

Teen suicide clusters: More than mimicry

In the first study of its kind looking at teenage suicide clusters – “outbreaks” of suicide in which several young people in a community take their own lives within a relatively short time – researchers find no evidence that people not already at risk of suicide are more likely to take their own lives after exposure to other suicides.

The study of two Texas clusters occurring in 1983 and 1984 reveals that the teenage victims had no more exposure to other suicides – either among friends or through news reports – than did matched controls who did not commit suicide. But exposure to suicides may profoundly affect individuals already at risk of killing themselves, the researchers say. Therefore, they conclude, “it would be prudent to curtail the excesses in public exposure to suicide.”

Each year in the United States more than 6,000 youths take their own lives – a rate triple that of 30 years ago. Until recently, when drug wars boosted homicides to record heights among 15- to 24-year-olds, suicide represented the second leading cause of death in this age group.

But while psychologists have defined a host of personal and social traits clearly

associated with suicide risk, they continue to debate the extent to which a young person's exposure to other youth suicides enhances his or her risk of imitating that act.

Although recent studies have begun to change early impressions that television coverage might be a major factor leading to serial suicides (SN: 10/3/87, p.218), the evidence has been mixed. In part, the problem has stemmed from methodological flaws. For example, some large epidemiologic studies looking for increases in suicide rates associated with suicide depictions in the news or on soap operas failed to determine whether those who took their own lives soon after those broadcasts had actually seen the shows.

While working with the Centers for Disease Control in Atlanta, psychiatrist Lucy E. Davidson (now in private practice) sought to overcome the methodological weaknesses in previous studies. She and her colleagues undertook a case-controlled analysis of the Texas clusters – one involving eight suicides and the other involving six – looking at a variety of suicide risk factors in those who killed themselves and in matched controls who did not.

Although the researchers found no

significant correlation between the act of suicide and direct or indirect exposure to a previous suicide, they did find that those who took their own lives were more likely to have accumulated classic suicide risk factors before the outbreak began. These included previous suicide attempts, having a close friend or relative who died violently, multiple changes of hometown or schools, and recent break-ups with a girlfriend or boyfriend.

Nonetheless, the researchers write in the Nov. 17 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, “romanticized or sensational media coverage may foster an affinity with those who commit suicide and confer an aura of celebrity on them.” In suicide-susceptible individuals, this could evoke the impression that suicide is a “powerful act” that will claim special – albeit posthumous – attention from their family and peers. For these reasons, Davidson's group recommends against large memorial gatherings at schools and repetitive media coverage that provides graphic details of suicides. – R. Weiss

Monoxide heart risk

Atmospheric carbon monoxide levels currently deemed acceptable by federal clean-air standards can speed the onset of chest pain in patients with coronary artery disease, new research indicates. The finding suggests that a significant proportion of the more than 6 million Americans with coronary disease run a risk of myocardial ischemia – a potentially damaging lack of oxygen in heart muscle – when exposed to even low levels of the gas in the workplace or after spending as little as one hour in traffic-congested areas.

Carbon monoxide, a colorless, odorless by-product of incomplete fuel combustion, inhibits the release of oxygen from red blood cells to body tissues. Bernard R. Chaitman of the St. Louis University School of Medicine and nine other researchers performed a multi-center study in which 63 men with coronary artery disease did treadmill exercises in chambers filled with varying amounts of carbon monoxide. At some point during treadmill exercise, such patients typically experience chest pain and other symptoms of ischemia. But the researchers found that even low levels of carbon monoxide – equivalent to those allowed by the EPA – accelerate the onset of chest pain and abnormal electrocardiograms. The study, reported in the Nov. 23 *NEW ENGLAND JOURNAL OF MEDICINE*, suggests that cigarette smokers – who are exposed to additional carbon monoxide doses from their habit – run an even greater risk of angina attacks and should make special efforts to avoid exercising in traffic-congested areas or working in such monoxide-rich environs as toll-booths or tunnels. □

Renewing bonds to recharge batteries

Building a better mousetrap isn't the only way to get the world to beat a path to your door. A better battery might do it, too.

The Lawrence Berkeley (Calif.) Laboratory last week announced efforts to develop a new energy-cell technology that it says could become the basis for rechargeable, lightweight batteries that outlast, outpower and underprice any battery commercially available or under development.

Battery researchers elsewhere call the new technology inventive and promising, but caution it still could fall short of its makers' rosy projections. “These things are witches' brews,” says electrochemist Gregory C. Farrington of the University of Pennsylvania in Philadelphia in describing the uncertainties of new battery technologies.

Most batteries have positive (anode) and negative (cathode) electrodes at which electrochemical reactions transform chemicals into electrical energy. Crucial differences lie in the materials that make up the electrodes and in the chemical reactions these materials dictate. These differences affect manufacturing costs, energy output and other measures of battery performance.

Like the anodes of existing “coin cells” used in watches, the new battery's

anode is made of lithium. Its cathode, however, resembles no other. Rather than using inorganic cathode materials as do most lithium-battery makers, Lutgard C. De Jonghe and his colleagues use carbon-based chemicals known as organosulfur polymers. When the battery produces current, the anode sheds positively charged lithium ions that travel through a membrane within the battery to the polymer-loaded cathode, and simultaneously releases electrons that get to the same place through an external loop. The electrons progressively break the sulfur-sulfur bonds linking the chain-like polymers' molecular subunits, and the lithium ions stick to each newly formed, negatively charged end. Running electricity through the cell backwards recharges the battery by regenerating the polymer and pushing lithium ions and electrons back into the anode. De Jonghe says his group has run small prototype batteries through hundreds of such cycles. Commercially available lithium batteries are not rechargeable.

“The impact is potentially very broad and even could make electric vehicles practical,” he says. But before the batteries become a big item, someone has to figure out how to mass-produce them, he adds. – I. Amato