolve itself in a way that's consistent with the past," he says. "I think the data show that the country isn't going to hell in a handbasket because of immigration."

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HEALING TOUCH

"Alternative" Placebos

DOCTORS ONCE KEPT jars full of sugar pills, in various colors, in their offices. "Take two of these and call me in the morning," they'd tell their difficult patients. In the 1950s, when the randomized controlled trial was developed as a procedure, scientists learned the sugar pills could indeed have an effect—termed *placebo*, Latin for "I shall please." The studies turned scientists' view of those pills on its head, just when the medical community began questioning the ethics of administering them. "They said it had huge effects—but you're not allowed to give it," says assistant professor of medicine Ted J. Kaptchuk of the Medical School's Osher Institute, which evaluates so-called holistic or alternative medicine and seeks to integrate it with Western medicine (see "The New Ancient Trend in Medicine," March-April 2002, page 46).

The placebo effect has become so well-established that regulatory agencies now approve a new drug only after studies show that its effect exceeds that of a placebo. Still, much remains to be learned about the constellation of circumstances—expectations, perception, the power of positive thinking—that seemingly come together to create the effect. Kaptchuk, who studied and practiced Chinese medicine before coming to Harvard, has devoted his career to investigating the subject. In a recent study, he found that placebo acupuncture confers a more powerful effect than does a traditional sugar (or, in this case, cornstarch) pill.

Kaptchuk studied 270 adults who reported moderate to severe pain, lasting at least three months, in one arm, and who rated their pain at least a 3 on a 10-point scale. He divided subjects into four groups: one received an analgesic in pill



An acupuncturist taps needles into a patient's back.

fooled: "The first time someone gave me a dummy needle, I said, 'You made a mistake. You gave me the real needle.'")

The pill-takers spent eight weeks in treatment, the acupuncture patients six, and all had two appointments a week. (The researchers determined the minimum effective time frame for each treatment and, as a recruitment incentive, offered to treat subjects from each placebo group with the actual therapies once the study ended.) The results, published in the *British Medical Journal*, found that the "improvement slope" of the line that plotted the decrease in pain was more than twice as steep for the subjects who received placebo acupuncture as it was for those who took placebo pills. The sham

acupuncture recipients also scored significantly better than the cornstarch pill takers on the Levine symptom severity scale, which factors in the severity, frequency, and duration of symptoms such as pain, numbness, and weakness. (Kaptchuk declined to say which treatment—real acupuncture or real analgesic—was more effective; that comparison will appear in a forthcoming study.) For now, Kaptchuk isn't sure why sham

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acupuncture seems effective at relieving patients' symptoms. It could be the time invested, or the human contact—the patients in the pill groups received only follow-up phone calls, rather than in-person appointments. But Kaptchuk believes there was something about the act of placing needles on the body, whether those needles pierced the skin or not: "All medicine is a ritual," he says.

Further evidence for the placebo effect appeared in the incidence of side effects among subjects who received such treatments (see "The Nocebo Effect," May-June 2005, page 13). Nearly a fifth of the patients who underwent sham acupuncture reported pain during treatment, while nearly a quarter of the placebo-pill takers reported dry mouth; even more reported feeling drowsy. "We had people on the placebo pill...saying they were so tired they couldn't function," Kaptchuk says. (The solution: cutting the dummy pill in half to provide a smaller "dose.") The side effects reported by the placebo-group subjects exactly mirrored the side effects described by the researchers at the study's onset. That finding "gives us very good evidence that how you tell patients to monitor possible feelings actually precipitates those feelings," Kaptchuk said. It also has direct clinical implications for how doctors and drug companies should describe treatments' side effects. Ironically, Kaptchuk adds, the placebo effect doesn't exist even as a *concept* in Chinese thought, where an effect is an effect, placebo or not.

~ELIZABETH GUDRAIS

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CONFLICT EVOLUTION

Prenatal Competition?

COMPLICATIONS from pregnancy and childbirth are the leading cause of death and disability among women between the ages of 15 and 49, according to recent World Bank figures. These grim statistics raise a puzzling evolutionary question: Given the importance of reproduction to species success, why does pregnancy so often go wrong in the ab-

sence of modern medical intervention?

The answer may lie in a once-hidden area of genetic conflict. Professor of organismic and evolutionary biology David Haig argues that the womb is the site of a maternal-fetal struggle over resources, which only in the best cases ends in the stalemate of a successful birth.

Evolutionary science has long recognized the role of natural selection in pro-

ducing instances of post-natal conflict between parent and offspring. In the early 1970s, the Harvard-trained sociobiologist Robert Trivers theorized that offspring may be genetically selected to extract more nourishment from a parent than the parent is genetically selected to give. (Trivers pointed to weaning conflicts and certain whining behaviors in mammals as expressions of these competing fitness interests.) But most biologists have viewed pregnancy as an inherently symbiotic process—one in which the interests of mother and fetus concur to optimize offspring viability and minimize the cost to maternal health.