

Television and Violence

The Scale of the Problem and Where to Go From Here

Brandon S. Centerwall, MD, MPH

IN 1975, Rothenberg's Special Communication in *JAMA*, "Effect of Television Violence on Children and Youth," first alerted the medical community to the deforming effects the viewing of television violence has on normal child development, increasing levels of physical aggressiveness and violence.¹ In response to physicians' concerns sparked by Rothenberg's communication, the 1976 American Medical Association (AMA) House of Delegates passed Resolution 38: "The House declares TV violence threatens the health and welfare of young Americans, commits itself to remedial actions with interested parties, and encourages opposition to TV programs containing violence and to their sponsors."²

Other professional organizations have since come to a similar conclusion, including the American Academy of Pediatrics and the American Psychological Association.³ In light of recent research findings, in 1990 the American Academy of Pediatrics issued a policy statement: "Pediatricians should advise parents to limit their children's television viewing to 1 to 2 hours per day."⁴

Rothenberg's communication was largely based on the findings of the 1968 National Commission on the Causes and Prevention of Violence⁵ and the 1972 Surgeon General's report, *Television and Growing Up: The Impact of Televised Violence*.⁶ Those findings were updated and reinforced by the 1982 report of the National Institute of Mental Health, *Television and Behavior: Ten Years of Scientific Progress and Impli-*

cations for the Eighties, again documenting a broad consensus in the scientific literature that exposure to television violence increases children's physical aggressiveness.⁷ Each of these governmental inquiries necessarily left open the question of whether this increase in children's physical aggressiveness would later lead to increased rates of violence. Although there had been dozens of laboratory investigations and short-term field studies (3 months or less), few long-term field studies (2 years or more) had been completed and reported. Since the 1982 National Institute of Mental Health report, long-term field studies have come into their own, some 20 having now been published.⁸

In my commentary, I discuss television's effects within the context of normal child development; give an overview of natural exposure to television as a cause of aggression and violence; summarize my own research findings on television as a cause of violence; and suggest a course of action.

TELEVISION IN THE CONTEXT OF NORMAL CHILD DEVELOPMENT

The impact of television on children is best understood within the context of normal child development. Neonates are born with an instinctive capacity and desire to imitate adult human behavior. That infants can, and do, imitate an array of adult facial expressions has been demonstrated in neonates as young as a few hours old, ie, before they are even old enough to know cognitively that they themselves have facial features that correspond with those they are observing.^{9,10} It is a most useful instinct, for the developing child must learn and master a vast repertoire of behavior in short order.

Whereas infants have an instinctive desire to imitate observed human behavior, they do not possess an instinct for gauging a priori whether a behavior ought to be imitated. They will imitate anything,¹¹ including behaviors that most adults would regard as destructive and antisocial. It may give pause for thought, then, to learn that infants as young as 14 months of age demonstrably observe and incorporate behaviors seen on television (Fig 1).^{12,13} (Looking ahead, in two surveys of young male felons imprisoned for committing violent crimes, eg, homicide, rape, and assault, 22% to 34% reported having consciously imitated crime techniques learned from television programs, usually successfully.¹⁴)

As of 1990, the average American child aged 2 to 5 years was watching over 27 hours of television per week.¹⁵ This might not be bad, if young children understood what they are watching. However, up through ages 3 and 4 years, many children are unable to distinguish fact from fantasy in television programs and remain unable to do so despite adult coaching.¹⁶ In the minds of such young children, television is a source of entirely factual information regarding how the world works. Naturally, as they get older, they come to know better, but the earliest and deepest impressions were laid down when the child saw television as a factual source of information about a world outside their homes where violence is a daily commonplace and the commission of violence is generally powerful, exciting, charismatic, and efficacious. Serious violence is most likely to erupt at moments of severe stress—and it is precisely at such moments that adolescents and adults are most likely to revert to their earliest, most visceral

From the Department of Psychiatry and Behavioral Sciences, University of Washington, Seattle. Dr Centerwall is currently in private practice.
Reprint requests to 611 33rd Ave E, Seattle, WA 98112 (Dr Centerwall).

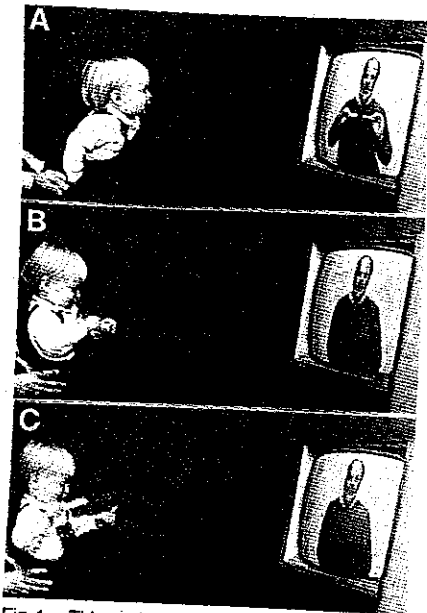


Fig 1.—This series of photographs shows a 14-month-old boy learning behavior from a television set. In photograph A the adult pulls apart a novel toy. The infant leans forward and carefully studies the adult's actions. In photograph B the infant is given the toy. In photograph C the infant pulls the toy apart, imitating what he had seen the adult do. Of infants exposed to the instructional video, 65% could later work the toy, as compared with 20% of unexposed infants ($P < .001$) (reprinted with permission from Meltzoff¹²).

sense of what violence is and what its role is in society. Much of this sense will have come from television.

Not all laboratory experiments and short-term field studies demonstrate an effect of media violence on children's behavior, but most do.^{17,18} In a recent meta-analysis of randomized, case-control, short-term studies, exposure to media violence caused, on the average, a significant increase in children's aggressiveness as measured by observation of their spontaneous, natural behavior following exposure ($P < .05$).¹⁹

NATURAL EXPOSURE TO TELEVISION AS A CAUSE OF AGGRESSION AND VIOLENCE

In 1973, a small Canadian town (called "Notel" by the investigators) acquired television for the first time. The acquisition of television at such a late date was due to problems with signal reception rather than any hostility toward television. Joy et al²⁰ investigated the impact of television on this virgin community, using as control groups two similar communities that already had television. In a double-blind research design, a cohort of 45 first- and second-grade students were observed prospectively over a period of 2 years for rates of objectively measured noxious physical aggression (eg, hitting, shov-

ing, and biting). Rates of physical aggression did not change significantly among children in the two control communities. Two years after the introduction of television, rates of physical aggression among children in Notel had increased by 160% ($P < .001$).

In a 22-year prospective study of an age cohort in a semirural US county ($N=875$), Huesmann²¹ observed whether boys' television viewing at age 8 years predicted the seriousness of criminal acts committed by age 30. After controlling for the boys' baseline aggressiveness, intelligence, and socioeconomic status at age 8, it was found that the boys' television violence viewing at age 8 significantly predicted the seriousness of the crimes for which they were convicted by age 30 ($P < .05$).

In a retrospective case-control study, Kruttschnitt et al²² compared 100 male felons imprisoned for violent crimes (eg, homicide, rape, and assault) with 65 men without a history of violent offenses, matching for age, race, and census tract of residence at age 10 to 14 years. After controlling for school performance, exposure to parental violence, and baseline level of criminality, it was found that the association between adult criminal violence and childhood exposure to television violence approached statistical significance ($P < .10$).

All Canadian and US studies of the effect of prolonged childhood exposure to television (2 years or more) demonstrate a positive relationship between earlier exposure to television and later physical aggressiveness, although not all studies reach statistical significance.⁸ The critical period of exposure to television is preadolescent childhood. Later variations in exposure, in adolescence and adulthood, do not exert any additional effect.^{23,24} However, the aggression-enhancing effect of exposure to television is chronic, extending into later adolescence and adulthood.^{8,25} This implies that any interventions should be designed for children and their caregivers rather than for the general adult population.

These studies confirm what many Americans already believe on the basis of intuition. In a national opinion poll, 43% of adult Americans affirm that television violence "plays a part in making America a violent society," and an additional 37% find the thesis at least plausible (only 16% frankly disbelieve the proposition).²⁶ But how big a role does it play? What is the effect of natural exposure to television on entire populations? To address this issue, I took advantage of an historical experiment—the absence of television in South Africa prior to 1975.^{8,25}

TELEVISION AND HOMICIDE IN SOUTH AFRICA, CANADA, AND THE UNITED STATES

The South African government did not permit television broadcasting prior to 1975, even though South African whites were a prosperous, industrialized Western society.⁸ Amidst the hostile tensions between the Afrikaner and English white communities, it was generally conceded that any South African television broadcasting industry would have to rely on British and American imports to fill out its programming schedule. Afrikaner leaders felt that that would provide an unacceptable cultural advantage to the English-speaking white South Africans. Rather than negotiate a complicated compromise, the Afrikaner-controlled government chose to finesse the issue by forbidding television broadcasting entirely. Thus, an entire population of 2 million whites—rich and poor, urban and rural, educated and uneducated—was nonselectively and absolutely excluded from exposure to television for a quarter century after the medium was introduced into the United States. Since the ban on television was not based on any concerns regarding television and violence, there was no self-selection bias with respect to the hypothesis being tested.

To evaluate whether exposure to television is a cause of violence, I examined homicide rates in South Africa, Canada, and the United States. Given that blacks in South Africa live under quite different conditions than blacks in the United States, I limited the comparison to white homicide rates in South Africa and the United States and the total homicide rate in Canada (which was 97% white in 1951). Data analyzed were from the respective government vital statistics registries. The reliability of the homicide data is discussed elsewhere.⁸

Following the introduction of television into the United States, the annual white homicide rate increased by 93%, from 3.0 homicides per 100 000 white population in 1945 to 5.8 per 100 000 in 1974; in South Africa, where television was banned, the white homicide rate decreased by 7%, from 2.7 homicides per 100 000 white population in 1943 through 1948 to 2.5 per 100 000 in 1974 (Fig 2). As with US whites, following the introduction of television into Canada the Canadian homicide rate increased by 92%, from 1.3 homicides per 100 000 population in 1945 to 2.5 per 100 000 in 1974 (Fig 3).

For both Canada and the United States, there was a lag of 10 to 15 years between the introduction of television and the subsequent doubling of the ho-

Standardized Homicide Rate per 100 000 Population (1949=100, 3-y Moving Average)

Fig 2. Asterisks to 197

micide homicide if tel ding initia had woul the woul telev serie amo it w cent adul obse In the ada: tries fede tian of n clud tele prio well and effe that tion conf dist

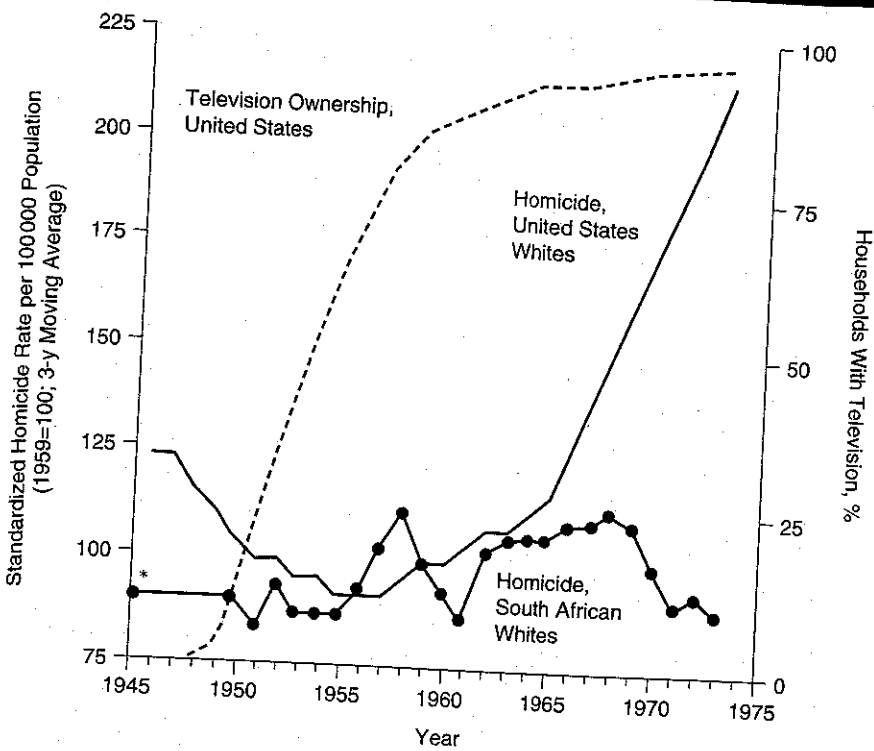


Fig 2.—Television ownership and white homicide rates, United States and South Africa, 1945 through 1973. Asterisk denotes 6-year average. Note that television broadcasting was not permitted in South Africa prior to 1975 (from Centerwall⁸ and reprinted by permission of Academic Press).

micide rate (Figs 2 and 3). Given that homicide is primarily an adult activity, if television exerts its behavior-modifying effects primarily on children, the initial "television generation" would have had to age 10 to 15 years before they would have been old enough to affect the homicide rate. If this were so, it would be expected that, as the initial television generation grew up, rates of serious violence would first begin to rise among children, then several years later it would begin to rise among adolescents, then still later among young adults, and so on. And that is what is observed.⁸

In the period immediately preceding the introduction of television into Canada and the United States, all three countries were multiparty, representative, federal democracies with strong Christian religious influences, where people of nonwhite races were generally excluded from political power. Although television broadcasting was prohibited prior to 1975, white South Africa had well-developed book, newspaper, radio, and cinema industries. Therefore, the effect of television could be isolated from that of other media influences. In addition, I examined an array of possible confounding variables—changes in age distribution, urbanization, economic con-

ditions, alcohol consumption, capital punishment, civil unrest, and the availability of firearms.⁸ None provided a viable alternative explanation for the observed homicide trends. For further details regarding the testing of the hypothesis, I refer the reader to the published monograph⁸ and commentary.²⁵

A comparison of South Africa with only the United States (Fig 2) could easily lead to the hypothesis that US involvement in the Vietnam War or the turbulence of the civil rights movement was responsible for the doubling of homicide rates in the United States. The inclusion of Canada as a control group precludes these hypotheses, since Canadians likewise experienced a doubling of homicide rates (Fig 3) without involvement in the Vietnam War and without the turbulence of the US civil rights movement.

When I published my original paper in 1989, I predicted that white South African homicide rates would double within 10 to 15 years after the introduction of television in 1975, the rate having already increased 56% by 1983 (the most recent year then available).⁸ As of 1987, the white South African homicide rate had reached 5.8 homicides per 100 000 white population, a 130% increase in the homicide rate from the

rate of 2.5 per 100 000 in 1974, the last year before television was introduced.²⁷ In contrast, Canadian and white US homicide rates have not increased since 1974. As of 1987, the Canadian homicide rate was 2.2 per 100 000, as compared with 2.5 per 100 000 in 1974.²⁸ In 1987, the US white homicide rate was 5.4 per 100 000, as compared with 5.8 per 100 000 in 1974.²⁹ (Since Canada and the United States became saturated with television by the early 1960s [Figs 2 and 3], it was expected that the effect of television on rates of violence would likewise reach a saturation point 10 to 15 years later.)

It is concluded that the introduction of television in the 1950s caused a subsequent doubling of the homicide rate, i.e., long-term childhood exposure to television is a causal factor behind approximately one half of the homicides committed in the United States, or approximately 10 000 homicides annually. Although the data are not as well developed for other forms of violence, they indicate that exposure to television is also a causal factor behind a major proportion—perhaps one half—of rapes, assaults, and other forms of interpersonal violence in the United States.⁸ When the same analytic approach was taken to investigate the relationship between television and suicide, it was determined that the introduction of television in the 1950s exerted no significant effect on subsequent suicide rates.³⁰

To say that childhood exposure to television and television violence is a predisposing factor behind half of violent acts is not to discount the importance of other factors. Manifestly, every violent act is the result of an array of forces coming together—poverty, crime, alcohol and drug abuse, stress—of which childhood exposure to television is just one. Nevertheless, the epidemiologic evidence indicates that if, hypothetically, television technology had never been developed, there would today be 10 000 fewer homicides each year in the United States, 70 000 fewer rapes, and 700 000 fewer injurious assaults.^{25,31}

WHERE TO GO FROM HERE

In the war against tobacco, the tobacco industry is the last group from whom we expect any meaningful action. If someone were to call on the tobacco industry to cut back tobacco production as a matter of social conscience and out of concern for the public health, we would regard that person as being at least simple-minded, if not frankly deranged. Oddly enough, however, people have persistently assumed that the television industry operates by a higher standard of morality than the tobacco industry—that it is useful to appeal to its social

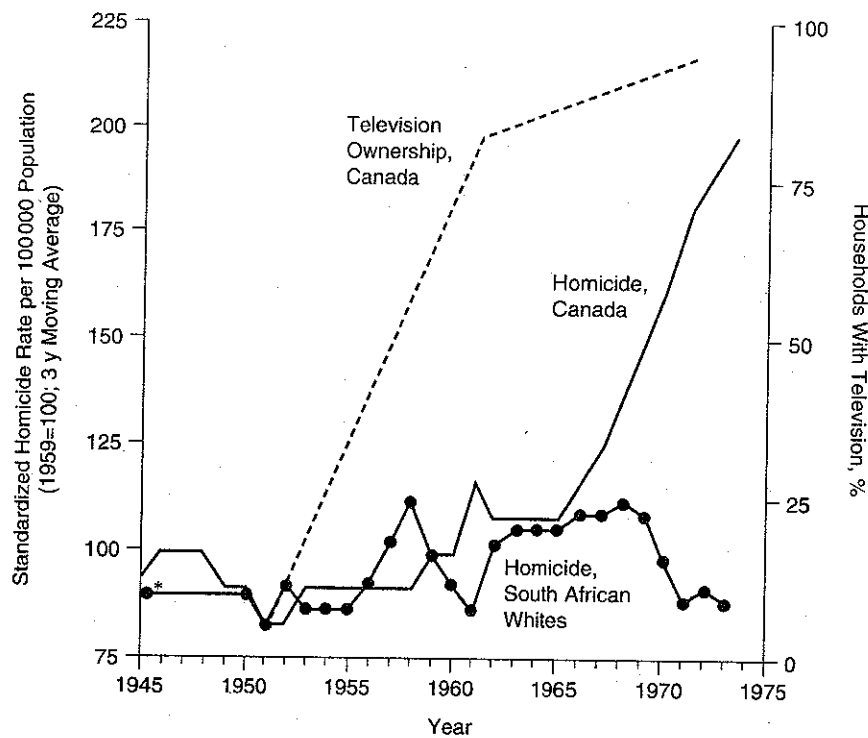


Fig 3.—Television ownership and homicide rates, Canadians and white South Africans, 1945 through 1973. Asterisk denotes 6-year average. Note that television broadcasting was not permitted in South Africa prior to 1975 (from Centerwall⁸ and reprinted by permission of Academic Press).

conscience. This was true in 1969 when the National Commission on the Causes and Prevention of Violence published its recommendations for the television industry.³² It was equally true in 1989 when the US Congress passed a television antiviolence bill that granted television industry executives the authority to confer on the issue of television violence without being in violation of antitrust laws.³³ Even before the law was fully passed, the four networks stated that they had no intention of using this antitrust exemption to any useful end and that there would be no substantive changes in programming content.³⁴ They have been as good as their word.

Cable aside, the television industry is not in the business of selling programs to audiences. It is in the business of selling audiences to advertisers. Issues of "quality" and "social responsibility" are entirely peripheral to the issue of maximizing audience size within a competitive market—and there is no formula more tried and true than violence for reliably generating large audiences that can be sold to advertisers. If public demand for tobacco decreases by 1%, the tobacco industry will lose \$250 million annually in revenue.³⁵ Similarly, if the television audience size were to de-

crease by 1%, the television industry would stand to lose \$250 million annually in advertising revenue.³⁵ Thus, changes in audience size that appear trivial to you and me are regarded as catastrophic by the industry. For this reason, industry spokespersons have made innumerable protestations of good intent, but nothing has happened. In over 20 years of monitoring levels of television violence, there has been no downward movement.^{36,37} There are no recommendations to make to the television industry. To make any would not only be futile but create the false impression that the industry might actually do something constructive.

The American Academy of Pediatrics recommends that pediatricians advise parents to limit their children's television viewing to 1 to 2 hours per day.⁴ This is an excellent point of departure and need not be limited to pediatricians. It may seem remote that a child watching television today can be involved years later in violence. A juvenile taking up cigarettes is also remote from the dangers of chronic smoking, yet those dangers are real, and it is best to intervene early. The same holds true regarding television-viewing behavior. The instruction is simple: For children, less TV is better, especially violent TV.

Symbolic gestures are important. The many thousands of physicians who gave up smoking were important models for the general public. Just as many waiting rooms now have a sign saying, "This Is a Smoke-Free Area" (or words to that effect), so likewise a sign can be posted saying, "This Is a Television-Free Area." (This is not meant to exclude the use of instructional videotapes.) By sparking inquiries from parents and children, such a simple device provides a low-key way to bring up the subject in a clinical setting.

Children's exposure to television and television violence should become part of the public health agenda, along with safety seats, bicycle helmets, immunizations, and good nutrition. One-time campaigns are of little value. It needs to become part of the standard package. Less TV is better, especially violent TV. Part of the public health approach should be to promote child-care alternatives to the electronic baby-sitter, especially among the poor who cannot afford real baby-sitters.

Parents should guide what their children watch on television and how much. This is an old recommendation³² that can be given new teeth with the help of modern technology. It is now feasible to fit a television set with an electronic lock that permits parents to preset which programs, channels, and times they wish the set to be available for; if a particular program or time of day is locked, the set won't turn on for that time or channel.³⁸ The presence of a time-channel lock restores and reinforces parental authority, since it operates even when the parents are not at home, thus permitting parents to use television to their family's best advantage. Time-channel locks are not merely feasible, but have already been designed and are coming off the assembly line (eg, the Sony XBR).

Closed captioning permits deaf and hard-of-hearing persons access to television. Recognizing that market forces alone would not make closed-captioning technology available to more than a fraction of the deaf and hard-of-hearing, the Television Decoder Circuitry Act was signed into law in 1990, requiring that, as of 1993, all new television sets (with screens 33 cm or larger, ie, 96% of new television sets) be manufactured with built-in closed-captioning circuitry.³⁹ A similar law should require that eventually all new television sets be manufactured with built-in time-channel lock circuitry—and for a similar reason. Market forces alone will not make this technology available to more than a fraction of households with children and will exclude poor families, the ones who suffer the most from violence. If we can make

important... physicians... important... public. Just... how have a... ke-Free... so likewise... ing, "This... (This is... of instructing... g inquiries... ch a simple... way to bring... setting... o television... ld become... nda, along with... helmets, immu... ition. One... value. It needs... ndard package... ally violent TV... approach should... alternatives... ter, especially... not afford re... what their ch... and how much... endation... that... with the help... now feasible... h an electronic... to preset which... times they wish... if a particular... s locked, these... ne or channel... channel lock... parental author... n when the par... hus permitting... n to their fam... e-channel lock... b, but have al... are coming off... he Sony XBR... rmits deaf and... access to tele... market forces... used-captioning... more than a frac... -of-hearing, the... ecurity Act was... requiring that... ision sets (with... ie, 96% of new... ufactured with... g circuitry.³⁹ A... re that eventu... ts be manufac... -channel lock cir... r reason. Mar... make this tech... than a fraction... en and will ex... nes who suffer... If we can make

television technology available that will benefit 24 million deaf and hard-of-hearing Americans,³⁹ surely we can do no less for the benefit of 50 million American children.³⁵

Unless they are provided with information, parents are ill-equipped to judge which programs to place off-limits. As a result, recommendation, television programs should be accompanied by a violence rating so parents can gauge how "colorful" a program is without having to watch it. Such a rating system should be

References

1. Rothenberg MB. Effect of television on children and youth. *JAMA*. 1975;234:1043-1046.
2. American Medical Association. *Proceedings of House of Delegates, June-July, 1976*. Chicago, American Medical Association; 1976:280.
3. Zylke JW. More voices join medicine in expressing concern over amount, content of what children see on TV. *JAMA*. 1988;260:1831-1832.
4. American Academy of Pediatrics, Committee on Communications. Children, adolescents, and television. *Pediatrics*. 1990;85:1119-1120.
5. Ball RK, Ball SJ, eds. *Violence and the Media: A Study Report to the National Commission on the Causes and Prevention of Violence*. Washington, DC: US Government Printing Office; 1969.
6. Surgeon General's Scientific Advisory Committee on Television and Social Behavior. *Television and Growing Up: The Impact of Televised Violence*. Washington, DC: US Government Printing Office; 1972.
7. Pearl D, Bouthilet L, Lazar J, eds. *Television and Behavior: Ten Years of Scientific Progress and Implications for the Eighties*. Rockville, Md: National Institute of Mental Health; 1982.
8. Centerwall BS. Exposure to television as a cause of violence. In: Comstock G, ed. *Public Communication and Behavior*. Orlando, Fla: Academic Press Inc; 1989;2:1-58.
9. Meltzoff AN, Moore MK. Newborn infants imitate adult facial gestures. *Child Dev*. 1983;54:702-709.
10. Meltzoff AN, Moore MK. Imitation in newborn infants: exploring the range of gestures imitated and the underlying mechanism. *Dev Psychol*. 1989;25:954-962.
11. Meltzoff AN. Infant imitation after a 1-week delay: long-term memory for novel acts and multiple stimuli. *Dev Psychol*. 1988;24:470-476.
12. Meltzoff AN. Imitation of televised models by infants. *Child Dev*. 1988;59:1221-1229.
13. Meltzoff AN. Memory in infancy. In: Squire LR, Byrne J, Nadel L, Roediger H, Schacter D, Thompson R, eds. *Encyclopedia of Learning and Memory*. New York, NY: Macmillan Publishing Co Inc; 1992/.
14. Heller MS, Polsky S. *Studies in Violence and Television*. New York, NY: American Broadcast-

quantitative and preferably numerical, leaving aesthetic and social judgments to the viewers. Exactly how the scale ought to be quantified is less important than that it be applied consistently. Such a rating system would enjoy broad popular support: In a national poll, 71% of adult Americans favor the establishment of a violence rating system for television programs.⁴⁰

It should be noted that none of these recommendations impinges on issues of freedom of speech. That is as it should

15. AC Nielsen Company. *Nielsen Report on Television 1990*. Northbrook, Ill: Nielsen Media Research; 1990.
16. Flavell JH. The development of children's knowledge about the appearance-reality distinction. *Am Psychol*. 1986;41:418-425.
17. Anderson FS. TV violence and viewer aggression: a cumulation of study results, 1954-1976. *Public Opinion Q*. 1977;41:314-331.
18. Hearold S. A synthesis of 1043 effects of television on social behavior. In: Comstock G, ed. *Public Communication and Behavior*. Orlando, Fla: Academic Press Inc; 1986:1:65-133.
19. Wood W, Wong FY, Chachere JG. Effects of media violence on viewers' aggression in unconstrained social interaction. *Psychol Bull*. 1991;109:371-383.
20. Joy LA, Kimball MM, Zabrack ML. Television and children's aggressive behavior. In: Williams TM, ed. *The Impact of Television: A Natural Experiment in Three Communities*. Orlando, Fla: Academic Press Inc; 1986:303-360.
21. Huesmann LR. Psychological processes promoting the relation between exposure to media violence and aggressive behavior by the viewer. *J Soc Issues*. 1986;42(3):125-139.
22. Kruttschnitt C, Heath L, Ward DA. Family violence, television viewing habits, and other adolescent experiences related to violent criminal behavior. *Criminology*. 1986;24:235-267.
23. Milavsky JR, Kessler RC, Stipp HH, Rubens WS. *Television and Aggression: A Panel Study*. Orlando, Fla: Academic Press Inc; 1982.
24. Hennigan KM, Del Rosario ML, Heath L, Cook TD, Wharton JD, Calder BJ. Impact of the introduction of television on crime in the United States: empirical findings and theoretical implications. *J Pers Soc Psychol*. 1982;42:461-477.
25. Centerwall BS. Exposure to television as a risk factor for violence. *Am J Epidemiol*. 1989;129:643-652.
26. Harris L. Too much TV violence. *Harris Survey*. August 4, 1977.
27. Central Statistical Service. *Deaths: Whites, Coloureds and Asians, 1987*. Pretoria, South Africa: Government Printer; 1989.

be. It is not reasonable to address the problem of motor vehicle fatalities by calling for a ban on cars. Instead, we emphasize safety seats, good traffic signs, and driver education. Similarly, to address the problem of violence caused by exposure to television, we need to emphasize time-channel locks, program rating systems, and education of the public regarding good viewing habits.

Figure 1 was provided by A. N. Meltzoff, University of Washington, Seattle.

28. World Health Organization. *World Health Statistics Annual, 1989*. Geneva, Switzerland: World Health Organization; 1989.
29. National Center for Health Statistics. *Vital Statistics of the United States, 1987*. Hyattsville, Md: US Department of Health and Human Services; 1990.
30. Centerwall BS. Young adult suicide and exposure to television. *Soc Psychiatry Psychiatr Epidemiol*. 1990;25:149-153.
31. Johnson JM, DeBerry MM Jr. *Criminal Victimization 1989: A National Crime Survey Report*. Washington, DC: US Department of Justice; 1990.
32. National Commission on the Causes and Prevention of Violence. *To Establish Justice, To Insure Domestic Tranquility: Final Report of the National Commission on the Causes and Prevention of Violence*. Washington, DC: US Government Printing Office; 1969:187-207.
33. Dietz WH, Strasburger VC. Children, adolescents, and television. *Curr Probl Pediatr*. 1991;21:8-31.
34. Clark KR. Antiviolence law won't bring much change, networks say. *Seattle Times*. August 10, 1989:F12.
35. US Bureau of the Census. *Statistical Abstract of the United States: 1991*. Washington, DC: US Government Printing Office; 1991.
36. Signorielli N, Gross L, Morgan M. Violence in television programs: ten years later. In: Pearl D, Bouthilet L, Lazar J, eds. *Television and Behavior: Ten Years of Scientific Progress and Implications for the Eighties*. Rockville, Md: National Institute of Mental Health; 1982:158-173.
37. Gerbner G, Gross L, Morgan M, Signorielli N. *The Violence Profile: Enduring Patterns*. Philadelphia, Pa: Annenberg School of Communication; 1989.
38. Surgeon General's Northwest Conference on Interpersonal Violence. *Report*. Seattle, Wash: US Public Health Service; 1987:93-94.
39. DuBow S. The Television Decoder Circuitry Act—TV for all. *Temple Law Rev*. 1991;64:609-618.
40. Los Angeles Times Poll. Television sex and violence. Poll 196, September 19, 1989. In: Opinion Research Service. *American Public Opinion Data*. Louisville, Ky: Opinion Research Service; 1989.