Media Violence: A Demonstrated Public Health Threat to Children

by L. Rowell Huesmann and Jessica Moise

In the last issue Jonathan Freedman challenged the view that acts of violence are provoked by depictions of violence in the mass media. In this issue L. Rowell Huesmann and Jessica Moise reply.

Imagine that the Surgeon General is presented with a series of studies on a widely distributed product. For 30 years well-controlled experiments have been showing that use of the product causes symptoms of a particular affliction. Many field surveys have shown that this affliction is always more common among people who use the product regularly. A smaller number of studies have examined the long-term effects of the product in different environments, and most have shown at least some evidence of harm, although it is difficult to disentangle effects of the product itself from the effects of factors that lead people to use it. Over all, the studies suggest that if a person with a 50% risk for the affliction uses the product, the risk rises to 60% or 70%. Furthermore, we have a fairly good understanding of how use of the product contributes to the affliction, which is persistent, difficult to cure, and sometimes lethal. The product is economically important, and its manufacturers spend large sums trying to disparage the scientific research. A few scientists who have never done any empirical work in the field regularly point out supposed flaws in the research and belittle its conclusions. The incidence of the affliction has increased dramatically since the product was first introduced. What should the Surgeon General do?

This description applies to the relationship between lung cancer and cigarettes. It also applies to the relationship between aggression and children's viewing of mass media violence. The Surgeon General has rightly come to the same conclusion in both cases and has issued similar warnings.

Cause and effect

Dr. Freedman's highly selective reading of the research minimizes overwhelming evidence. First, there are the carefully controlled laboratory studies in which children are exposed to violent film clips and short-term changes in their behavior are observed. More than 100 such studies over the last 40 years have shown that at least some children exposed to visual depictions of dramatic violence behave more aggressively afterward both toward inanimate objects and toward other children. These results have been found in many countries among boys and girls of all social classes, races, ages, and levels of intelligence.

Freedman claims that these studies use "dubious measures of aggression." He cites only one example: asking children whether they would want the researcher to prick a balloon. But this measure is not at all representative. Most studies have used such evidence as physical attacks on other children and dolls. In one typical study Kaj Bjorkqvist exposed five- and six-year-old Finnish children to either violent or non-violent films. Observers who did not know which kind of film each child had seen then watched them play together. Children who had just seen a violent film were more likely to hit other children, scream at them, threaten them, and intentionally destroy their toys.

Freedman claims that these experiments confuse the effects of arousal with the effects of violence. He argues that "anyone who is aroused will display more of almost any behavior." But most studies have shown that pro-social behavior decreases after children view an aggressive film. Finally, Freedman says the experiments are contaminated by demand characteristics. In other words, the children are only doing what they think the researchers want them to do. That conclusion is extremely implausible, considering the wide variety of experiments conducted in different countries by researchers with different points of view.

Large body of evidence

More than 50 field studies over the last 20 years have also shown that children who habitually watch more media violence behave more aggressively and accept aggression more readily as a way to solve problems. The relationship usually persists when researchers control for age, sex, social class, and previous level of aggression. Disbelievers often suggest that the correlation is statistically small. According to Freedman, it accounts for "only 1% to 10% of individual differences in children's aggressiveness." But an increase of that size (a more accurate figure would be 2% to 16%) has real social significance. No single factor has been found to explain more than 16% of individual differences in aggression.

Of course, correlations do not prove causality. That is the purpose of laboratory experiments. The two

approaches are complementary. Experiments establish a causal relationship, and field studies show that the relationship holds in a wide variety of real-world situations. The causal relationship is further confirmed by the finding that children who view TV violence at an early age are more likely to commit aggressive acts at a later age. In 1982 Eron and Huesmann found that boys who spent the most time viewing violent television shows at age eight were most likely to have criminal convictions at age 30. Most other long-term studies have come to similar conclusions, even after controlling for children's initial aggressiveness, social class, and education. A few studies have found no effect on some measures of violence, but almost all have found a significant effect on some measures.

Freedman singles out for criticism a study by Huesmann and his colleagues that was conducted in the late 1970s. He says we found "no statistically significant effect for either sex in Australia, Finland, the Netherlands, Poland, or kibbutz children in Israel." That is not true. We found that the television viewing habits of children as young as six or seven predicted subsequent *increases* in childhood aggression among boys in Finland and among both sexes in the United States, in Poland, and in Israeli cities. In Australia and on Israeli kibbutzim, television viewing habits were correlated with simultaneous aggression. Freedman also suggests that another study conducted in the Netherlands came to conclusions so different from ours that we banned it from a book we were writing. In fact, the results of that study were remarkably similar to our own, and we did not refuse to publish it. The Dutch researchers themselves chose to publish separately in a different format.

Cultural differences

Freedman argues that the strongest results reported in the study, such as those for Israeli city children, are so incongruous that they arouse suspicion. He is wrong. Given the influence of culture and social learning on aggressive behavior, different results in different cultures are to be expected. In fact, the similarity of the findings in different countries is remarkable here. One reason we found no connection between television violence viewing and aggression among children on kibbutzim is the strong cultural prohibition against intra-group aggression in those communities. Another reason is that kibbutz children usually watched television in a group and discussed the shows with an adult caretaker afterward.

Two recently published meta-analyses summarize the findings of many studies conducted over the past 30 years. In an analysis of 217 experiments and field studies, Paik and Comstock concluded that the association between exposure to television violence and aggressive behavior is extremely strong, especially in the data accumulated over the last 15 years. In the other meta-analysis, Wood, Wong, and Chachere came to the same conclusion after combined analysis of 23 studies of unstructured social interaction.

We now have well-validated theoretical explanations of these results. Exposure to media violence leads to aggression at least five ways. The first is imitation, or observational learning. Children imitate the actions of their parents, other children, and media heroes, especially when the action is rewarded and the child admires and identifies with the model. When generalized, this process creates what are sometimes called cognitive scripts for complex social problem-solving: internalized programs that guide everyday social behavior in an automatic way and are highly resistant to change.

Turning off

Second, media violence stimulates aggression by desensitizing children to the effects of violence. The more televised violence a child watches, the more acceptable aggressive behavior becomes for that child. Furthermore, children who watch violent television become suspicious and expect others to act violently — an attributional bias that promotes aggressive behavior.

Justification is a third process by which media violence stimulates aggression. A child who has behaved aggressively watches violent television shows to relieve guilt and justify the aggression. The child then feels less inhibited about aggressing again.

A fourth process is cognitive priming or cueing: the activation of existing aggressive thoughts, feelings, and behavior. This explains why children observe one kind of aggression on television and commit another kind of aggressive act afterward. Even an innocuous object that has been associated with aggression may later stimulate violence. Josephson demonstrated this effect in a study of schoolboy hockey players. She subjected the boys to frustration and then showed them either a violent or a non-violent television program. The aggressor in the violent program carried a walkie-talkie. Later, when the referee in a hockey game carried a similar walkie-talkie, the boys who had seen the violent film were more likely to start fights during the game.

A numbing effect

The fifth process by which media violence induces aggression is physiological arousal and desensitization. Boys who are heavy television watchers show lower than average physiological arousal in response to new scenes of violence. Similar short-term effects are found in laboratory studies. The arousal stimulated by viewing violence is unpleasant at first, but children who constantly watch violent television become habituated, and their emotional and physiological responses decline.

Meanwhile the propensity to aggression is heightened by any pleasurable arousal, such as sexual feeling, that is associated with media violence.

Freedman argues that in violent TV shows, "villains start the fight and are punished" and the heroes "almost always have special legal or moral authority." Therefore, he concludes, children are learning from these programs that "the forces of good will overcome evil assailants." On the contrary, it is precisely because media heroes are admired and have special authority that children are likely to imitate their behavior and learn that aggression is an acceptable solution to conflict. Freedman also claims that media violence has little effect because children can distinguish real life from fiction. But children under 11 do not make this distinction very well. Studies have shown that many of them think cartoons and other fantasy shows depict life as it really is.

The studies are conclusive. The evidence leaves no room for doubt that exposure to media violence stimulates aggression. It is time to move on and consider how best to inoculate our children against this insidious threat.

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IN BRIEF

Lead and Delinquency

Researchers at the University of Pittsburgh have found that lead in the bones of 10- to 12-year old boys is correlated with antisocial behavior. Lead measures taken in 212 children at ages 10 and 12 were correlated with reports from the children themselves, their parents, and their teachers at ages seven and 11. The interviewers used the Child Behavior Checklist (CBCL), a rating scale known to predict later academic failure, criminal activity, drug addiction, and use of mental health services. At the time of the lead measurements, the children were also given tests of attention, IQ, and reaction time.

Behavior problems at age seven, as described by parents and the children themselves, were not related to lead levels at ages 10 and 12. At age 11 both parents of boys with high levels of lead and the boys themselves reported more physical complaints, more delinquency and aggression, and more distractibility. Teachers also mentioned more anxiety, depression, and social problems. These correlations remained even after the researchers controlled for the mother's age, IQ, education, and income and the presence or absence of a father in the home. In comparison with low-lead children, boys with high bone lead levels had a higher proportion of scores indicating possible serious impairment on all scales of the CBCL. The odds ratio ranged from 1.5 for parents' reports of aggression to 19.7 for parents' reports of attention problems.

The authors point out that although the average lead level in the blood of children fell by 77% between 1976 and 1991, it is still high in some inner-city neighborhoods.

Herbert L. Needleman, Julie A. Riess, Michael J. Tobin, et al. Bone lead levels and delinquent behavior. *Journal of the American Medical Association 275:363–369 (February 7, 1996).*

A Vaccine Against Cocaine?

Biologists at the Scripps Research Institute in California have devised a way to immunize rats, at least temporarily, against the effects of cocaine. The rats were inoculated three times with a vaccine made by breaking down the cocaine molecule and reconstructing it into a similar substance that, unlike cocaine itself, remains intact in the body long enough to provoke the production of antibodies. The animals were then given doses of cocaine known to cause rapid movements, sniffing, rearing, and other signs of stimulation.

In a comparison with untreated rats given the same dose, the antibodies reduced the amount of cocaine reaching various parts of the brain by 52% to 77%. As a result, cocaine had much less influence on the behavior of the inoculated rats. When they were given amphetamine instead, there was no such effect, although amphetamines and cocaine act on the brain in similar ways. The authors point out that since immunization occurs outside the brain, it should have fewer side effects than addiction remedies that act by blocking or reversing drug activity at nerve endings. An addict might overpower the antibodies by increasing the dose, but that would be costly and dangerous. The authors plan more studies to see whether several series of immunizations would be more effective than one.

M. Rocío A. Carrera, Jon A. Ashley, Loren H. Parsons, et al. Suppression of psychoactive effects of cocaine by active immunization. *Nature 378:727–730 (December 14, 1995).*