

9/25/03

Screen Violence and Real Violence: Understanding the Link!

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It is a pleasure to be here today, although the message I want to deliver is not a pleasant message. The telecommunications revolution of the 20th Century has created a new environment for our children. In this environment television, videos, and movies have assumed central roles in socializing our children while parents have lost influence. For better or worse the mass media are having an enormous impact on our children's values, beliefs, and behaviors. In particular, the widespread portrayals of violence in dramatic programs is having an insidious effect. Hundreds of studies have confirmed that exposing our children to a steady diet of violence in the media makes our children more violence prone. The psychological processes involved are not mysterious. Children learn by observing others, and the mass media provide a very attractive window for these observations. For many children the greater tolerance for violence that they learn from TV and movies and the scripts for violent behavior that they acquire from TV and movies will not be very noticeable because of other countervailing factors in their lives. But media violence does affect every child.

Are these effects temporary? Unfortunately no. Research shows that the more aggressive child usually grows up to be the more aggressive adult. Adults may be resistant to influence from what they watch in the media as adults, but their adult social habits have been affected by what they saw when they were children.

If this is true, you may say, why are there so many voices that won't accept these truths? Well, if one does not want to believe a truth about human behavior, one can always focus on exceptions. No single study is ever perfect particularly in the social sciences. A few researchers have made a reputation for themselves by burying the body of studies indicting media violence under a sand pile of supposed flaws, and a myth has arisen that there is not a consensus among researchers. In actuality there is a clear consensus that media violence stimulates aggression. But media violence is an enormous financial success. Violence attracts viewers, and violence is cheap. Even well intentioned people find it difficult to sacrifice concrete financial success for abstract moral advancement.

What has led me to these conclusions? Let me give you a little background.

Simultaneous Increases in Real Violence and Media Violence

In the United States the question of whether television and film violence engender aggressive behavior has been debated perhaps more vociferously than in any other country. For over 30 years, the U.S. Congress,

governmental administrators, police officials, professors, researchers, health interest groups, parent groups, mental health professionals and the violence purveyors themselves have been involved in round after round of studies, hearings, and reports. Included in these are the 1972 surgeon general's report, the 1970's Pastore hearings, and the 1980's NIMH reports. The reasons for such an abiding concern with media violence in the United States are not obscure. They revolve around two demographic trends between World War II and the present that have been more noticeable in the USA than anywhere else: 1) the dramatic increase in the exposure of youth to mass visual media during this period, and 2) the very large increase in youth violence since the late 1940s.

The Increase in Youth Violence

Between the end of World War II and today the homicide rate in the USA doubled from an overall rate of about 5 per hundred thousand to 10 per hundred thousand between the late 1940s and the 1980s and have remained at about that level into the mid-1990s. However, this is only an average for the country. The rate in some inner city ghettos is 10 times this rate (100/100,000), and the rate for young African-American males in the inner city is 30 times this rate (e.g. 300/100,000 for males 18 to 24). Worse, the homicide rates and homicide victimization rates for youth under 24 increased about 50% in the last 10 years alone.

Now statistics are often hard to understand. But think about what a rate of 300/100,000 means. It means that 3 out of every 1,000 males between 18 and 24 who live in our urban ghettos each year are expected to be murdered each year! It means that about 3 out of every 100 will be murdered before they turn 25! That makes murder right up with automobile accidents as the leading cause of death for these youth.

How does this compare with the rest of the world? The highest violence rates in the world are currently in countries in turmoil such as Russia and South Africa and Columbia. If we exclude these countries in turmoil, no highly developed Western society other than the USA has a homicide rate much above 3 per hundred thousand (Finland) and most are below 1 per hundred thousand. In 1989 New Zealand's rate was about 2.1 per hundred thousand. Yet with only a few exceptions dramatic increases in youth violence have occurred since World War II in all these countries.

The Explosion of the Visual Mass Media

Now it happens that just when this increase in youth violence started, right after World War II, television was also started in the USA. And as youth violence increased, television use exploded until television had penetrated 92 million homes by 1992 -- that is over 98% of U.S. households (U.S. Bureau of the Census, p. 561, 1993). The average number of TV sets per house is now 2.1, and the per capita frequency is over 770 receivers per thousand people. This compares, for example, with about 450 per thousand for most Western European countries. Furthermore, the USA was even farther ahead of the rest of the world in this dubious distinction ten and twenty years ago; so today's young American adults have had an unparalleled exposure to the mass visual media while they were growing up.

Not only has television become a primary experience in every child's life in the past 40 years, but a number of other significant changes in mass visual media have occurred which have heightened concern over the potential role of the media to influence children. Youth and young adults have always led the world in watching movies, but the amount and variety of their exposure to films has been increased dramatically by the introduction of the Video Cassette Recorder. Home VCR equipment boomed during the late 1980s bringing box office entertainment into the home. In 1980, 1.1% of USA households with televisions had VCR equipment. By 1990, that number had increased to 72.5% of households with television (*U.S Bureau of Census, 1993, p. 561*). These increases in the United States are paralleled by increases in other Western countries (*Greenberg, Linsangan, & Soderman, 1987*). Not only does VCR equipment provide a mechanism through which children can view the most violent films, it erodes the ability of society to control children's exposure through the establishment of family hours.

Paralleling the introduction of the VCR has been the dramatic expansion of cable television networks over the past two decades. In 1980, for example, the United States had 17.7 million subscribers to cable television. By 1992, that number had grown to 57.2 million -- 60.2% of homes (*U.S. Bureau of Census, 1993, p. 561*). Cable television brings tremendously increased programming selection to a household. For example, before cable was introduced, a viewer in a major American metropolitan area might be able to choose from 5 stations broadcasting about 20 hours per day. But after cable the same viewer could choose between up to 70 stations broadcasting 20 to 24 hours per day. Unfortunately, the advantage of greater variety was coupled with

the disadvantage that many of these cable shows had greater violence content than the normal network dramas.

With the introduction of cable television, shows of all ratings became accessible within the family home, regardless of their violent content.

Given these resources, how much time do American children spend watching films and television? Data collected by Comstock and his colleagues (*Comstock, 1991; Comstock, Chaffee, Katzman, McCombs & Roberts, 1978*) indicate that the average number of hours children watch T.V. increases from about 7 hours per week for 3 year olds, to 17 hours per week for 7 year olds, to 28 hours per week for 11 year olds. Of course, there is substantial individual deviation from the average for individual children. For example, 10% of first-graders do not watch any television on school days, but over 30% watch over 4 hours or more. Researchers have also found that over 25% of sixth-graders watch 40 or more hours per week (*Lyle & Hoffman, 1972*). Viewing seems to peak at about age 11 or 12 and declines slightly thereafter perhaps because of the child's expanding social life.

How many of these films and T.V. programs contain graphic violence? While the exact answer to the question depends heavily on one's definition of violence, regardless of the definition the general answer is a lot! According to most researchers, around 80% of all programs in the U.S. contain some violence with an average of 5.2 violent acts per hour (*Signorelli, Gross & Morgan, 1982*). The rates vary by time of day and are highest for weekends and day time when children are often viewers. 94% of violent programs with 5.8 violent acts per hour may occur during some of these times. More recent and more comprehensive measurements of violence (*Mediascope, 1994*) have revealed little reduction in violence with about 55% of all programs having some violence and about 24% having serious violence.

It is difficult to compare these data with data from other countries because the same methodology has seldom been used in other countries. Most estimates suggest that, with a few exceptions, there are far fewer broadcast programming hours containing violence in other countries. However, the percentage of programming containing violence does not seem to be too different. For example, in one of our studies comparing violent programming across a number of countries, we adopted a content analysis method. We examined the T.V. guide for one representative week for one city in each country and counted the number of programs on local non-cable TV stations that contained explicit scenes of interpersonal violence. In the United States city, we found that there

were about 188 hours of violent programming hours per week computed by this method or 15% of all programming hours. The 188 hours violence was by far the highest of any countries studied; thus in absolute hours of violent programming, the U.S. seemed to lead the world. However, the percentage of programming containing violence was not that strikingly different in many other countries because they had far fewer hours of programming. In this particular study numbers close to 15% of programming containing violence were found in countries as diverse as Australia, Finland and Poland (*Huesmann & Eron, 1986, p.21*).

A Consensus Emerges

The co-occurrence of the increase of media violence and increase in societal violence does not prove the two are related, but it does suggest that the relation between them should be investigated. And investigated it has been for over 40 years. As a result, a large body of scientific literature on the topic has emerged. There seems to be a widespread myth that all of this research has produced no clear results and no clear consensus. That, at least, is what a few researchers and many media companies would have us believe. Nothing could be further from the truth. Twenty-years ago a clear consensus had emerged among the vast majority of leading researchers, and that consensus is even stronger today. That consensus is that media violence is teaching our children to behave more violently.

This is not to say that media violence is the only cause of increases in societal violence or even the main cause. No reputable scientist is saying that despite what the TV executives might have you believe. Too many other factors clearly contribute to aggressive and violent behavior, e.g. family life, and many of these have changed since the 40s. Furthermore, the mass media always reflect to some extent the way life is; so one would expect a more violent society to have a more violent mass media. What is indisputable is that the increase in media violence has added to the increase of violence in society.

Defining aggression and media violence

Before proceeding, it is important to clearly define two terms: media violence and aggressive behavior. Different people have used different definitions of these terms at different times.

I, like many psychologists, define media violence as graphic visual portrayals of acts of physical aggression by one human against another. This definition of media violence does not include off-screen

poisonings that might be implied, but rather, it refers to visually portrayed physically aggressive acts by one person against another. Every episode of *Miami Vice* certainly is violent, but *Poirot* often is not. The definition says "humans," but many cartoon characters are given such human traits that they count. For example, the *Bugs Bunny* cartoons certainly count.

Why do we use this definition? Because, as I will discuss in a few minutes, psychological theory tells us that this kind of violence is likely to be the most damaging. What I am calling the most damaging is not necessarily the most graphic or bloodiest or most disgusting. It is the violence that is most likely to teach the viewer to be more violent. Movies and programs of this type were frequent 20 years ago, and they are frequent now. The list would be endless: *Straw Dogs*, *Dirty Harry*, *Death Wish*, *The Godfather*, *Mad Max*, *The Terminator*, *Cliffhanger*, *True Lies*, *Pulp Fiction*, and perhaps the worst of all -- *Natural Born Killers*.

Most of us find these films to be disturbing or even disgusting to some degree. However, we must realize that our children can easily see any of these on VCRs if not on cable or regular TV, and that, furthermore, there are many equivalent examples shown on broadcast TV at one time or another.

Let me turn to my definition of aggressive behavior and the causes of aggression as outlined in Table 1. What do I mean by aggressive or violent behavior? Aggressive behavior on the part of a child or an adult refers to an act that is intended to injure or irritate another person. It could be physical or non-physical. However, the assertive behavior of good executives or salespeople that is sometimes called "aggressive" is not included in this definition.

Table 1. Definition of aggression and some key facts.

AGGRESSION

Definition

An act intended to injure or irritate another person

Key facts

Early Onset of Individual Differences

Continuity over Time and across Generations

Product of Multiple Interacting Causes

Neurophysiological Predispositions

Environmental Socializing Factors

Beliefs, Attitudes, and Social Scripts

Situational Determinants

To A Great Extent LEARNED

The Causes of Aggression

There are four clear conclusions that one can draw from the research to date on the development of human aggressive behavior. First, habitual aggressive behavior generally emerges early in a child's life. Second, the best predictor of later aggressive or violent behavior is previous aggressive or violent behavior even across generations. Third, severe aggressive behavior is most often the product of multiple causes. Fourth, habitual aggression is to a great extent a learned behavior.

Early Onset and Continuity over Time. What do we mean by early onset? Individual differences in

social behavior related to aggression (e.g. early temperament) are apparent before age 2 (*Kagan, 1988*). By age six, a number of children have adopted aggressive patterns of behavior in their interactions with others (*Parke & Slaby, 1983*). From that point on the extent of aggressive behavior in children tends to increase into adolescence. By age eight, children are characteristically more or less aggressive over a variety of situations; and aggression becomes a relatively stable characteristic of the individual youngster that predicts adult aggression (*Ensminger, Kellam & Rubin, 1983; Farrington, 1990; Huesmann, Eron, Lefkowitz and Walder, 1984; Moffitt, 1990; Loeber & Dishion, 1983; Magnusson, Duner, & Zetterblom, 1975; Olweus, 1979*). The statistical stability of aggressive behavior from about age 8 to age 30 approaches .50. This is very high by the standards of psychological characteristics. The more aggressive child becomes the more aggressive adult.

Multiple causes. The existing research also clearly shows that aggressive and violent behavior is most often a product of a number of interacting factors: environmental, genetic, perinatal, cultural, physiological, familial. In fact, it seems most likely that severe antisocial aggressive behavior occurs only when there is a convergence of many of these factors. Neurophysiological predispositions to hyperactivity and impulsivity, hormonal imbalances, lead poisoning, poor parenting, an impoverished environment, deviant peers, being abused, cultural violence, believing violence is normal and many other factors each add a small increment to the risk that a child will grow up to be violent. What is important for the investigation of the role of media violence is that no one should expect the learning of aggression from exposure to media violence to explain more than a small percentage of the individual variation in aggressive behavior.

The Learning of Aggression. Within this framework of multiple causes and early emergence, is there any one process that seems most important in accounting for individual differences in aggression? Yes, taken as a whole the past 50 years of research on human aggression suggests that habitual aggressive behavior in young humans is to a great extent learned from the child's early interactions with the environment (*Bandura, 1977; Berkowitz, 1974; Eron, Walder, & Lefkowitz, 1971; Huesmann, Eron, Lefkowitz & Walder 1984*). For most children, aggressiveness seems to be determined most by the extent to which their environment reinforces aggression, provides aggressive models, frustrates and victimizes them, and teaches them that aggression is "O.K."

Does violence in the mass media engender aggressive behavior?

Given this background, let me turn to the evidence supporting the conclusion that violence in our mass media makes our children more aggressive? The evidence comes from three types of studies that must be considered together. When considered together, this evidence is overwhelming.

First, large numbers of laboratory and field experiments have demonstrated over and over again during the past quarter-century that exposing children to violent behavior on film and T.V. increases the likelihood that they will behave aggressively immediately afterwards (see reviews by *Comstock, 1980; Geen, 1983, 1990; Geen and Thomas, 1986*). The typical paradigm is that randomly selected children who are shown either a violent or non-violent short film are observed as they play with each other or with objects such as Bo-Bo dolls. The consistent finding is that children who see the violent film clip behave more aggressively immediately afterwards. They behave more aggressively toward persons (*Bjorkqvist, 1985; Josephson, 1987*) and toward inanimate objects (*Bandura, 1977; Bandura, Ross & Ross, 1961; 1963a, 1963b*). The effects occur for all children, boys and girls, black and white, normally aggressive or normally non-aggressive. Just as children learn intellectual and social skills from watching other people do things, they learn violent behaviors from watching other people behave violently. It is also true that in the laboratory, children can be taught to be less aggressive by showing them films with prosocial models (*Pitkannen-Pulkkinen, 1979*).

These short term effects are not limited to children but have been observed in teenagers and adults, particularly when the dependent measures reflect attitudes or opinions rather than behaviors (*Malamuth & Donnerstein, 1982*). In these well-controlled laboratory studies there can be no doubt that it is the children's observation of the scenes of violence that is causing the changes in behavior. The effects of violent TV or films on the physiological responses that mediate aggression have also been clearly demonstrated with valid experiments. For example, Bushman and Geen (1990) demonstrated that violent videotapes elicit both aggressive thoughts and higher systolic blood pressure in college students.

The question then becomes whether these causal effects observed in the laboratory generalize to the real world. Do they have real significance in the world? Do they extend over time? Does real media violence cause real aggression in the real world? The answer to all these questions is also yes!

Virtually every competently done survey study with children has shown that more aggressive children watch more film and television violence. The list of such studies is endless, and many reviews exist (e.g. *Comstock, 1980, 1991*). The correlations obtained usually are between .20 and .30. Such correlations are not large by the standards of variance explained, but they are large by the standards of children's personality measurement, and they can have real social significance (*Rosenthal, 1986*). Moreover, the relation is highly replicable even across researchers who disagree about the reasons (e.g., *Huesmann, Lagerspetz, & Eron, 1984*; *Milavsky, Kessler, Stipp, & Rubens, 1982*) and across countries (*Huesmann & Eron, 1986*). In contrast, significant correlations between adults' aggression and adults' concurrent violence viewing have been observed only rarely in the field.

So we know that media violence causes aggressive behavior in children in the short run, and that more aggressive children in the real world are those who are watching more screen violence. The only remaining question is whether children exposed to more screen violence grow up to be more aggressive adults. And, in fact, this evidence exists. First, as I discussed earlier, the more aggressive and violent child tends to become the more aggressive and violent adult regardless of what starts the aggression. What may look like rowdiness in children can transform itself over the years into serious antisocial behavior. Second, longitudinal studies show that early exposure to large amounts of dramatic media violence is predictive of later aggressiveness.

I conducted one of the first studies that showed these effects with my colleagues Leonard Eron, Monroe Lefkowitz, and Leopold Walder. The study was done in New York State and involved the interviewing and testing of 800 children who were all third graders age 8 and 9 in one county in New York State in 1960. The children in this study were interviewed and tested about what they were watching on television and about their aggressive behavior in 1960. In 1970, 10 years later, we went back and located as many of the original subjects as possible and interviewed and tested them again. In 1960, most of the information was actually obtained from interviews with their parents. In 1970, most of the information was obtained from the subjects themselves. This study has become very well known because it was one of the first studies in a field setting to implicate media violence in real aggressive behavior and also to suggest over time that media violence was in fact increasing aggressive behavior (*Eron, Huesmann, Lefkowitz & Walder, 1972; Huesmann, Eron, Lefkowitz & Walder, 1973*).

Table 2. Mean Aggression Scores for Boys at Age 19.

Level of Aggression at Age 8	Preference for Television Violence at Age 8			Total
	High (>80th percentile)	Medium	Low (<20th percentile)	
High (>75th percentile)	165.8 (N=13)	116.9 (N=27)	60.6 (N=5)	114.4 (N=45)
Medium	103.3 (N=15)	80.5 (N=59)	55.7 (N=17)	83.8 (N=91)
Low (<25 percentile)	110.8 (N=8)	19.0 (N=31)	32.4 (N=9)	54.1 (N=48)
Total	126.6 (N=36)	75.1 (N=117)	50.6 (N=31)	

Note: Statistical significance of relation of age 8 TV violence and age 19 aggression: $F(2, 175)=6.63, p<.005$.

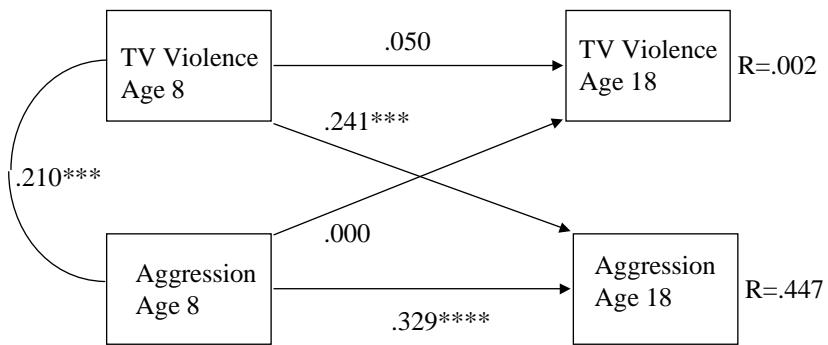
As shown in Table 2, children were divided into three groups, according to level of aggression - high, medium, and low. Indications of television violence viewing were also recorded for the children - high, medium, or low. Scores were given for aggression ten years later when the subjects were 18 or 19 years old. The results indicate that regardless of the initial level of aggression, the children who were the higher violence viewers ended up having higher levels of aggression after ten years.

An analysis of these results with a statistical technique called structural modeling (as shown in Figure 1) supports the same causal conclusion that the many well controlled laboratory experiments suggested. The numbers on the arrows in this diagram represent the best estimates of causal effects between the elements. The link from T.V. violence at age 8 to aggression at age 18 ($r=.241$) is substantial while the link from aggression at age 8 to T.V. violence at age 18 ($r=.000$) is zero. These results suggest that it is more plausible to conclude that early television violence viewing is promoting aggression rather than that early aggression is promoting greater

attraction to T.V. violence.

184 New York Boys from Age 8 to 18

Standardized Path Coefficients



$\text{Chi-sq}(3) = .98$, $p = .81$, $\text{RMSE} = .02$

Figure 1. The effects of males' TV violence viewing and aggression at Age 8 on their TV violence viewing and aggression at Age 18.

A substantial amount of debate, controversy, arguments, articles, and counter-articles followed the publication of this study (See *Eron, et al., 1972; Huesmann et al., 1973*). No study is without flaws including this one. But the results have stood the test of time well. In particular, in 1982 the subjects of this study were tested and interviewed again, 12 years after they had graduated from high school at an average age of 30 years. In addition to the tests and interviews, criminal justice and traffic department records were obtained from New York State. The data obtained from the third wave of the study allowed the children's aggression scores derived from peer-nominations at age 8 to be related to their real serious anti-social behavior at age 30 (*Huesmann, Eron, Lefkowitz & Walder, 1984*).

Figure 2 shows how the low, medium, and high groups on aggression at age 8 scored on a variety of measures 22 years later. The vertical axis is a little different in each panel. The top left shows scores on a standard personality measure of aggressive behavior; note the more aggressive 8 year olds scored much higher at age 30. The next panel shows the rate mean number of criminal convictions for each group. One can see that the

high aggressive children had a much higher chance of serious crime by age 30. The bottom left panel shows how harshly our subjects who had children by age 30 punished their own children. Did they beat them with a belt? Did they spank them, and so on? Again, the more aggressive children at age 8 punished their own children more severely. In the right panel, data on moving traffic violations and driving while intoxicated is shown. In every incidence, the children who were more aggressive at age 8 scored worse at age 30.

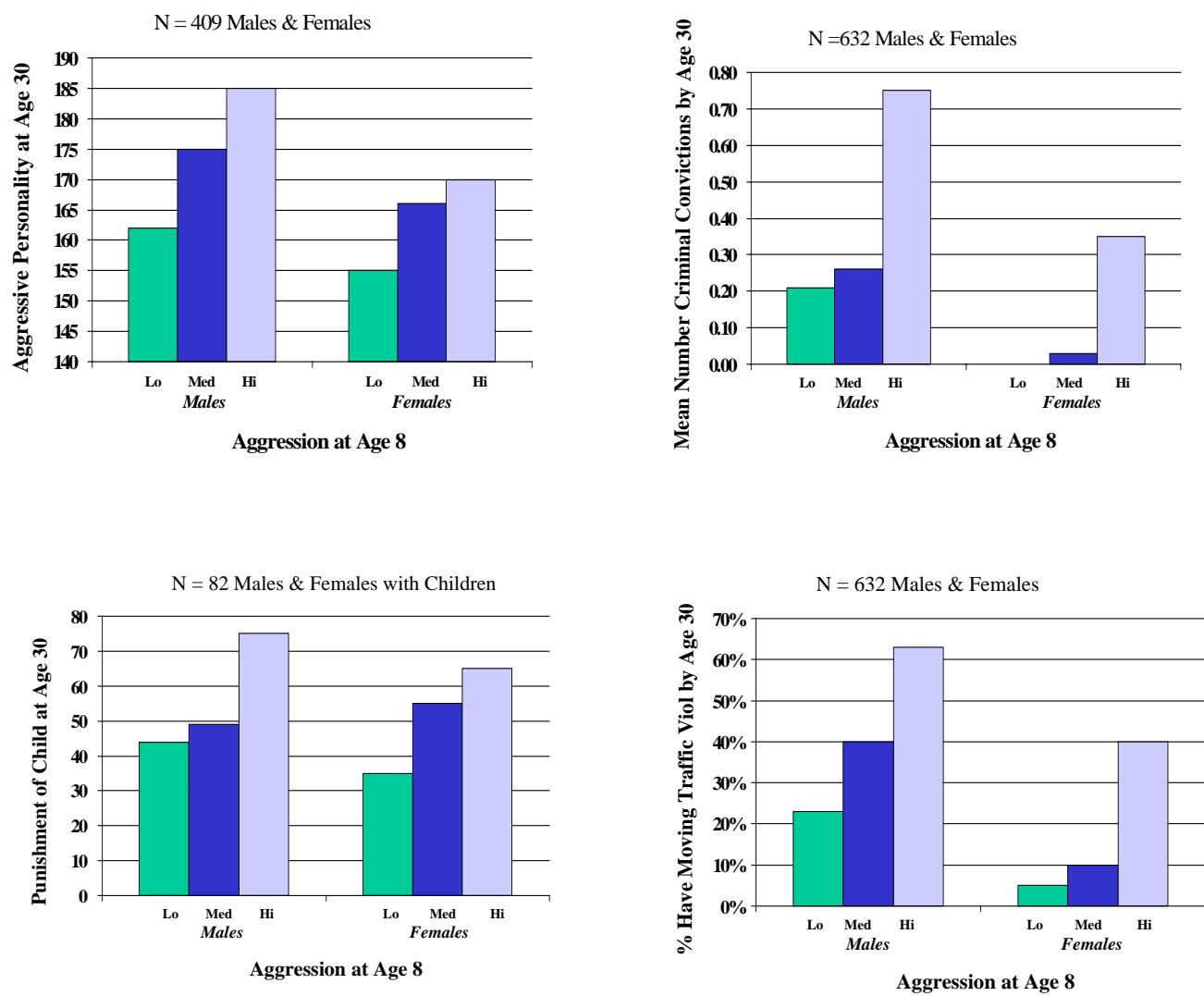


Figure 2. The prediction of adult males' antisocial behavior from childhood aggression.

Finally, look at Table 3 which shows criminal convictions among our sample. Males in the low childhood aggression category had the lowest conviction rate -- only 10%. In the medium it was 15%, and in the high 23%. For females, the rates were zero in the low, 1.8% in the medium, and 6.3% in the high (*Huesmann, Eron, Lefkowitz & Walder, 1984*).

Table 3. Proportion of Subjects Convicted for a Crime in New York State Before Age 30 According to Gender and Peer-Nominated Aggression at Age 8.

Sex	Age 8 peer-nominated aggression		
	Low	Medium	High
Males	9/90 (10%)	25/163 (15%)	19/82 (23%)
Females	0/49 (0.0%)	2/110 (1.8%)	3/48 (6.3%)

These data firmly show that what we have called aggression at age 8 really does predict serious adult anti-social behavior 22 years later. We have already shown that media violence viewing increases childhood aggression. Therefore, there is no doubt that childhood violence viewing is a precursor of adult aggression. The only remaining question then is whether this effect is so strong that it can be detected directly. That is, does early media violence viewing also relate to adult aggression independently of early childhood aggression.

The answer is yes - not strongly, but it can be shown. The New York study did not have numbers large enough to result in a strongly statistically significant correlation. The study does show, however, that the seriousness of crimes that the young men were arrested for by age 30 was related to their preference for viewing violence on television at the age 8. The high violence viewers had a greater likelihood of being arrested for serious crimes, as Figure 3 demonstrates. This is not true for girls, it is only true for boys in this study.

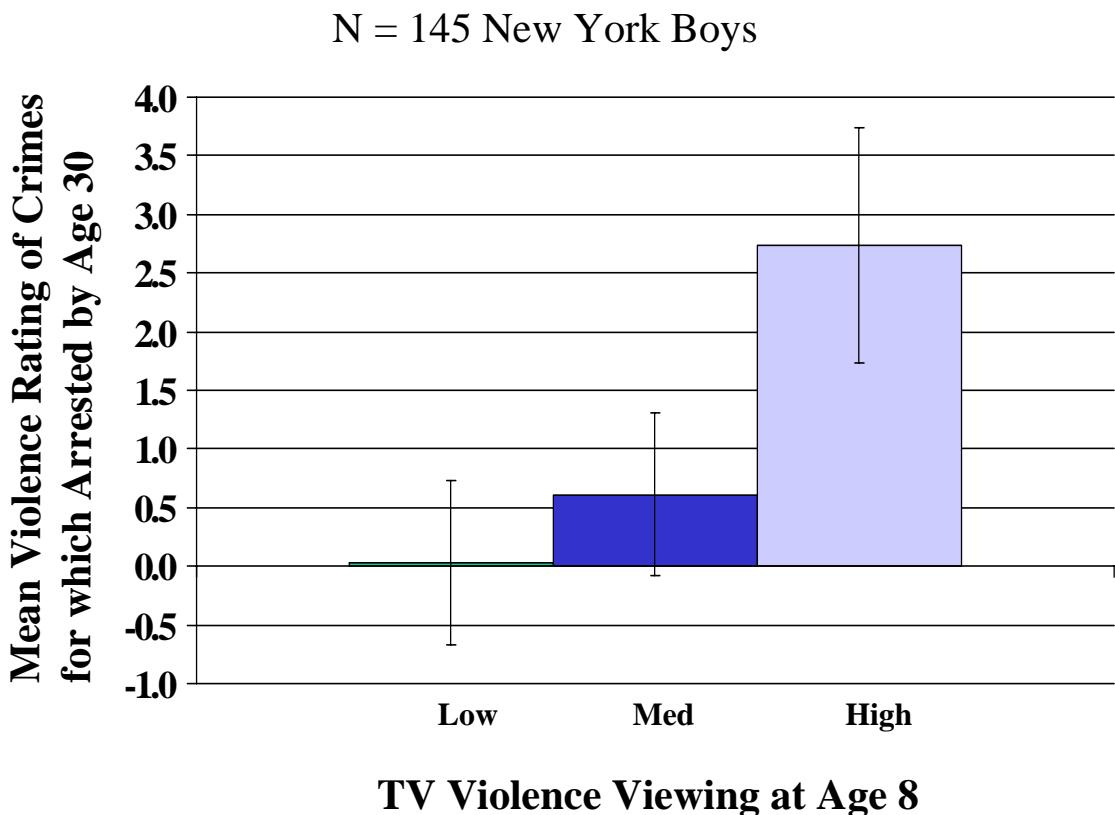


Figure 3. *The prediction of violent crimes committed by age 30 from a boy's TV violence viewing at age 8.*

Another way to look at this is to consider the differences between those who have been arrested for violent crimes and those who have never arrested for violent crimes.

Table 4. Comparison of Mean Scores on Age 8 Variables for Males Arrested for Violent Crimes.

Age 8 Variable	Never Arrested for Violent Crime (N=308)	Arrested for Violent Crime (N=24)	t-statistic
Peer-Nominated Aggression	14.40	22.20	2.48**
Peer-Nominated Popularity	22.40	20.30	.63
Child's IQ	102.80	94.30	3.06**
Parental Disharmony	9.29	9.88	1.02
Parental Punitiveness	16.90	20.80	2.18*
Number Children in Family	3.65	4.55	2.04*
Parents' Church Attendance	2.31	1.38	2.78**
Parents' Authoritarianism (F-Scale Score)	28.10	29.50	1.35
Parent-Child Dissimilarity	6.69	7.33	1.45
Parents' Lack of Education	4.29	4.97	2.34*
Child's Preference for Violent Television	6.95	14.33	2.49*

*p < .05 **P < .01

As shown in Table 4, those young men who have been arrested for violent crime scored much higher as children on initial peer nominated aggression, 22 versus 14, scored lower on I.Q., came from families that had more children, attended church less, ranked education less important, and most important, came from a childhood in which their television violence viewing was much higher, 14.33 versus 6.95. This certainly seems to be an indictment of television violence.

An issue to be considered with longitudinal data is the extent to which certain socio-economic factors and family background factors might explain all the relations. It is sometimes argued that low socio-economic status families and low I.Q. families tend to have children who are more violent and aggressive and who watch more violence on T.V. However, after partialling out the effects of family socio-economic status and child's I.Q., T.V. violence viewing, parental disharmony, and parent's church attendance still remain as significant factors in

predicting violence. In other words, the effect of T.V. violence viewing remains and cannot be explained away in terms of socio-economic status and I.Q.

Another question is the extent to which these effects generalize beyond the boundaries of the United States or North America to other countries. In the 1970's I conducted a substantial field study in which I collected data in five countries: the United States, Finland, Poland, Israel and Australia (*Huesmann & Eron, 1986*; *Huesmann, Moise, Podolski, & Eron, 2003*). First and third grade children and their parents were interviewed and tested in each country for a period for three consecutive years. These results have now been widely published.

What did we find?

The results varied across countries, but in every country there was a correlation between television viewing and aggression for some children. Furthermore, there was a longitudinal effect from earlier TV viewing to later aggression in every country except Australia. A boy who was equally aggressive to another child during the 1st grade but scored 1 unit higher on violence viewing could be expected to score .15 units higher on aggression 2 years later in the USA, .21 units higher in Finland, .29 units higher in Israel, and .14 units higher in Poland. And there were comparable effects for girls in the USA, Israel, and Poland! However, the more frightening longitudinal effects have only become apparent recently when we studied these same children after they had grown up into their 20s. Table 5 illustrates with the USA data the kinds of effects we have found for boys and girls in the USA and for boys in Finland and Poland.

Table 5

Differences in Frequency of Spouse Abuse and Serious Physical Aggression "At Least Once" in Past 12 Months for High Childhood Violence Viewers Compared to Other Children

ITEM	MALES			FEMALES		
	Hi Viol Viewers (N = 31)	Other Viewers (N = 122)	Chi-square Sig.	Hi Viol Viewers (N = 36)	Other Viewers (N = 140)	Chi-square Sig
Spouse Abuse:						
Pushed, Grabbed or Shoved Your Spouse	41.7%	22.2%	p < .05	34.6%	21.2%	n. s.
Thrown Something at Your Spouse	20.8%	14.8%	n. s.	38.5%	16.5%	p < .02
Serious Physical Aggression:						
Respond by Shoving the Person	68.8%	50.4%	p < .05	68.6%	43.2%	p < .01
Punch, Beat, or Choke Another Adult	21.9%	16.9%	n. s.	17.1%	3.6%	p < .01
Criminal Behavior:						
Self-reported Any Crime in Last Year	62.5%	53.4%	n. s.	48.6%	25.9%	p < .01
State Reported Convictions	10.7%	3.1%	p < .03	00.0%	00.0%	n. s.
Driving Behavior:						
Self-reported Moving Traffic Violations	87.5%	76.3%	n. s.	80.0%	57.6%	p < .01
State-reported Moving Traffic Violations	60.0%	39.4%	p < .01	28.9%	28.4%	n. s.

Note: Chi-square significance test is Fisher's Exact One-sided Test

Look at this table. The boys and girls who were in the top 25% in TV violence viewing at age 6 to 10 behave significantly more violently 15 years later. They are more likely to shove and throw things at their spouses. They are more likely to shove, punch, beat, and choke other people. They are more likely to commit crimes and traffic offenses. They are seriously more aggressive than those who were not watching a lot of TV violence when they were children!

Why is exposure to violence related to violent behavior?

The above review, while brief, revealed a preponderance of evidence indicating that exposure to dramatic media violence is predictive of increased aggressive behavior in young children. The evidence that video games and music videos have the same effect is much weaker, but from a theoretical perspective it is hard to understand how television and films could have an effect and video games and music videos would not have an effect. Let us now turn to a more detailed discussion of how repeated exposures to media violence teach children to be more aggressive. The major ways in which media violence is believed to influence our children's behavior are outlined in Table 6.

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Table 6. Psychological processes through which media violence influences behavior.

- Observational learning of behaviors and scripts
 - Fantasy rehearsal
 - Observational learning of beliefs and attitudes
 - Hostile attributional bias
 - Normative beliefs
 - Cognitive desensitization
 - Emotional desensitization
 - Cognitive justification
 - Cognitive cuing and priming
 - Arousal and excitation transfer
-

However, first, let me dispense with one old theory that has plagued discussions of the role of media violence for decades, Catharsis theory developed by *Freud(1930)*. This theory posits that watching aggression on television acts as a purging of aggressive tendencies or drive. Well, there is not a shred of convincing data to support this idea. Certainly, physically aggressive actions can reduce tension in subjects who have been frustrated (*Hokanson & Burgess, 1962*), but so can physical exertion that is non-aggressive. The more important fact is that there are no convincing data to indicate that watching violent acts reduces tension or the propensity of one to act aggressively (*Doob & Wood, 1972*). The one field study often cited as demonstrating a catharsis process (*Feshbach & Singer, 1971*) has methodological flaws (*Huesmann, Eron, Berkowitz, & Chaffee, 1991*) that the authors have recognized. As shown above, the majority of evidence demonstrates that violence viewing and aggression are positively related which contradicts the catharsis hypothesis. Furthermore, studies that have

examined the relation between fantasizing about aggression and aggressive behavior have shown that children who fantasize more, behave more aggressively (*Huesmann & Eron, 1986; Viemero, 1989*). As a explanation of the relation between aggressive behavior and viewing violence, catharsis theory can be put to rest.

Observational Learning of Behaviors, Beliefs, and Attitudes. On the basis of the accumulated evidence it seems clear that children learn both specific aggressive behaviors and attitudes supporting more complex aggressive behaviors through observational learning. It has become an accepted tenet of developmental theory that through imitation and vicarious reinforcements (*Bandura, 1977; 1986*) children develop habitual modes of behavior that are resistant to extinction. But there are additional predictions of vicarious learning theory that have also been confirmed. For instance it has been shown that the extent to which a child imitates an actor is greatly influenced by the reinforcements received by the actor. If the actor is seen being rewarded for aggressive behavior, the child is more likely to imitate that behavior (*Bandura, 1965; Bandura et al., 1963b 1963a; Walters, Leat, & Meaci, 1963*). If the actor is punished for a behavior, that behavior is less likely to be modeled (*Bandura, 1965; Walters & Parke, 1964*). Other studies have indicated that the persistence of such learned behavior seems to depend on the direct reinforcements the child receives (*Bandura, 1965; Hayes, Rincov & Volosin, 1980*). Finally, whether or not the child identifies with the model (*Huesmann & Eron, 1986; Huesmann, Lagerspetz & Eron, 1984*) and whether or not the model is perceived as possessing valued characteristics also appears to influence whether or not a child will imitate the model (*Bandura et al., 1963b; Neely, Hechel & Leichtman, 1973; Nicolas, McCarter & Hechel, 1971; Hicks, 1965*).

More recently, I have extended the concept of observational learning to argue that children also learn patterns of thinking supporting aggressive behavior from observing others. I believe that children learn what might be called scripts for complex aggressive behaviors and as well as beliefs and attitudes supporting aggression from observing violent dramas in the media (*Huesmann, 1982, 1987, 1988; Huesmann & Miller, 1994*). Scripts are programs for how to solve social problems that children may employ automatically. Often after a script is suggested by what a child observes, the child fantasizes about behaving that way. Such cognitive rehearsals of the script may the use of the script even more likely.

A substantial body of data has accumulated indicating that media violence also changes beliefs and

attitudes about violence. The more televised violence a child watches, the more accepting is the child's attitude toward aggressive behavior (*Dominick & Greenberg, 1972*; *Drabman & Thomas, 1974a, 1974b*; *Thomas & Drabman, 1975*). This cognitive desensitization then makes the person's own aggression more acceptable to them. Equally important, the more a person watches television, the more suspicious a person is, and the greater is the person's expectancy of being involved in real violence (*Gerbner & Gross, 1980*). Such hostile attributional biases promote aggressive interactions with others (*Crick & Dodge, 1994*).

One study which both reinforces the importance of attitudes and suggests potential ways to reduce the effects of media violence on children was conducted by me and my colleagues several years ago (*Huesmann, Eron, Klein, Brice, & Fisher, 1983*). In this study we randomly assigned high violence viewing children to an experimental attitude change treatment or a control group. We changed the children's attitudes; so they came to believe that media violence was unreal and represented inappropriate ways to solve problems. Several months later when we reassessed these children, we found that they had become less aggressive than the control children.

Emotional desensitization. One might designate the changes in attitudes brought about by frequent violence viewing as a cognitive desensitization to violence. Similarly, there is some evidence that a real emotional desensitization can occur. In one quasi-experimental field study (*Cline, Croft & Courier, 1973*), boys who regularly watched a heavy diet of television displayed less physiological arousal in response to new scenes of violence than did control subjects. Although these results have apparently been difficult to replicate in the field, *Thomas, et al.(1977)* discovered similar short-term effects in laboratory studies of changes in skin conductance in response to violence. It should not be surprising that emotional and physiological responses to scenes of violence habituate as do responses to other stimuli. The problem is that the arousal that is naturally stimulated by observing violent behaviors is unpleasant for most people and therefore inhibits aggressive actions (*Halpern, 1975; Winn, 1977*). Once this arousal habituates, aggression is no longer inhibited.

Cognitive Justification Processes. The justification hypothesis posits that people who are aggressive like to watch violent television because they can then justify their own behavior as being normal (*Huesmann, 1982*). It involves the observational learning of attitudes, but it operates in the opposite direction from the process described above. According to this theory, television violence viewing not only stimulates the child's

aggressiveness; it results from it. A child's own aggressive behaviors normally should elicit guilt in the child, but this guilt is relieved if the child who has behaved aggressively watches violent television. Thus, the child who has behaved aggressively watches violent television shows to justify his or her own aggressiveness.

Cognitive Cuing/Priming. While the observational learning process explains how exposure to media violence can teach lasting aggressive habits, priming theory can account for how aggressive habits learned in other venues may be "triggered" by violent media displays. *Berkowitz (1984)* has proposed that, "the aggressive idea suggested by a violent movie can 'prime' other semantically related thoughts, heightening the chances that viewers will have other aggressive ideas in this period" (p. 411). In this way, when a person views an aggressive act on television it activates thoughts, emotions, and even behaviors which are cognitively associated with the act.

This idea of cognitive priming/cuing is useful in explaining why the observation of aggression in the media is often followed by aggressive acts which differ from the observed behavior. Many studies have demonstrated this phenomenon using television violence (*Berkowitz, 1970; Worchel, 1972; Wyer & Hartwick, 1980; Wyer & Srull, 1981; Berkowitz & Rogers, 1986*) and violence in music videos (*Hansen & Hansen, 1990*). For example, in one study it was found that subjects who viewed slides of weapons were more willing to severely punish a target than were the subjects who viewed neutral slides (*Leyens & Parke, 1975*). Presumably, viewing the weapons stimulated other aggressive ideas and emotions which then affected the viewers subsequent attitudes and behaviors.

Even innocuous objects that have been paired in the past with observed aggression may serve as stimulating cues in the future. One study that demonstrated this effect quite nicely was *Josephson's (1987)* study of schoolboy hockey players. Josephson deliberately frustrated the boys who were then shown either a violent or non-violent television program. A walkie-talkie was held by the actor in the aggressive program but not by the actor in the non-aggressive program. During a subsequent hockey game, boys were most aggressive if they had previously seen the aggressive film and the referee in their current game carried a walkie-talkie.

This idea of cuing seems particularly important in reference to the effects of music videos because the audio portion of the video may serve as a cue for aggression observed in the video causing these aggressive acts to be retrieved when the music is heard in the future.

Arousal and Excitation Transfer. I described desensitization to violence above. But there is also evidence that the general arousal heightens the propensity of the persons to behave aggressively and that television violence increases general arousal. Studies by *Geen and O'Neal (1969)* and *Zillmann (1971)* demonstrate that increasing a subject's general arousal increases the probability of aggressive behavior when this excitation transfers to actual behavior. Thus, exciting and stimulating scenes may make aggressive behavior more likely immediately afterwards because of the excitement they create.

Conclusions

In summary, exposure to media and film violence causes aggressive behavior. There will always be critics who disagree with such a conclusion, but on the whole their criticisms do not seem to hold up when faced with the evidence (*Huesmann, Eron, Berkowitz & Chaffee, 1991*). The effect of media violence on violent behaviors of the viewers are not statistically large, but they are robust, replicable, and large enough to generate social concern (*Rosenthal, 1986*). I don't believe that any objective interpreter of the research can doubt that, one way or another, media violence is teaching children to be more aggressive.

One can draw the analogy to smoking and lung cancer. The correlation between long term smoking and lung cancer is of similar magnitude to the correlation between long term exposure to media violence and violent behavior. Not everyone who gets lung cancer was a smoker, and not everyone who smokes (nor even most people who smoke) gets lung cancer. Similarly, not everyone who behaves violently was an habitual viewer of violence as a child, and not everyone who watches violent films and TV becomes aggressive. Yet, just as smoking raises the odds substantially of getting lung cancer, habitual childhood viewing of violent films and TV raises the odds of becoming a violent person.

A key aspect of this conclusion is that this effect occurs among children, not among adults. Children who are exposed year after year to media violence develop aggressive habits that become harder and harder to change over time. The more aggressive child becomes the more aggressive adult. Thus, childhood exposure to media violence can have a life long effect.

Several specific psychological processes illustrated are helpful in understanding this effect and they operate together.

One process is certainly the observational learning process - the process by which children observe others behaving and adopt the observed behavior or scripts, and attitudes or beliefs about that behavior into their repertoire. Fantasizing about what they saw may reinforce the effect.

Another process is probably the desensitization process - the process through which watching violence, time and again, reduces the negative affect and negative attitudes associated with that violence which could interfere with the performance of similar acts. Excitation transfer and cuing or priming by specific scenes also probably play a role in many short term effects.

Finally, aggressive behavior may also be reinforced through a justification process in which the already aggressive child turns to watching others behave aggressively because their behavior makes his or her behavior seem more normal. Of course, this also increases the chances of him or her behaving aggressively again.

What Can We Do?

We have made substantial progress in understanding the psychological processes involved in how media violence affects children. Unfortunately, understanding the process by which media violence may engender aggression in children does not immediately suggest a solution.

Still, several points provide us with guidelines (*Huesmann & Skoric, 2003*).

First, we don't need to be as concerned about adults or even teenagers as we do with children. Media violence may have short term effects on adults, but the real long term effects seem to occur only with children. This makes some societal controls more palatable in a free society.

Second, the violent films and programs that may have the most deleterious effects on children are not always the ones which adults and critics believe are the most violent. What type of violent scene is the child most likely to use as a model for violent behavior? It is one in which the perpetrator of the violence is rewarded for the violence. Thus, a violent act by someone like 'Dirty Harry' which results in a heinous criminal being eliminated and brings glory to Harry is of much more concern than a bloodier murder by a despicable criminal who is brought to justice. Parents need to be educated about these facts.

Third, we need to be aware that media violence can affect any child from any family. It is not, as some have suggested, only the already violence prone child who is likely to be affected. True, media violence is not

going to turn an otherwise fine child into a violent criminal. This is a ridiculous idea. But just as every cigarette one smokes increases a little bit the likelihood of a lung tumor some day, every violent show increases a little bit the likelihood of behaving more aggressively in some situation.

Fourth, broadcasters and film and program makers cannot avoid all responsibility and expect parents, governments, and others to control viewing. The argument that people watch it; so we give it to them, is not valid in a modern socially conscious society. It is unrealistic to expect parents to completely control what children watch in a society with multiple TVs in each household, VCRs everywhere, and both parents working.

Finally, we must recognize the economic realities of media violence. Violence sells. Both children and adults are attracted to violent scenes by the action and intense emotions (*Lesser, 1974*). Many of the most popular shows and popular films for children have contained violence. The income that a film generates is directly affected by how many viewers watch it. Even a 1% increase in viewers can increase profits by millions of dollars; so the ability of violence to attract viewers is an important factor. Furthermore, violence is generally less expensive to produce because one can get by with trite, mundane stories that are poorly acted when one has violence to attract viewers (*Gerbner & Gross, 1980*). On the other hand, successful dramatic stories cost correspondingly more and require better talent.

So what is the solution? Better parental control, more government control, training children not to be affected by media violence, electronic chips that cut out violence, boycotting sponsors of violence? All of these may be needed. Each society needs to make decisions based on what is best for it. But it is time for every society to take this problem seriously and act. The future of our children and society is too precious for us not to act.

For 30 years TV and film executives have been denying the reality of the problem. They say violence has no effect, but it does. They say other factors are bigger causes of violence which is true but irrelevant. They say that any restrictions on violence would be a violation of free speech which is not true. They say they will take care of the problem, but they have not. They say they are only giving the public what they want. But ratings show that the public likes quality non-violent children's programming even more. The truth is that these people are giving us violence because violence is cheap to produce, sells well, and makes them a lot of money.

The time has come to act. Parents need to take more control. The public must pressure sponsors,

producers, and regulators to care about violence, and these people must act. The future of our children and society is too precious for us not to act.

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Acknowledgements

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