Study tracks violence among mentally ill

According to national surveys, many people believe that individuals diagnosed with mental disorders are prone to violence. Now, the most comprehensive follow-up study to date of patients discharged from mental hospitals indicates that those who do not abuse alcohol or illicit drugs commit violent acts no more frequently than a random selection of their neighbors in urban communities.

Discharged psychiatric patients and nonpatients who do exhibit signs of substance abuse have markedly higher rates of violence, reports a research team led by sociologist Henry J. Steadman of Policy Research Associates in Delmar, N.Y. Substance abuse was more widespread among the former patients, and in the first 10 weeks after discharge it showed a stronger link to violence in this group than in the neighborhood comparison group.

"Important distinctions can be made among discharged psychiatric patients in assessing which [of them] are at an increased risk of committing violent acts against others," Steadman says. "Whether patients are abusing alcohol or illegal drugs in the community turns out to be one of the key distinctions."

Most violent acts carried out by former patients, as well as by their neighbors, were aimed at family members or friends and occurred at home.

"These findings clearly indicate that the public's fear of violence on the street by discharged psychiatric patients who are strangers to them is misdirected," contends study coauthor John Monahan, a psychologist at the University of Virginia in Charlottesville.

The new report appears in the May ARCHIVES OF GENERAL PSYCHIATRY.

Some earlier community studies, based solely on arrest records, found increased rates of violence among the mentally ill. However, researchers have noted that substance abuse often accompanies violent acts by individuals with or without psychiatric disorders.

Steadman's team interviewed 951 people shortly after they had been admitted for brief stays in psychiatric facilities in Pittsburgh, Kansas City, and Worcester, Mass. Participants, who ranged in age from 18 to 40, included white, black, and Hispanic men and women.

Their self-reports of violent behavior were gathered in interviews conducted every 10 weeks for the first year after their discharge. A family member or friend was also interviewed every 10 weeks about the former patient's behavior. Police and hospital records for each volunteer provided a third source of evidence.

The comparison group, interviewed once about their violent behavior in the past 10 weeks, consisted of 519 people selected at random from the neighborhoods in which the Pittsburgh patients lived. Additional information came from interviews with family members or friends and from arrest records.

Violent acts consisted of threats with weapons, physical assaults, and pushing or hitting that caused injuries.

The proportion of patients who committed a violent act during the study year was 18 percent for those with a major mental disorder (such as schizophrenia or manic depression) who showed no signs of substance abuse, 31 percent for patients with both a major mental disorder and substance abuse, and 43 percent for patients with another mental condition (such as a personality disorder) and substance abuse.

In Pittsburgh, non-substance-abusing patients and their community counterparts exhibited comparable violence rates.

During the follow-up period, violence rates gradually fell among patients who abused drugs, the scientists note.

These results "further challenge the dangerousness stereotype" attached to psychiatric patients, assert epidemiologists Bruce G. Link and Ann Stueve of Columbia University in an accompanying commentary.

Community surveys directed by Link find a moderate association between violence and certain psychiatric symptoms—feelings of being controlled by external forces, having thoughts put into one's head, and being targeted for harm by others (SN: 1/7/95, p. 8).

Steadman's group plans to examine the relationship of specific mental symptoms to violence. The researchers will also compare violence rates among male and female patients. *—B. Bower*

Fetal deaths climb with air pollution

Over the past decade, a host of studies has shown that a day or two after concentrations of certain key air pollutants rise, so do deaths among people with respiratory and heart disease, especially elderly people. Now, a Brazilian study has uncovered evidence of a similar vulnerability at the opposite end of the age spectrum—in the womb.

Physicians in São Paulo must report all miscarriages that occur during the third trimester of pregnancy. On most days, there are about 8, though the count can run as low as 1 or as high as 18.

Luiz A.A. Pereira of the University of São Paulo and his colleagues compared daily tallies of these fetal deaths in 1991 and 1992 to daily concentrations of major urban air pollutants: nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), dust-size particulates, and ozone. Though the São Paulo area has dirty air, "levels of pollution there are not that different from what you see in many big cities in [North America]," even in the United States, observes Dana Loomis of the University of North Carolina at Chapel Hill, a coauthor of the study.

Overall, the team found no association between miscarriage rates and either ozone or particulates. However, the number of fetal deaths rose 3 days after measurable increases in each of the other pollutants. NO_2 proved most strongly linked to those variations in miscarriage rates, even after accounting for such possible confounding factors as heat and humidity.

It would appear "that about 20 percent of the fetal deaths may be attributed to the NO_2," Pereira told SCIENCE NEWS. He cautions, however, that "since there is a high correlation among these pollutants"—combustion usually spews copious amounts of all three—it's unwise to expect, at least at this stage, that any one pollutant is solely responsible.

Indeed, the researchers will report in the June ENVIRONMENTAL HEALTH PERSPECTIVES, "the most robust association" emerged when they considered variations in NO_2, CO, and SO_2 together, not as individual risk factors.

In a second experiment, Pereira's team measured carboxyhemoglobin in the umbilical-cord blood of 47 healthy babies born to nonsmokers. Carboxyhemoglobin—produced when CO replaces oxygen in hemoglobin, the oxygen-carrying component of blood—proved most abundant in newborns delivered on days when outdoor CO concentrations were highest.

Since carboxyhemoglobin reduces the blood's ability to carry oxygen, high outdoor CO concentrations may impair a fetus' ability to get oxygen, the researchers say. In fact, Pereira notes, hypoxia, or insufficient oxygen, was the reported cause of most fetal deaths.

These carboxyhemoglobin data suggest that the study's links between combustion pollutants and fetal death "were not spurious," says Richard A. Levinson, associate executive director of the American Public Health Association in Washington, D.C.

The new findings also threaten to reshape discussions of pollution's social costs. In terms of the impact of pollutants on years of life lost, most analysts "have focused on the elderly," observes Loomis. "It would be a completely different story if fetal mortality were implicated." *—J. Raloff*

Science Service, Inc. is collaborating with JSTOR to digitize, preserve, and extend access to *Science News*. www.jstor.org