Children, Adolescents, and the Media

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This instrument can teach, it can illuminate; yes, and it can even inspire. But it can do so only to the extent that humans are determined to use it to those ends. Otherwise it is merely wires and lights in a box.¹

Edward R. Murrow

Values are not, and will not be, inculcated by the family, the church, or other social institutions in either the present or the future. They are, and will be, inculcated by the visual and electronic media.²

Lester Thurow

The media represent some of the most underrecognized and most potent influences on normal child and adolescent development in modern society. Because media influences are subtle, cumulative, and occur over a long period of time, parents, pediatricians, and educators may not be aware of their impact. Indeed, even children and teens are unaware: A well-documented phenomenon known as the “third-person effect” means that young people as well as adults routinely report that everyone else is more strongly influenced by the media than they are.³ In a recent study of 503 teenagers nationwide, nearly three fourths thought that sexual content on TV influenced teens their age, yet fewer than one fourth thought that it influenced their own behavior (Fig 1).⁴ Even children are susceptible: Two studies of nearly 1000 fourth to eighth graders found that the majority felt that cigarette ads influenced others more than themselves.⁵,⁶

Meanwhile, the media have been implicated in a host of society’s ills for the past several decades: school shootings, teen sex and drug use, obesity and eating disorders, even online solicitation of sex. To what extent are the media responsible? Do media merely mirror an increasingly violent and sexually oriented society (as Hollywood executives insist), or do they actually cause changes in behavior? This brief monograph will provide the most up-to-date answer to these and many other questions, using an extensive review of the existing literature.

To understand media effects, first one must understand how media research is done. Unfortunately, most media research is complicated, difficult to carry out, and inaccessible to the average practicing physician. Nevertheless, some basic understanding can be helpful.

Most often, when a physician hears about media research, the study cited is a content analysis. Several such analyses are cited in this monograph (eg, amount of smoking in the movies, amount of sexual activity portrayed on prime-time TV). A content analysis involves the counting of specific, identifiable behaviors and therefore represents a “snapshot” of potential exposures. However, it does not address a viewer’s reaction to such material, nor does it deal with the issue of cause and effect.

Early TV research involved the use of laboratory experiments, in which variables could be easily manipulated and controlled. A Stanford psychologist named Albert Bandura experimented with children and a Bobo clown in a classic set of experiments in the 1960s,⁷,⁸ but these and other laboratory studies were criticized as being too artificial and short-term to be of much use. Similarly, field experiments in which subjects could be studied in everyday situations were also criticized. Although field experiments appear to be the most true-to-life, in fact they suffer from flaws in comparability of groups, manipulation of experience, and random assignment.

Beginning in the 1970s, a number of researchers began doing correlational studies. These involve studying large populations of children and teenagers and trying to determine whether those with heavy exposure to a certain medium are more prone to...
certain behaviors or attitudes than those with lighter exposure. After content analyses, these are currently the most common research studies that are conducted. Such studies are able to demonstrate associations (eg, between exposure to media violence and subsequent aggressive behavior) but are not able to answer the crucial “chicken-and-egg” dilemma: Which comes first, the exposure or the behavior? For example, it is entirely plausible that aggressive children could be more drawn toward viewing violent media rather than the media actually causing their behavior.

To settle issues of causality, researchers have turned to longitudinal studies, which are expensive, difficult, and obviously time-consuming. But these and meta-analyses (which gather a number of studies into one large study) can use sophisticated statistical techniques such as partial correlations to begin to answer the question of cause and effect.

Media research has been creative and varied, and it would be a serious mistake to underestimate it because of its complexity. The measures of exposure and behavior are far from perfect, and there is a statistical axiom that the unreliability of measurements reduces the degree of association that can be measured. In addition, television is so ubiquitous that even low-exposure groups in correlation studies have had a substantial degree of viewing.

**How Media Affect Children and Adolescents**

Children and adolescents spend an inordinate amount of time with media—more time, in fact, than they spend in any leisure-time activity except sleeping. By the time today’s children reach age 70, they will have spent 7 to 10 years of their lives watching only television. From a completely practical viewpoint, this displacement effect would be significant even if other behavioral effects were not present. The average American child spends 5.5 hours per day with a variety of media, according to a recent national study of 3000 2- to 18-year-olds. Most of this time is spent with television, although teenagers tend to branch out more into music videos, movies, and computer games as well (Fig 2). More than half of all children in the United States are estimated to have a television set in their bedroom, and nearly one third have a VCR.

Are children and teens more susceptible to media influences than are adults? The consensus view is that they are, for a variety of reasons:

- Young people are less experienced with real-life situations and are therefore less knowledgeable and sophisticated.
- Children are more willing to believe information they receive in the media because they have less critical thinking skills and experience. For example,
only one third of 4- to 6-year-olds in one study understood the selling intent of advertisements.13

● Although they are more skeptical than children, teens are notoriously susceptible to peer pressure, and the media may function as a kind of “super peer” for them.14 For example, one survey of teenagers found that they felt that TV encouraged them to have sex.15 In another, pregnant teens were twice as likely as nonpregnant teens to think that TV relationships are “real” and that TV characters would not use birth control.16

● Both children and adolescents tend to believe that the media are depicting the “real world,” the so-called cultivation hypothesis.17 The more TV they watch, the more they expect their own lives to conform to the rules and behavior they see modeled on the small screen.

Not only are young people different from adults in how they view and comprehend media, they can also be different from each other.14 For example, in a study of teenagers’ reaction to Madonna’s video, “Papa Don’t Preach,” white teens thought it was primarily about teen pregnancy, whereas black teens were twice as likely to view it as a story about a father-daughter relationship.18

In short, television and other media not only transmit information but also shape attitudes as well. More preteens and teens recognize The Simpsons or Dennis Rodman, for example, than the Vice President of the United States (Table 1).19 Media also influence young people’s perceptions of social behavior and social reality, help to create cultural norms, and convey important messages about the behaviors depicted.14 TV and movies can give older children and teens secret glimpses into the adult world of sex, drugs, and success long before they can learn about it firsthand. As a “super-peer,” the media offers teenagers “scripts” for dealing with a variety of adolescent issues: gender roles, conflict resolution, courtship and sexual gratification, and stress.20 When asked to identify models of responsible and irresponsible sexual behavior, college students select primarily media figures. Those who cite them as models of sexual responsibility have higher rates of sexual activity and more permissive sexual attitudes themselves.21

A number of theories exist to explain the impact of media. The earliest and most persuasive is Bandura’s social learning theory, later recast as social cognitive theory.22,23 According to Bandura, children learn behavior by observing others, both directly in real life and vicariously through the media. Indeed, the most effective way to teach a child a certain behavior is to demonstrate the behavior and have the child model it—precisely what television does. Cognitive processes such as attention and retention are also involved in such observational learning and can modify how a model’s behavior is interpreted, stored, and recalled.

Closely related to social cognitive theory is instigation and cue theory—understanding what facilitates or inhibits certain behaviors. For instance, a key component of media violence is whether the violence is depicted as being justified. Observing justified violence is more likely to “cue” aggressive modeling in the viewer.24

Two other theories bear mentioning: Huesmann’s social information processing theory asserts that children learn scripts about what events are likely to happen and what responses are appropriate. Such scripts are learned not only from personal experience but vicariously, through the media. Once scripts are learned, they are stored in the child’s memory and recalled as needed in social situations.25

One theory about media influence that has been completely discredited is the catharsis theory. In his Poetics, Aristotle suggested that spectators could be

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<th>TABLE 1. Impact of media on children and adolescents</th>
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<td>How many 10- to 17-year-olds recognize...?</td>
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Adapted from reference 19.
purged of their feelings of grief, fear, or pity vicariously, by watching dramas. Of course, for years, network and movie executives hoped that this theory was actually true, since all of the violence and sex in media could be considered therapeutic for young people. Unfortunately, the preponderance of data suggests that no catharsis effect exists.14,26

Media Violence

If parents could package psychological influences to administer in regular doses to their children, I doubt that many would deliberately select Western gunslingers, hopped-up psychopaths, deranged sadists, slap-stick buffoons, and the like, unless they entertained rather peculiar ambitions for their growing offspring. Yet such examples of behavior are delivered in quantity, with no direct charge, to millions of households daily. Harried parents can easily turn off demanding children by turning on a television set; as a result, today’s youth is being raised on a heavy dosage of televised aggression and violence.27

TV researcher Albert Bandura

By the time today’s children graduate from high school, they will have witnessed 200,000 murders, rapes, and assaults on television alone (Fig 3).28 One might think that the sheer volume of media violence viewed by young people would have at least some impact. In fact, more than 3500 research studies have demonstrated a significant link between exposure to media violence and aggressive behavior in children and adolescents.29 By contrast, fewer than 30 studies have found no relation. Given the difficulty of doing social science research and pinpointing influences on human behavior, these two statistics seem rather remarkable.9

Clearly, no single factor is responsible for juvenile violence. Psychological disorders, impulsivity, temperament, poverty, drug use, and parental influence all have been identified as being important factors. But because aggression is a learned behavior, the media have been implicated as well.30,31

How Violent Is American Television?

American television is arguably one of the most violent television mediums in the world. Children and teens grow up with a steady diet of violence in their media—from violent cartoons to real-life action shows on television to violent movies and first-person-shooter video games.
Recently, the unique 3-year National Television Violence Study (NTVS) concluded its examination of nearly 10,000 hours of programming on the major networks, including cable and pay-per-view. Its findings surprised no one (Fig 4):

- American television is very violent. From 1994 to 1997, 61% of all programs contained some violence.
- Almost counterintuitively, children’s programming is more violent than adult programming. Nearly 67% of children’s programs contain violence. Frequently, these programs are cartoons that show funny violence without consequences.
- Cable television is more violent than network television. More than 80% of programs on premium cable channels contained violence, compared with fewer than 20% on public television.
- Television violence is frequently glamorized. Of the violent scenes, 71% contain no remorse, criticism, or penalty for violence. The “good guy” is the perpetrator of the violence nearly 40% of the time. The notion of justifiable violence may represent one of the most significant public health threats in the entire communications literature.
- Television violence is frequently sanitized. Nearly half of the violent scenes fail to show the victim in pain or physical harm. Long-term negative consequences of violence are rare (less than 20%).
- Television violence is funny violence or trivialized violence. Nearly half of the violent scenes are humorous, and more than half feature violent incidents that would be fatal if they occurred in real life.
- Very few programs are antiviolence. Only 5% of the violent programs contained an antiviolence message.

The authors concluded that on American television, violence is shown for entertainment, not for educational or prosocial purposes. What health professionals may not realize, however, is that media represent America’s second largest export, so that media violence is being exported to the rest of the world. A 1998 UNESCO study of more than 5000 12-year-olds in 23 different countries found that American action heroes were the most likely people perceived as role models, with Arnold Schwarzenegger’s Terminator character being recognized by 88% of the world’s children. As the author states, “Many children are surrounded by an environment where ‘real’ and media experiences both support the view that violence is natural.”

Clearly, media violence is ubiquitous in American culture. But simple exposure does not prove causation. For that, a variety of research studies have been conducted.

The Early Research

The research on the impact of televised violence is quite elaborate and detailed; therefore, a few representative studies will have to suffice.

In the early 1960s, Bandura performed a series of classic laboratory experiments in which he observed the behavior of nursery school children in a playroom filled with toys. Among them was a Bobo doll—a punching bag with a sand-filled base and a red nose that squeaked. Bandura wanted to observe the circumstances under which children would learn and imitate new aggressive behaviors, and so he showed the children a filmed sequence on a TV set before setting them loose in the playroom:

The film began with a scene in which (a male adult) model walked up to an adult-size Bobo doll and ordered him to clear the way. After glaring for a moment at the noncompliant antagonist, the model exhibited four novel aggressive responses, each accompanied by a distinctive verbalization. First, the model laid the Bobo doll on its side, sat on it, and punched it in the nose while remarking, ‘Pow, right in the nose, boom, boom.’ The model then raised the doll and pummeled it on the head with a mallet. Each response was accompanied by the verbalization, ‘Sockeroo...stay down.’ After the mallet aggression, the model kicked the doll about the room, and these responses were interspersed with the comment, ‘Fly away.’ Finally, the model threw rubber balls at the Bobo doll, each strike punctuated with ‘Bang.’ This sequence of physically and verbally aggressive behavior was repeated twice. The children frequently imitated what they had just seen on the TV set, especially if the model was depicted as having been rewarded for his behavior. The model did not have to be human; a cartoon character was equally as effective—a finding that clearly implicates animated TV shows as one large and unhealthy reservoir of violence for children. These experiments are typical of a large number of well-controlled laboratory studies that document that television violence can cause short-term aggression in some children.

A Unique Naturalistic Study

Experimental studies have often been criticized as being too artificial. One study that could not be faulted in this way was a unique naturalistic study conducted in the 1980s in Canada by Williams. Children in a town that had no television (Notel) were studied 2
years before and after television was introduced into their community and compared with two nearby communities that had only one station (Unitel) or multiple channels (Multitel). The three communities were appropriately matched in population and socioeconomic characteristics; only the presence or absence of television varied. In each town, children were rated for aggression, based on observations of their play behavior, teacher ratings, and peer ratings. After the introduction of television, Notel children displayed significant increases in both physical and verbal aggression (Fig 5).  

Correlational Studies

Several large-scale correlational studies were conducted in the 1970s to determine whether frequent viewers of TV violence were more likely to show aggressive behavior than more infrequent viewers. All of these studies were large, and the measures of aggression were more realistic than those in the lab studies. All showed significant correlations between viewing violent TV content and aggressive behavior. Yet, correlational research suffers from the inevitable “chicken-and-egg” dilemma: Do aggressive children choose to watch more TV violence, or does TV violence cause aggression?

Longitudinal Studies

To answer this question, longitudinal studies are needed, and several excellent ones have been conducted. The first were by Rowell Huesmann and Leonard Eron, who originally set out in the 1960s to examine parental disciplining techniques and their impact on childhood and adolescent aggressiveness. They wanted a “red herring” to throw the parent subjects off the scent of what they were trying to examine. Consequently, they chose television, thinking that it was a relatively neutral influence on children’s aggression. However, when the results were analyzed, it turned out that amount of exposure to television violence in the 875 third graders (age 8) was highly predictive of aggressive behavior 11 and 22 years later (Fig 6). The relation existed even when IQ and socioeconomic status were controlled for. By age 30, viewing media violence at age 8 was a significant predictor of criminal acts (Fig 7).

Was this purely an American phenomenon? The authors used a similar longitudinal approach in conducting a 3-year study of more than 1000 children in Australia, Finland, Israel, and Poland. Again, early exposure to television violence predicted subsequent aggression in every country except Australia. The relation held for boys and girls. In addition, for the first time, there was some evidence that there may be a reciprocal relation between viewing media violence and aggressive behavior: Early aggression led to
increased levels of viewing. According to Huesmann, early viewing of media violence leads to aggression, which then leads to an increased interest in viewing violent TV.\textsuperscript{47} This series of studies seems to indicate that children and adolescents learn their attitudes about aggression and violence at a very early age (younger than age 8 years), and, once learned, such attitudes are very difficult to modify.

A similar longitudinal study just concluded, with equally convincing results. A 17-year study by Johnson and his colleagues\textsuperscript{48} tracked a random sample of 707 children between the ages of 1 and 10 years in two New York counties. Time spent watching television during early adolescence was a significant risk factor for aggression against others, particularly for boys (Fig 8). Although the researchers used total television time rather than amount of violent content viewed, the results are still important since this is the first study to link adolescent viewing habits with subsequent aggression.\textsuperscript{49}

Finally, another longitudinal study was completed in 2003, this time comparing violent TV viewing at ages 6 to 9 years with spousal abuse and criminal convictions 15 years later. The study examined 329 adults who were initially surveyed as children in the late 1970s and assessed according to how much TV violence they watched. Those who scored in the top 20\% of exposure to violent TV were more aggressive in adulthood, including being twice as likely to have pushed or shoved their wives or husbands, to have shoved or punched another adult, or to have committed a crime.\textsuperscript{45} The researchers controlled for socioeconomic status, intelligence, and child-rearing practices. They also determined that aggressive children seeking out more violence on TV did not explain their findings.

**Meta-Analyses**

Just how significant are the data? Meta-analyses help to answer this particular question. Individual studies are combined to yield an overall pattern and an estimate of effect size.\textsuperscript{50} To date, every meta-analysis has found evidence for the connection between exposure to media violence and subsequent aggression. The studies include:

- The earliest meta-analysis, which examined 67 studies and 300,000 subjects.\textsuperscript{51}
- A 1986 meta-analysis of 230 studies, which found an effect size of 0.30.\textsuperscript{52}
- A 1994 meta-analysis of 217 studies, which found a similar effect size of 0.31.\textsuperscript{53}
- The most recent meta-analysis of 212 studies, which found that the effect size has steadily increased from 1975 to 2000.\textsuperscript{54} This could indicate that children are spending more time with violent media, the media...
themselves have increased in violent content, or the nature of the content has become more problematic. What do these studies signify? An effect size of 0.30 means that approximately 10% of the variance in behavior can be attributed to media violence. In other words, media violence may account for 10% of real-life violence. Although that may not seem an alarmingly high figure, consider that in social science research an effect size of 0.30 is considered to be medium and that the unreliability of measurement (as always occurs when scientists try to assess human behavior) could result in a significant underestimation of the actual association.

In fact, the connection between media violence and real-life aggression is actually stronger than many commonly accepted cause-and-effect associations, such as the relation between IQ and lead intake, or between calcium intake and bone mass. Also, it rivals the association between smoking and lung cancer, which is nearly 0.40 (Fig 9). Just as lung cancer does not develop in all smokers, aggressive behavior does not develop in all TV viewers. However, the risk is significant. As one well-known Hollywood producer states:

I’d be lying if I said that people don’t imitate what they see on the screen. I would be a moron to say they don’t, because look how dress styles change. We have people who want to look like Julia Roberts and Michelle Pfeiffer and Madonna. Of course we imitate it. It would be impossible for me to think they would imitate our dress, our music, our look, but not imitate any of our violence or our other actions.55

Media Violence and Fear

Although the impact of media violence on behavior has been primary in researchers’ agendas, they have also explored other areas, such as fear and desensitization. Adults sometimes forget how frightening even trivial violence can be for young children. Yet in one recent study, more than 90% of college students could vividly recall a film or TV program that frightened them greatly when they were young. Interestingly, a whole host of “baby boomers” can recall the trauma of seeing Bambi’s mother being killed (off-camera, as it turns out), yet more recent Disney fare has featured the killing of a father on-screen (“The Lion King”) without much comment from parents. Older children, adolescents, and even adults may be susceptible to what Gerbner has called the “mean world syndrome,” in which frequent viewers of TV have a greater fear of being victimized in the real world. According to this theory, television “cultivates” a view of social reality in viewers such that they think the “real world” is the same as the “television world.” As one researcher sums it up, “The notion that the viewing of television program content is related to people’s perceptions of reality is virtually undisputed in the social sciences”.58

Media Violence and Desensitization

In social psychology, desensitization refers to the process in which repeated exposure to a stimulus leads to reduced responsiveness to it. Some critics feel that Americans in particular have become so acculturated to violence that this could explain the public’s apparent apathy toward this issue and its acceptance of even more violence in mainstream media. In fact, numerous studies show that desensitization exists, both on a physiological level and on an interpersonal level. The classic experiment was conducted in 1974, with fifth graders randomly selected to view either 15 minutes of a crime drama or a baseball game. Afterward, each was left in charge of supervising two younger children. In each case, the children began quarreling and then fighting. The students who had viewed the crime drama were 5 times less likely to summon help than were the students who had watched the baseball game. Even adolescents and adults are susceptible. College students exposed to slasher films show less sympathy toward an alleged rape victim.

Desensitization is a fact in the research literature. The only question is, how far-reaching is its impact?
TABLE 2. Handguns and American youth

- The United States leads all industrialized nations in homicides, with 4 times the rate of the next highest country (9.8 per 100,000) (a). Firearms are involved in 68 to 75% of all homicides, mostly handguns (b).
- Although Americans say that they are purchasing handguns for protection, guns in the home are 43 times more likely to kill a family member than an intruder (c).
- Half of adolescent males and nearly one fourth of adolescent females report that they could easily obtain a handgun if they so desired (d). Nearly 6% of students carried a gun to school in the 30 days before the 2001 Youth Risk Behavior Survey (e).
- One fourth of the violent scenes on television involve the use of a gun (f).


For example, could the fact of desensitization explain why the public seems to accept the continued high levels of violence in movies62 and video games.63,64 Could it explain the nation’s apathy toward the recent epidemic of schoolyard shootings?65 Could it also explain why society now seems willing to allow 12-year-old juvenile offenders to be imprisoned for life? Admittedly, these are all arguable questions; but the impact of this phenomenon on society could potentially be enormous.

Guns and Video Games

A child growing up in the United States is 12 times more likely to die from gun violence than a child in any of 25 other industrialized nations (Table 2).66 Three quarters of all the murders of young people in the world under the age of 14 years occur in the United States.66 Guns are glamorized in movies and in video games. A recent study found that 40% of the top-grossing G- and PG-rated movies featured at least one main character carrying a gun,67 and one fourth of all of the violence on television involves guns.32 Although there are no studies linking media gunplay with actual gun-related crimes in real life, there are at least two suggestive studies showing a potential impact. A meta-analysis of 56 experiments found that the mere presence of weapons enhances aggressive behavior.68 An interesting experiment in which 8- to 12-year-old boys were “accidentally” exposed to a handgun found that most will either handle it or pull the trigger, even if they have had previous gun safety instruction.69 In addition, some of the epidemiological data are difficult to ignore. In 1999, Japan had only 28 gun-related deaths, and citizens are not allowed to possess handguns. By contrast, in the United States there are more guns than households (220 million versus 200 million),70 and in the year 2000 there were 26,800 gun-related deaths.71 When the density of guns increases, some of them inevitably go off. And the media—especially movies and video games—seem to encourage boys’ fascination with guns as well as people’s fear of victimization.

Video games, like television or movies, can be prosocial or harmless, or they can be violent and potentially dangerous, especially the first-person shooter games. Video game revenues in the United States now exceed $10 billion, and children who have home systems average 90 minutes of play per day.72 Although the research on video games is less compelling than the television violence research, it does suggest that such games do have an impact, or, as with teens’ preference for heavy metal music, may serve as “markers” for alienated youth.63,64,73,74 Even E-rated (for “Everyone”) video games have appreciable amounts of violent content.75,76 One recent survey of more than 600 eighth and ninth graders found that children who play a lot of violent video games77:
- tend to see the world as a more aggressive place
- get into more arguments with teachers
- get lower grades
- are more likely to be involved in physical fights. Similarly, a recent meta-analysis of 54 video game studies involving 4262 subjects found that playing violent video games78:
- increases aggressive behavior in children and young adults
- increases physiological arousal and aggressive thoughts and feelings
- decreases prosocial behavior.

Finally, there is the issue of the recent schoolyard and Beltway shootings and the possible contributory role of video games and other violent media.65 Consider these facts:
- After his arrest, 16-year-old Luke Woodham of Pearl, Mississippi (who killed 3 and wounded 7 classmates), was quoted as saying, "I am not insane. I
am angry. I killed because people like me are mistreated every day. I did this to show society: Push us, and we will push back. Murder is not weak and slow-witted; murder is gutsy and daring. Where else but in the media would he have learned such distorted notions? “Justifiable” violence is the type of violence most often portrayed on American television and in movies, and it is also the most powerfully reinforcing.9,80

- The Paducah, Kentucky, school killer, 14-year-old Michael Carneal, walked into his school and opened fire on a prayer group. He never moved his feet, never fired very far to the left, to the right, up, or down. Although he had never fired an actual gun in his life before this, his eight shots had eight hits, all head and upper torso, resulting in three deaths in his life before this, his eight shots had eight hits, never moved his feet, never fired very far to the left, to the right, up, or down. Although he had never fired an actual gun in his life before this, his eight shots had eight hits, all head and upper torso, resulting in three deaths and one case of paralysis. Carneal learned to fire a gun from playing point-and-shoot video games. Whereas law enforcement officers are trained to fire at one target until it drops, and then move on, video gamers fire once at everything that pops up on the video screen.65

- The Beltway Sniper investigation found that John Lee Malvo, the presumed 17-year-old shooter, prepared for his sniping spree by training on an XBOX game known as “Halo,” switched to “sniper mode.”81

- The US Army uses adaptations of common video games (multipurpose arcade combat simulators, or MACS) to teach new recruits how to kill. Similarly, law enforcement agencies use a firearm training simulator (FATS), which is nearly identical to video games found in arcades.65

- Nearly all of the schoolyard shooters were exposed to and enamored of various forms of media violence. Although a New York Times study of the 102 adolescent and adult rampage killers from 1949 to 2000 found that only 13% had an interest in violent media,82 this statistic may be seriously misleading. Young people are affected by the media without even being aware of it (the “third-person effect”) and thus may not even report exposure to violent media. In addition, what sort of media could have influenced a potential killer before 1949? Violent video games are a very recent phenomenon.

- American media are unique in portraying “funny violence,” another facet of fantasy violence. First-person shooter video games may contribute to this as well. Students at the Jonesboro school reportedly laughed when their teachers informed them that several of their classmates had been shot,65 and one of the Columbine killers supposedly laughed at a student hiding under a library table and yelled “peek-a-boo” before shooting her in the face.83

### Sex and Sexuality

Sexually speaking, playing catch-up is what being a teenager is all about, and movies like American Pie are, by now, an essential part of the ritual.84

Entertainment Weekly critic, Owen Glieberman

No wonder teenagers are drawn to Britney Spears, a proudly self-identifying virgin who practically pole-dances on prime-time TV then says she’s waiting for true love. In one navel-baring, camera-ready package, she personifies teenagers’ semiotically schismatic world. Like the Sisquo videos they watch, the shampoo commercials they channel-surf past, the Web sites they check out alone in their rooms, Spears saturates kids with sexuality; then, like their teachers, she tells them to guard their chastity.85

Susan Dominus, New York Times Magazine

One erect penis on a US screen is more incendiary than a thousand guns.86

Newsweek critic, David Ansen

For both pediatricians and parents, nothing is more difficult to deal with than adolescent sexuality. Of course, it is not entirely easy for adolescents to deal with their own emerging sexuality, either. While their parents, teachers, and Federal officials are arguing vociferously about the merits of abstinence-only sex education, teenagers are getting an eyeful and earful of sex education vicariously—through the media. What they are learning through the media is most decidedly not abstinence only (Fig 10)!

In fact, given that parents are reluctant to discuss sexual activity or birth control with their teenagers,87 and only 14% of sex education programs nationwide teach comprehensive sex education (Fig 11),88 the media have arguably become the leading sex educator in the United States today. As one author sadly notes,89

I’ve often wondered what it would be like if we taught young people swimming the same way we teach sexuality. If we told them that swimming was an important adult activity, one they will all have to be skilled at when they grow up, but we never talked with them about it. We never showed them the pool. We just allowed them to stand outside closed doors and listen to all the splashing. Occasionally, they might catch a glimpse of partially clothed people going in and out of the door to the pool and maybe they’d find a hidden book on the art of swimming, but when they asked a question about how swimming felt or what it was about, they would be greeted with blank or embarrassed looks.
Suddenly, when they turn 18 we would fling open the doors to the swimming pool and they would jump in. Miraculously, some might learn to tread water, but many would drown.

Sexual Content in the Media and Its Impact

Young teenagers rank entertainment media as the leading source of information about sexuality and sexual health. Other surveys have the media neck-and-neck with sex education classes at schools and parents (Fig 12). But what may not be factored in to such surveys is the impact of peers. The influence of peers on adolescents is universally acknowledged, but where do the peers get their information about sex, drugs, and violence? Often, they get it from the media. Movies, television, music videos, and video games all represent a kind of "super-peer" and exert a subtle (or sometimes not-so-subtle) pressure on teenagers to have sex. Mainstream media depict teenage sexual behaviors as being normative behavior, which is one of the most powerful justifications that teenagers have for engaging in risky activities. For example, several studies document that teens who watch a lot of media are more likely to overestimate the number of their peers who are having sex and to feel more pressure from the media to begin having sex than from friends. A recent survey of 2100 teenage girls found that only 11-year-olds say that they do not feel pressure from the media to begin having sex. Teenagers frequently report feeling that everyone is "doing it" except them, and the media seem to contribute heavily to that perception.

Apart from sexual intercourse, the media also provide a variety of answers to common adolescent questions about sexual socialization: When is it okay to have sex? With whom? Is birth control necessary, or is it dangerous? Is it okay to have feelings for someone of the same sex? As with other media, the effect of viewing sexual content is probably related to the subtle, cumulative impact of a variety of messages and information over time.

Television Content

The average American child or teenager views nearly 14,000 sexual references, innuendoes, and behaviors on television per year. Fewer than 170 involve the use of birth control, self-control, abstinence, or responsibility. According to the most recent content analysis of the 2001/2002 television season:

- Nearly three-fourths of all prime-time television shows contain some sexual content (Fig 13). In addition, among the top 20 teen shows (Table 3), 83% contain sexual content.
Among those shows that contain sexual content, there is an average of 4.4 sexual scenes per hour, which represents a significant increase from even 2 years previously. The top 20 teen shows average 6.7 sexual scenes per hour.

One of every seven programs now includes either a portrayal of sexual intercourse or implied intercourse.

More than 60% of all characters engaging in intercourse have been involved in a clearly established relationship, whereas only 7% have just met for the first time and are having sex. This is a significant change from even 2 years previously. The number of teenagers shown in implied intercourse first increased significantly from 3% to 9% of all characters from the 1997/1998 season to the 1999/2001 season, then dropped again to 3% during the 2001/2002 season.

Perhaps most significantly, only 15% of shows with sexual content contain any mention of the risks and responsibilities involved in having sex. Interestingly, this percentage rises to 34% of programs with sexual content involving teen characters. This figure rises to 45% in the top 20 teen shows (Fig 14).

These and other data suggest that American television is frequently sexually suggestive, unrealistic, and unhealthy (Fig 15). Sex is depicted as a casual pastime, a romp in the hay, with little or no consequences. The importance of this in terms of normative adolescent thinking and behavior cannot be overemphasized. Soap operas and talk shows contribute heavily to this trend. What, exactly, is meant by sexually suggestive content?
In the 1990s, the most watched sitcom was *Seinfeld*, which had a famous episode in which Jerry and his pals had a contest to see who could be “the master of his own domain” (i.e., go without masturbating for the longest period of time). It also had an episode involving Jerry confusing a girlfriend’s name for a part of the female pelvic anatomy (which later became part of a real-life sexual harassment lawsuit).

A rash of teen sitcoms have appeared on prime-time TV in the late 1990s and early 2000s, including *Popular*, in which a mother confronts her daughters and says, “One of you is thinking of doing it, if not already doing it.” Similar sentiments are expressed in John Ritter’s sitcom, *Eight Simple Rules for Dating My Teenage Daughter*. In That ’70s Show, one teenager asks, “Why cuddle when you can do it?” One TV critic has dubbed such shows, “Happy Days With Hormones.”

HBO’s hit, *Sex in the City*, features four single women who never seem to get enough sex but always seem to talk about it. Various scenes have dealt with oral sex, anal sex, spanking, and other fetishes, yet curiously, the risks of casual sex and the need for birth control are rarely discussed.

---

**TABLE 3.** 20 TV shows most popular with teens (2001/2002 season)\(^{100}\)

<table>
<thead>
<tr>
<th>Show</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malcolm in the Middle</td>
<td>WWF Smackdown</td>
</tr>
<tr>
<td>The Simpsons</td>
<td>7th Heaven</td>
</tr>
<tr>
<td>King of the Hill</td>
<td>Bernie Mac</td>
</tr>
<tr>
<td>Undeclared</td>
<td>That ’70s Show</td>
</tr>
<tr>
<td>Greg the Bunny</td>
<td>Boston Public</td>
</tr>
<tr>
<td>WWF Entertainment</td>
<td>Grounded for Life</td>
</tr>
<tr>
<td>That ’80s Show</td>
<td></td>
</tr>
<tr>
<td>Andy Richter Controls the Universe</td>
<td></td>
</tr>
<tr>
<td>Wonderful World of Disney</td>
<td></td>
</tr>
</tbody>
</table>

Reprinted with permission.

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**FIG 14.** During the 2000 to 2002 TV season, the majority of shows with sexual content failed to include references to safe sex.\(^{100}\) Reprinted with permission.

**FIG 15.** The current trend in “reality” TV tries to capitalize on sexual innuendo and suggestiveness.

---

- A recent episode of WB TV’s comedy series *Off Centre* had so much fun referring to male genitalia that it triggered a warning memo from the network’s standards and practices department:

We are dealing with a tonnage issue with regard to the sexual/suggestive material... It is essential to reduce and/or modify the significant number of uses of ‘penis’... as well as euphemisms for the same, such as ‘your thingie,’ ‘covered wagon,’ ‘unit,’ ‘turtleneck,’ ‘little fella,’ ‘anteater’... ‘hooded cobra,’ ‘cloaking
device,’ and ‘my pig is still snugly wrapped in his doughy blanket.’

While most of prime-time TV is wallowing in suggestiveness, there is a notable minority of shows directed at teenagers that have tried to be responsible, beginning with Beverly Hills 90210 in the early 1990s. On that show, the character of Donna (played by Tori Spelling) actually maintained her virginity throughout high school, despite everyone else losing theirs. Dawson’s Creek kept its two main characters, Dawson and Joey, virginal as they approached their senior year in high school. It also dealt humanely with one character’s emerging homosexuality. During the 1999 season, Felicity had a two-part episode about date rape. David Kelley’s Boston Public has consistently dealt with some extremely controversial subjects, including teen sex and teen pregnancy and adolescent homosexuality. Clearly, some Hollywood writers and producers want to be responsible and are conscious of public health concerns.

Movie Content

Since the 1980s, virtually every R-rated teen movie has contained at least one nude scene, and some, such as Fast Times at Ridgemont High and Porky’s (which is currently being remade), contain up to 15 instances of sexual intercourse. In general, what television shows suggest, the movies actually show. In American Pie (now in its third installment), four male high school seniors all make a pact to lose their virginity by prom night, and one of the characters masturbates with an apple pie after his friends tell him that that’s what intercourse feels like. Discussions about contraception are nonexistent, yet the movie struggled to get an R-rating rather than an NC-17 rating because of the pastry sequence. As one movie critic noted, the film is “pitched to the first generation of male and female adolescents who have been taught, from birth (mostly by MTV), to act as sex objects for each other”. Other researchers feel that the distorted view of romance in contemporary movies popular with teens (eg, 8 Mile, O, The Hot Chick, 40 Days and 40 Nights, and Not Another Teen Movie) is at least as problematic as the overt sex.

Movies are probably less significant a medium than television in terms of their impact on children and adolescents. Young people spend far more time in front of the TV set than in movie theaters, and going to the movies is usually a group activity, with group discussion afterward. Television is often viewed alone. However, as many as 80% of movies find their way onto network or cable TV.

Music Video Content

Music Television (MTV) and music videos have defined an entire generation, the MTV generation. Adolescent girls, in particular, may use music videos to come to grips with their own sexual identity. Of course, MTV has evolved to the point now where music videos represent a minority of its programming. Early content analyses showed that music videos were ripe with sex: More than 75% contained sexual scenes, and half of all women were presented as sex objects. A content analysis of 100 videos on MTV in the early 1990s found that women are frequently portrayed as “bimbos.” One critic feels that MTV creates a “dreamworld” in which women are all nymphomaniacs, waiting to be ravaged. Similarly, according to another critic:

“If there is such a thing as a typical music video, it features one or more men performing while beautiful, scantily clad young women dance and writhe lasciviously.

In terms of sexual content, MTV videos have now been surpassed by Black Entertainment Television (BET) videos, which feature more rap and hip-hop artists (Table 4).

Contraception and the Media

It seems odd—perhaps even hypocritical—that as American culture has become increasingly sexualized over the past 20 years, the one taboo remaining is the mention of birth control in programming or in advertising. The media represent one of the key access points for teenagers for information about birth control, yet it is rarely mentioned in shows with sexual content and rarely advertised. In two separate national polls, a majority of Americans (including Catholics) favor advertising birth control on television. Currently, condom ads are rarely seen on national TV, and the only ads for birth control products are ads for Ortho-Tri-Cyclen, which emphasize its effect on acne, not pregnancy prevention (Fig 16) (Table 5). The FOX network even denied an ad for the spermicide Encare that would have aired during its sexually suggestive show Temptation Island.

Would advertising condoms and birth control pills have an impact on teenage pregnancy rates in the United
Would contraceptive advertising make teenagers more sexually active than they already are? According to five separate scientific studies, the answer is no. There are now five recent, peer-reviewed, controlled clinical trials showing that giving teens freer access to condoms does not increase their sexual activity or push virginal teens into having sex but does increase the use of condoms among those who are already sexually active.128–132 At the same time, there are no data that abstinence-only sex education classes actually work, despite the Federal government’s providing $50 million a year funding for them.133 Teenagers’ decision to become sexually active is a very complex one, rooted in family, religion, peers, and perhaps media as well.134 Their decision whether or not to use contraception is surprisingly simple: Is birth control easily available? If so, it will usually be used. If not, it will not stop most teens from having sex.

**Behavioral Impact of Sexual Content**

Clearly, according to content analyses, American television is very sexual and very suggestive, without being very responsible from a public health viewpoint. But, as with media violence, are there studies documenting a harmful behavioral impact? Currently, there are only 7 studies in total! All show an effect, but the literature is far from adequate on this subject:

- In a study of 75 pregnant and nonpregnant adolescent girls, the pregnant girls watched more soap operas before becoming pregnant and were less likely to think that their favorite soap opera characters would use birth control.16
- A study of 391 middle school students in North Carolina found that those who selectively viewed more TV with sexual content were also more likely to have begun having intercourse.91

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**TABLE 4. Content of music videos genres**

<table>
<thead>
<tr>
<th>Category</th>
<th>Rap</th>
<th>Hip-Hop</th>
<th>Rock</th>
<th>R&amp;B</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profanity</td>
<td>73</td>
<td>17</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Gun talk</td>
<td>59</td>
<td>8</td>
<td>6</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Alcohol</td>
<td>42</td>
<td>17</td>
<td>8</td>
<td>15</td>
<td>24</td>
</tr>
<tr>
<td>Violence</td>
<td>36</td>
<td>0</td>
<td>22</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>Female &quot;sex dance&quot;</td>
<td>25</td>
<td>58</td>
<td>8</td>
<td>31</td>
<td>8</td>
</tr>
<tr>
<td>Heavy cleavage</td>
<td>15</td>
<td>25</td>
<td>6</td>
<td>17</td>
<td>30</td>
</tr>
<tr>
<td>Simulated intercourse</td>
<td>9</td>
<td>42</td>
<td>2</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>Fondling</td>
<td>7</td>
<td>42</td>
<td>14</td>
<td>22</td>
<td>8</td>
</tr>
</tbody>
</table>

n = 203 videos (in percentages)
A study of 326 Cleveland teens found that those with a preference for MTV had increased sexual experience in their mid-teen years. A study of 214 teens ages 13 to 18 found that for females there was a relation between exposure to music videos and premarital sex. A phone survey of more than 1000 teens ages 14 to 19 in upstate New York found that listening to pop or hip-hop music or reading women’s magazines was associated with having had sex. A study of black female teens found that greater exposure to rap music videos or X-rated movies correlated with their having multiple sexual partners and testing positive for a sexually transmitted disease.

Currently, there are four longitudinal studies of teenagers, sexual media, and sexual behavior ongoing. The most ambitious will examine all media use, over 5 years, among 5000 teens ages 12 to 14 in North Carolina. When these studies are completed, they will go a long way toward answering the question, do the media contribute to teenagers’ sexual behavior?

The analogous question has already been answered: The media do have a significant impact on teenagers’ attitudes about sex. Several studies have found that exposure to sexual content on TV leads to greater expectations that one’s peers are sexually active and a more positive attitude toward recreational sex. A group of seventh and tenth graders were exposed to only 1 hour of selected music videos in one experiment, and they were more likely to approve of premarital sex than were teens in a control group. When college students are asked to identify models of responsible and irresponsible sexual behavior, they select primarily media figures. Those who select media figures as models of sexual responsibility have more permissive sexual attitudes and higher rates of sexual activity themselves. Finally, in a 2002 nationwide poll of more than 500 15- to 17-year-olds, nearly three fourths of the teens believe that the sexual content on TV influences the behavior of kids their own age (Fig 1). If there is a “mean world syndrome” engendered by seeing too much violence on television, perhaps there is also a “sexy world syndrome” as well.

Sex Roles

Finally, sex is more than sexual intercourse or teen pregnancy or STDs. Studies show that many subtler aspects of human sexuality may also be affected by the media. For example, young children who view 25 or more hours of TV a week demonstrate more stereotypical sex role attitudes than infrequent viewers. The frequent viewers thought that boys should play with guns and trucks and that girls should play with dolls. Television also cultivates such notions as “women are happiest at home raising children” and “men are born with more ambition than women.” As the National Institute of Mental Health (NIMH) report concluded, the single most significant aspect of a child’s learning about sex is the set of messages that relates to “normal” male and female characteristics and their roles in life.

Drugs

The Marlboro Man emanated in 1954 from the minds of Chicago admen Leo Burnett and John Benson, who were trying to devise a more macho pitch for Phillip

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**TABLE 5. Network standards for birth control advertising**

<table>
<thead>
<tr>
<th>Network</th>
<th>Acceptance of Condom Advertising</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC</td>
<td>Does not accept condom advertising. Its official written policy also calls ads for prescription contraceptives generally &quot;unacceptable&quot; but allows for certain exceptions. Has broadcast ads for Ortho-Tri-Cyclen birth control pills.</td>
</tr>
<tr>
<td>CBS</td>
<td>Accepts ads for condoms and other contraceptives. The network eliminated its prohibition on such advertising in 1998 but usually limits such ads to 9 PM or later, depending on program content.</td>
</tr>
<tr>
<td>FOX</td>
<td>Accepts condom ads but limits them to 9 PM or later and requires the ads to focus on “health-related concerns” rather than “alleviating the risk of pregnancy.” Ads must be approved on a case-by-case basis. Has run Ortho Tri-cyclen ads.</td>
</tr>
<tr>
<td>NBC</td>
<td>Accepts condom ads but limits them to post-11 PM time slots and requests that the ads have music videos and premarital sex.</td>
</tr>
<tr>
<td>UPN</td>
<td>Carried a condom ad in 1998 but then banned such advertising after half of its affiliates substituted for the commercial. The network does not carry advertising for birth control pills.</td>
</tr>
<tr>
<td>The WB</td>
<td>Does not accept condom ads. The network has no official policy prohibiting ads for birth control pills, which it says it would review on a case-by-case basis.</td>
</tr>
<tr>
<td>CBS</td>
<td>Accepts ads for condoms and other contraceptives. The network eliminated its prohibition on such advertising in 1998 but usually limits such ads to 9 PM or later, depending on program content.</td>
</tr>
</tbody>
</table>

Morris’ filter-tip cigarette and agreed that the ‘most masculine figure in America’ was the cowboy. In the next 40 years, the smoking cowboy traveled the world (and 2 actors who played him died of lung cancer). W. Nugent

How about that powerful antidrug commercial paid for by the US government? It aired right between the seventh and eighth Budweiser commercials. David Letterman, CBS’s “Late Show,” on the 2002 Super Bowl commercials
Interesting parallels exist between the way drugs are portrayed in the media and the way sex is portrayed. Both are frequently depicted, despite a society that wants its teenagers to "Just say no" to drugs and abstain from having sex. Unique longitudinal research has shown that one of the most important factors in the onset of teen drug use is exposure to others who use drugs. According to four recent content analyses, television programs, movies, popular music, and music videos all contain appreciable amounts of smoking, drinking, or illicit drugs use (Fig 17). However, where birth control advertising is virtually absent from society, alcohol and tobacco advertising is present to the tune of nearly $10 billion a year. Society may want its young people to say no to illicit drugs, but clearly it wants them to say yes to alcohol and tobacco. Compared with other drugs, these two are at the top of the list in terms of usage among adolescents (Table 6).

Alcohol, Cigarettes, and Other Drugs in Media Programming

Alcohol and tobacco are the two most widely portrayed drugs on television, in movies, and in music videos—far more than illicit drugs.

Alcohol. A drinking scene is shown every 22 minutes on US television, compared with one smoking scene every 57 minutes and illicit drug use every 112 minutes. On prime-time TV, 71% of programs depict alcohol use (Fig 17A). Popular movies are nearly equally rife with alcohol, with only 2 of the 40 highest-grossing titles not containing alcohol depictions. Even G-rated movies have appreciable alcohol content, with nearly half of the 81 G-rated films produced since 1937 showing either alcohol or tobacco use, according to a Harvard study. The most current content analysis of movies examined 20 films from 1996 to 1997 and showed that 93% of them contain alcohol depictions (Fig 17B). Again, the G- and PG-ratings were not protective (Fig 18).

On MTV, a viewer sees alcohol use every 14 minutes. In a recent sample of 300 music videos on BET, MTV, and VH-1, alcohol was seen or referred to in more than half of all the videos. Interestingly, sex or eroticism was seen more frequently in those videos that included alcohol (25%) than those that did not (9%).

Tobacco. Smoking seems to be making a dramatic comeback in the movies and, to a lesser extent, on television (Fig 19). Currently, about one in five prime-

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**FIG 17.** Portrayals of substance use in television (A), movies and songs (B), and music videos (C). Reprinted with permission from the Office of National Drug Control Policy.
time shows features tobacco use, with only a rare mention of the negative effects of smoking. By comparison, during the early 1980s, only 2% of series stars smoked on TV. A 2001 review by the American Lung Association found that tobacco appeared an average of 4 times per hour, an increase from 2.7 times per hour in 1999. It is not just villains who are now puffing away on prime-time TV: Maura Tierney’s nurse Abby on ER smokes, as does President Bartlet on The West Wing. Increasingly, Hollywood writers and directors seem to use cigarette smoking as shorthand for a troubled or conflicted character (eg, Sissy Spacek’s character in In the Bedroom) or a villainous character (eg, John Travolta’s bad-guys in Swordfish and Broken Arrow). From Leonardo DiCaprio and Kate Winslet in Titanic to Julia Roberts in My Best Friend’s Wedding to Al Pacino in Any Given Sunday to Michael Douglas in Wonder Boys, Hollywood’s stars are smoking on-screen in record numbers:

- Since 1960, the top-grossing films have shown movie stars lighting up at 3 times the rate of American adults.
- Tobacco use occurred in 98% of the annual top 10 moneymaking films from 1985 to 1995, with at least one lead character using tobacco in half of the films.
- Smoking rates in the movies have not changed between 1960 and 1990, despite the fact that smoking rates in real life have decreased.
- From 1988 to 1997, 85% of the 250 highest grossing movies have depicted characters using tobacco. Of note for Hollywood producers and directors, tobacco use was not associated with box office success.
- Even children’s G-rated movies contain a surprising amount of smoking. According to two separate studies, more than half of all G-rated animated feature films between 1937 and 1997 have featured tobacco use. In music videos, one fourth of all MTV videos portray tobacco use, with the lead performer usually the smoker. The latest content analysis of 300 music videos found that tobacco was visually portrayed in 21%—most often cigarette smoking (60%) but also cigar smoking (51%).

Illicit drugs. Contrary to what the White House Office of National Drug Control Policy (ONDCP) would have the American public believe, tobacco and alcohol are the two most significant drugs that children and adolescents have to contend with. Yet, the ONDCP continues to focus on illicit drugs, which are not nearly as prevalent in the media as alcohol and tobacco are. Illicit drugs are rare on prime-time TV and usually associated with negative consequences. The average MTV viewer sees illicit drugs once every 40 minutes compared with once every 100 minutes in the movies and every 112 minutes on prime-time TV. Illicit drugs appear in 22% of movies, with marijuana depicted most frequently (51%). When movies portray illicit drug use, no harmful consequences are shown half of the time; but 21% of movies with drug use do include a character who refuses to use drugs.

Impact of Media Programming on Adolescent Drug Use

If the media function as a kind of “super-peer,” then clearly the message that children and adolescents continue to get is that smoking is “cool” and drinking alcohol is normative behavior. Content analyses show how frequently drug use is portrayed in mainstream media, and teens can not help but get the feeling that—like sex—everyone is doing it except for them.

Although most of the research in this area concentrates on the impact of advertising, there are several studies linking programming with smoking. Children and teens who view more than 4 hours of TV per day are 5 times more likely to start smoking than those who watch less than 2 hours per day. Two studies have linked adolescent smoking to the impact of actors who smoke on screen. In a study of nearly 4000 middle school students in New Hampshire and Vermont, greater exposure to tobacco use in movies significantly increased adolescents’ positive view of smoking and the perception that most adults smoke (the cultivation hypothesis). In a larger cross-sectional study of nearly 5000 students 9 to 15 years of age, adolescents who watched more movies with smoking as a main character were more likely to associate smoking with desirability, self-efficacy, and normative beliefs.

TABLE 6. Adolescent drug use, 2003

<table>
<thead>
<tr>
<th>Drug</th>
<th>Ever used</th>
<th>Used in past year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>76.6</td>
<td>70.1</td>
</tr>
<tr>
<td>Been drunk</td>
<td>58.1</td>
<td>48.0</td>
</tr>
<tr>
<td>Cigarettes</td>
<td>53.7</td>
<td></td>
</tr>
<tr>
<td>Marijuana</td>
<td>46.1</td>
<td>34.9</td>
</tr>
<tr>
<td>Ecstasy</td>
<td>8.3</td>
<td>4.5</td>
</tr>
<tr>
<td>Cocaine</td>
<td>7.7</td>
<td>4.8</td>
</tr>
</tbody>
</table>

n = 14,600 12th graders, in percentages. Adapted from Reference 158.
age, the same group of researchers found that there was a strong, direct, and independent association between seeing tobacco use on screen and trying cigarettes.\textsuperscript{170} Similarly, limiting the access of young teens to R-rated movies may significantly lower their risk of smoking.\textsuperscript{171}

\textbf{Impact of Alcohol and Tobacco Advertising}

There is considerable evidence that alcohol and cigarette advertising plays a key role in adolescents’ use of these two drugs. Peer pressure is commonly accepted as one key ingredient in whether teens will use drugs or not, but where do peers get their notions about drugs (Fig 20 and Fig 21)?

Teens and preteens somehow get the idea that smoking makes one sexy, athletic, cool, or macho. The tobacco industry says these ideas come from their peers. No one asks where these peers—other kids—get these ideas. Yet about the only place in our society where these silly images occur is advertising. So-called peer pressure explains little. It is merely a clever term used to shift blame from the manufacturer and advertiser to the user. Like peer pressure, “parental example” does not just spontaneously occur. Parents of today started smoking as children and no doubt had similar silly ideas about what smoking would do for their images.\textsuperscript{172}

Strong evidence exists within the literature that alcohol advertising contributes to adolescent drinking behavior. Content analyses show that beer ads depict drinking as a harmless and normative activity.\textsuperscript{173} Young people view 1000 to 2000 beer and wine ads annually,\textsuperscript{14} with most of the ads concentrated in sports programming. During prime time, only 1 alcohol ad appears every 4 hours, yet in sports programming, 2.4 ads appear each hour.\textsuperscript{173,174} In teen magazines, young people ages 12 to 20 see 45\% more beer ads and 27\% more ads for hard liquor than do adults.\textsuperscript{175}

Exposure to the glut of alcohol advertising does have an impact on youngsters. A sample of 9- to 11-year-olds could identify the Budweiser frogs nearly as frequently as Bugs Bunny (Table 7).\textsuperscript{176} Suburban Maryland 8- to 12-year-olds could name more brands of beer than names of American presidents.\textsuperscript{177}

But does alcohol advertising actually cause adolescents to begin drinking earlier and more heavily? The answer is a qualified yes. Studies have found that early adolescent drinkers are more likely to have seen alcohol advertising, can identify more brands of beer, and view ads more favorably than nondrinkers.\textsuperscript{178,179} Given that children begin making decisions about alcohol at an early age, probably during the elementary school years,\textsuperscript{180} exposure to beer commercials represents a significant risk factor.\textsuperscript{181} As one expert concludes:\textsuperscript{182}
The tobacco industry won’t mind if smoking movies are rated PG13. Thirteen-year-olds will still see them.

What’s wrong with kids hot to smoke? With tobacco ads banned from TV and billboards, films are about the only medium left to promote tobacco in the U.S. and worldwide. And it works. Studies find that teens who view lots of smoking on screen are two and a half times as likely to start smoking. Even if friends and parents don’t.

And one indicator: America is not as if pushing poison to kids in a legitimate business. Our Big Tobacco’s Public’s choice marketing is in the young — get babies all "cooperators" by age 4. Try it. Any trucker in the U.S. can buy a few ad spots at a fraction of media rates. If greater advertising over time doesn’t generate greater profits, there’s something seriously wrong with the fellows who make up the budgets.


The preponderance of the evidence indicates that alcohol advertising stimulates favorable predispositions, higher consumption, and greater problem drinking by young people.

But media research is imperfect. No researcher can willfully expose children or adolescents to a barrage of sexy alcohol ads and observe who drinks or which brand of beer they choose. The possibility exists that adolescent drinkers are more likely to seek out alcohol advertising, but this does not seem very likely. As one advertising executive notes 183:

If this simple solution works, we’re all in a jam. The tobacco industry has long purported that the "biggest threat" to their business is that kids aren’t buying cigarettes. Yet, sales are up, and the companies are making more money than ever. The tobacco industry was the first to realize the power of advertising — to sell cigarettes to kids. And now, they’re marketing to adults. If alcohol advertising is so ineffective, how come the ads continue to be run? And why do the companies spend so much money on them? If increased advertising doesn’t increase sales, it’s time to reassess the entire industry.

The reality is, Hollywood has big Titans in its pockets and they’re not going to let go. The companies have invested millions of dollars into these marketing campaigns, and they’re not going to give them up easily. The companies have been successful in influencing the actions of young people, and they’re not going to stop now.

In addition, more than 20 studies have found that children who pay closer attention to cigarette ads, who can recall such ads more readily, or who own promotional items, are more likely to become smokers themselves. 189,190 Camel cigarette’s use of Old Joe Camel provided considerable insight into the impact of cigarette advertising. Three years after the introduction of the Old Joe campaign, Camel cigarettes’ market share had increased from 0.5% of adolescent smokers to 32%. 191 Six-year-olds were
as likely to recognize Old Joe as the famous Mouseketeer ears of the Disney Channel. Even 3-year-olds could make the connection between the Old Joe Camel character and a pack of cigarettes. Not coincidentally, the most heavily advertised brands of cigarettes—Marlboro and Camel—are also the most popular brands among teenage smokers (Table 8).

Beginning in the mid-1990s, several cross-sectional studies have confirmed that teenagers exposed to advertising or promotions are far more likely to become smokers—a risk factor of 2.2 among 571 13-year-olds in San Jose, California, or a national sample of more than 1000 12- to 17-year-olds. Exposure to tobacco advertising may exceed family members and peers who smoke as a risk factor and can even undermine the impact of strong parenting practices. Finally, two unique and large longitudinal studies have found that approximately one third of all adolescent smoking can be attributed to tobacco advertising and promotions.

Despite the lack of cigarette advertising on television, tobacco products seem so ubiquitous in the media that one group of researchers suggests that only two strategies will prevent adolescents from smoking: (1) exposing “industry manipulation”—showing the lengths to which the tobacco industry will go to recruit new smokers, and (2) sensitizing teenagers to the risk of second-hand smoke. Both strategies involve counteracting the myth that smoking is normative behavior for teens.

**Commercialism and Consumerism**

Thanks to advertising, children have become convinced that they are inferior if they don’t have an endless array of new products.

— Allen D. Kanner, psychologist

Too many companies simply see our children as little cash cows that they can exploit.

— Senator Hillary Clinton

In 1750 BC, the Code of Hammurabi made it a crime punishable by death to sell anything to a child.
without first obtaining a power of attorney. In 2003, selling products to children has simply become business as usual. The Canadian economist Stephen Leacock characterized advertising as “the science of arresting the human intelligence long enough to get money from it.” Adults are so quick to try to capitalize on the youth market that one New York couple actually sought $500,000 for worldwide corporate naming rights for their newborn son. As one columnist noted:

If young Zane is typical, by the time he hits nursery school, he’ll know the names of more brands than relatives. In first grade, Channel One will channel in commercials with the news. In middle school, a cola company will own the exclusive rights to his hallway vending machines and his drinks.

Children and Advertising

Children and adolescents in the United States are assaulted by 3000 ads per day. They have become the targets of a $250 billion ad industry with 900,000 brands to sell. Targeting children began in the 1960s, but the age being targeted has dropped steadily since then. In the 1990s alone, the advertising industry saw a 20-fold increase in spending on such ads, with $2 billion a year being spent. Estimates are that teenagers spend $155 billion a year, and children under 12 spend another $25 billion, but both groups influence perhaps another $200 billion of their parents’ spending per year. Many critics now feel that commercial American television exists for the sole purpose of delivering a certain demographic audience to a specific group of advertisers, and children and teenagers are in high demand. Despite passage of the Children’s Television Act in 1990 that purported to restrict the amount of commercial advertising time on network television, the major networks now beam more than 15 minutes of ads per prime-time hour. In addition, more ads are being broadcast in a shorter period of time than ever before. A 30-second ad during the Super Bowl now costs $2.3 million but reaches 80 million people. Even movie theaters are no longer a safe haven from advertising: Advertising in the film-screen industry is expected to grow by 30% in 2003.

Given that the United States is a successful, democratic, capitalistic society, what could possibly be wrong with this current state of events? Why not advertise to children and teens? After all, many might say that advertisements are harmless. The latter assertion is the easiest to deal with, of course, given the association between alcohol and cigarette advertising and adolescents’ use of those two gateway drugs. But what about advertisements for toys, or for food? Are they harmless or harmful? The answer lies in communications and advertising research.
First, research has shown that young children—under the age of 6—are cognitively and psychologically defenseless against television advertising.212 Young children do not understand the notion of intent to sell, and they frequently accept advertising claims at face value.213 Disclaimers such as “some assembly required” or “when eaten as part of a complete nutritional breakfast” are spoken too rapidly or shown in print too small to be understood.214

In fact, in the late 1970s, the Federal Trade Commission held hearings, reviewed the existing research, and came to the conclusion that it is unfair and deceptive to advertise to children under 6 years of age.215

The record...supports the following conclusions regarding child oriented television advertising and young children 6 years and under: (1) they place indiscriminate trust in televised advertising messages, (2) they do not understand the persuasive bias in television advertising, and (3) the techniques, focus, and themes in child-oriented television advertising enhance the appeal of the advertising message and the advertised product. Consequently, young children do not possess the cognitive ability to evaluate adequately child-oriented television advertising...the record establishes that the only effective remedy would be a ban on all advertisements oriented towards young children, and such a ban, as a practical matter, cannot be implemented (italics author’s emphasis).

Some Western countries have done precisely that—banned advertising aimed at young children. Sweden and Norway forbid all advertising directed at children under 12 years of age. Greece bans toy advertising on television until after 10 PM, and Denmark and Belgium severely restrict advertising targeting children as well.216

In addition, many parents feel that advertising has turned their children into junior consumers. In one poll, 87% of parents surveyed reported that advertising and marketing were making their children too materialistic, and 63% reported that their children were defining their self-worth by how many possessions they had.217

But the leading problem with children’s advertising is the relation between food advertisements, unhealthy eating practices, and obesity (see section VII). More than half of all American adults are now overweight (body mass index >25), and the number of overweight children has doubled in the past two decades.218 Children and teens view an estimated 25,000 to 40,000 ads on television alone in the United States.212 Half of those ads are for food, mostly sugared cereals and high-caloric snacks.219

**School-Based Advertising**

Perhaps equally concerning is that advertisers are now breaking down the doors to schools to get at children and adolescents. The “3 R’s” have now become the “4 R’s,” with the fourth “R” being “retail” (Fig 22).220 Ads are now appearing on school buses, in gyms, on book covers, and even in bathroom stalls.221 More than 200 school districts nationwide have signed exclusive contracts with soft drink companies.220 These agreements specify the number and placement of soda vending machines, which is ironic given that schools risk losing federal subsidies for their free breakfast and lunch programs if they serve soda in their cafeterias.

School advertising also appears in the guise of educational TV: Channel One. Currently available in 12,000 schools, Channel One consists of 10 minutes of new programming and 2 minutes of commercials. Advertisers pay $200,000 for advertising time and the opportunity to target 40% of the nation’s teenagers for 30 seconds.222 According to a recent government report, Channel One now plays in 25% of the nation’s middle and high schools and generates profits estimated at $100 million annually.222 In 2001, Channel One offered a “back-to-school special” for teachers and administrators...
overseeing its broadcast in their schools—a $500 bonus for signing up a neighboring school. Most recently, 2500 schools signed up for the chain’s McTeacher program, which donates about $500 to schools whose teachers work 2-hour shifts behind the counter.

A Word About Drug Advertising

Until the past 5 to 10 years, concerns about children’s advertising centered on food and toy ads, but during the past decade, there has been a virtual explosion of advertisements for prescription drugs (Fig 23). In 1993, prescription drug manufacturers spent $100 million on consumer-targeted advertising; by the year 2000, this figure had increased 20-fold, to more than $2 billion. Under new 1997 Federal guidelines, ads can now mention the specific drug being advertised (rather than having to say, “see your doctor”) as long as the major risks associated with the drug are mentioned and a toll-free phone number or Internet address is given. Consequently, ads for Viagra, Prozac, Nexium, Meridia, Levitra, and many other drugs are increasingly common, especially on prime-time television. Such ads can now be seen during 14% of all prime-time episodes. In 10 magazines, one survey found an average of 3 drug ads per issue, with emotional appeals (67% of ads) dominating the content.

Ads for nonprescription drugs are even more common on prime-time TV. Nearly half of all programming contains ads for over-the-counter medicines, and the ads seem to emphasize a no-risk approach to self-medication, what one researcher calls the “magic of medicine” approach. No wonder children in one older study reported that the first thing a person should do if he or she does not feel well is to “eat aspirin” and take medicine. Half of the health or nutritional information in drug ads has been judged misleading or inaccurate.

Do ads for prescription drugs have an impact? A recent survey of physicians found that 92% of patients had requested an advertised drug. A recent survey of consumers found that 30% had asked a doctor about an advertised drug. Clearly, doctors feel that TV advertising has inundated them with requests for drugs, and consumers (adhering to the third-person

FIG 22. Copyright, Tribune Media Services, Inc. All rights reserved. Reprinted with permission.
effect) feel that they are not being influenced by drug ads. The bottom line remains the same: Children and teenagers now get the message that there is a drug available to cure all ills, heal all pain, a drug for every occasion. That message does not quite mesh with “Just say no” and DARE.

Nutrition and Body Image

Television presents viewers with two sets of conflicting messages. One suggests that we eat in ways almost guaranteed to make us fat; the other suggests that we strive to remain slim.232

Lois Kaufman

I never say a character is thin or fat because she will be cast as a thin person anyway. When you are dealing with the major actresses, all of them together might make up a size 14.233

Screenwriter Callie Khouri, Author of Thelma and Louise

Although sex, drugs, and violence grab all of the headlines, pediatricians are increasingly concerned about the mirror issues of obesity and eating disorders among children and adolescents. More than half of American adults are now overweight (body mass index >25), and the number of overweight children has doubled in the past two decades.218,234 The prevalence of type II diabetes—once thought to be almost exclusively an adult-onset disease—has now increased dramatically among children and adolescents as well.234,235 At the same time, the incidence of eating disorders among adolescents remains alarmingly high. A recent study of nearly 2500 middle-school teens in North Carolina found that 10% of the girls and 4% of the boys reported vomiting or using laxatives to lose weight.236 As many as 5% of young women are bulimic,237 and anorexia nervosa occurs in every 100 to 150 middle-class females.134 Consequently, researchers are scrutinizing the media carefully to find an association with obesity238 or unhealthy body self-image.239

Food Advertisements and Fast Food

Food is big business in America. In the year 2000, Americans spent $110 billion on fast food alone—more than on higher education, computers, or cars.240 Typically, advertisers spend more than $2.5 billion per year to promote restaurants and another $2 billion per year to promote food products on TV.219 Forty-five million people eat at McDonald’s daily throughout the world,241 yet few consumers understand the caloric density of what they are eating (Table 9) or the fact that portion sizes have increased substantially in the past 20 years.242 In fact, the larger the portion size, the more that people are likely to eat, regardless of their body habitus.243 In one study of Australian 9- to 10-year-olds, more than half believed that Ronald McDonald knows what is best for children to eat!244

On television, of the estimated 40,000 ads per year that children and adolescents see, half are for food, especially sugared cereals and high-caloric snacks (Fig 24).245,246 Saturday morning television is the worst offender, with even more food commercials (61% of all ads), of which 90% are for sugared cereals, candy bars, fast foods, chips, or other nutritionally suspect foods.247 Children rarely see a food advertisement for broccoli; healthy foods are advertised less than 3% of the time.248 Although the industry cites the “when eaten as part of a nutritious breakfast” voice-over as fulfilling its obligation to children, there is little evidence that children actually understand such dis-
By far, the most important impact of the average food commercial is to intrigue the child with how “yummy” and “fun” the product is. Increasingly, McDonald’s, Burger King, and others are also using toy tie-ins with major children’s motion pictures to try to augment sales of fast foods. Nearly 20% of restaurant ads now mention a toy premium in their commercials. Recently, the Coca Cola Company reportedly paid Warner Brothers studio $150 million for the global marketing rights to the movie “Harry Potter and the Sorcerer’s Stone.”

Food and Food Advertising in Schools

Currently, there are more than 4500 Pizza Huts and 3000 Taco Bells in school cafeterias around the country. In addition, a recent government report found that 200 school districts have signed exclusive contracts with soft drink companies to sell only those drinks in school. Houston recently signed a contract with Coca-Cola worth more than $5 million over 5 years. In addition, nearly 70% of the ads on Channel One are either for fast food or for junk food. The problem here is that new research is beginning to question whether frequent consumption of soft drinks might lead to an increased risk of osteoporosis in teenage girls and obesity in both children and teens.

Impact of Food Advertisements on Behavior

Unfortunately, most research on young people’s consumer behavior remains unavailable to the academic community or to the public, since it is conducted by marketing researchers and big business. What studies are available indicate that advertising is potent:

- Several studies show that young children request more junk food after viewing commercials.
- In one study, amount of TV viewed per week actually correlated with both requests’ for specific foods and caloric intake.
- Even brief exposures to food ads can influence children as young as preschool age.
- Food ads increase children’s snacking behavior and gives them unhealthy notions about nutrition.
- Snacking has increased significantly in the past 20 years. Children now consume 25% of their daily calories by snacking, compared with 18% in 1977, according to a study of more than 21,000 children and teens nationwide. Teens now consume an average of 610 calories per day by snacking.
- Interestingly, the ads shown on Channel One in schools seem to have an impact on teenagers, whereas the presentation of news about current events does not.

Does Television Viewing Cause Childhood Obesity?

Along with aggression, obesity represents one of the two areas of television research in which the medium’s influence may rise to the level of cause and effect rather than simply being contributory. Using cross-sectional data, five national studies have found significant associations between television viewing and obesity in children. Of course, the causal arrow could run in either direction: Television could be causing obesity, or obese children could be more sedentary and watching more television. The five studies are:

- A large national sample from the National Health Survey found that watching TV was a strong predictor of obesity among 6- to 11-year-olds and 12- to 17-year-olds. For each hour of viewing above the average, the prevalence of obesity increased 2%.

### TABLE 9. Caloric and fat content of fast food

<table>
<thead>
<tr>
<th>Restaurant</th>
<th>Calories</th>
<th>Fat (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>McDonald’s</td>
<td>530</td>
<td>28</td>
</tr>
<tr>
<td>Big Mac</td>
<td>430</td>
<td>21</td>
</tr>
<tr>
<td>Quarter Pounder</td>
<td>270</td>
<td>9</td>
</tr>
<tr>
<td>Hamburger</td>
<td>210</td>
<td>10</td>
</tr>
<tr>
<td>Small French fries</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Large French fries</td>
<td>450</td>
<td>22</td>
</tr>
<tr>
<td>Chicken McNuggets</td>
<td>430</td>
<td>26</td>
</tr>
<tr>
<td>Fajita chicken salad</td>
<td>250</td>
<td>10</td>
</tr>
<tr>
<td>Hard Rock Café</td>
<td>660</td>
<td>36</td>
</tr>
<tr>
<td>Hamburger</td>
<td>890</td>
<td>65</td>
</tr>
<tr>
<td>Pizza Hut</td>
<td>446</td>
<td>20</td>
</tr>
<tr>
<td>Cheese pizza, 2 slices</td>
<td>640</td>
<td>38</td>
</tr>
<tr>
<td>Pepperoni pizza, 2 slices</td>
<td>552</td>
<td>28</td>
</tr>
<tr>
<td>Arby’s</td>
<td>233</td>
<td>11</td>
</tr>
<tr>
<td>Roast beef sandwich</td>
<td>360</td>
<td>22</td>
</tr>
<tr>
<td>Junior roast beef sandwich</td>
<td>838</td>
<td>55</td>
</tr>
<tr>
<td>Taco Bell</td>
<td>199</td>
<td>6</td>
</tr>
<tr>
<td>Tacos (2)</td>
<td>199</td>
<td></td>
</tr>
<tr>
<td>Taco Bell salad w/o salsa</td>
<td>360</td>
<td></td>
</tr>
<tr>
<td>Kentucky Fried Chicken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KFC Original Recipe, half breast</td>
<td>360</td>
<td>20</td>
</tr>
<tr>
<td>KFC Rotisserie Gold, one quarter</td>
<td>199</td>
<td></td>
</tr>
</tbody>
</table>

Adapted from USA Today, October 20, 1994, p. 7D. Reprinted from Reference 134.
A national fitness survey found that television viewing was directly and independently associated with the prevalence of obesity. Increased activity was inversely related.269

A national sample of 746 10- to 15-year-olds yielded a strong dose-response relation between being overweight and numbers of hours viewed. The odds for being overweight were nearly 5 times greater for those who viewed 5 hours of TV per day compared with those viewing 0 to 2 hours per day.270

A study of more than 4000 8- to 16-year-olds from the National health and Nutrition Examination Survey (NHANES III) found that those who watched 4 or more hours of TV per day had greater body fat and higher body mass index than those watching less than 2 hours per day.271

Another analysis of NHANES III data found that the prevalence of obesity was lowest among those children who watched less than 1 hour of TV per day and highest among those watching 4 or more hours per day.272

Several other studies help to cement the connection. For example, children were found to eat fewer fruits and vegetables and more pizzas, snack foods, and sodas if they watched television during meals.273 If children had a TV set in their bedroom, they had an odds ratio of 1.31 of having a body mass index greater than the 85th percentile and watching more TV than children without a set in their bedroom.274 A simple 18-lesson, 6-month classroom curriculum that reduced media use resulted in statistically significant decreases in third- and four-graders' body mass index, skinfold thickness, waist measurement, and waist-to-hip ratio (all important measures of adiposity).275 A less intensive school-based program over 2 years called Planet Health also resulted in greater remission of obesity and increased fruit and vegetable consumption.276 Numbers of hours spent watching TV is also a strong predictor for high cholesterol levels in children.277

Why should television viewing increase the risk of obesity? Childhood obesity is not caused by gluttony but rather an excess intake of as little as 50 Kcal per day (which produces a weight gain of 5 pounds per year).278 Consequently, even if television causes a small imbalance in the intake/output energy equation, it could be highly significant. There are three primary mechanisms whereby television could be contributing to obesity. Any or all may be involved:

1. Displacement of more active pursuits. Children spend more time watching television than in any other activity except for sleeping.11 It displaces other, more caloric-intensive activities. One clever study used an exercise bicycle–powered television set with 10 obese children to achieve significant weight losses.279

2. Increased energy intake. Watching TV seems to increase snacking behavior, particularly high-fat snacks. The sheer volume of ads for snack foods and fast foods also seems to engender poor nutritional habits.278,280

3. Decreased energy expenditure. According to one study, a child’s metabolic rate was actually lower while watching television than while resting quietly or reading a book.281 In addition, several studies indicate
that watching TV and physical fitness are inversely related.\textsuperscript{282,283}

**Eating Disorders and Body Image**

One of the most exciting areas of research in the past decade has been investigating the possible role that media play in women’s self-image and in eating disorders. Television, movies, and print media are full of images of anorectic models and movie stars. In general, people trust the media, especially television,\textsuperscript{219} but the image that the media display of the “ideal” woman has become increasingly distorted. Could the media play a role in teenager girls’ unhealthy body self-image or the development of anorexia nervosa and bulimia?

The very notion of “what is thin?” has changed considerably. A study of body measurements of *Playboy* centerfolds and Miss America pageant contestants over a 10-year period found that their body weights averaged 13\% to 19\% below those expected for age.\textsuperscript{284} From 1922 to 1999, the body mass index of the winners of the Miss America contest has declined significantly, from a healthy 22 to less than 18 (which signifies undernutrition).\textsuperscript{285} Twenty years ago, the average American model weighed 8\% less than the average American woman; today, she weighs 23\% less.\textsuperscript{286} Perhaps as a result, dissatisfaction among young women with their weight seems at an all-time high. As many as half of normal-weight teenage girls consider themselves overweight and have tried dieting.\textsuperscript{236} Nearly one third of third-grade girls have tried to lose weight; by sixth grade, this figure reaches 60\%.\textsuperscript{287} Currently, many researchers feel that the “internalization of the thin-ideal body image” has resulted in women’s increasing dissatisfaction with their bodies and a subsequent increase in eating disorders (Fig 26).\textsuperscript{237,286,288–290}

There are four key components to the sociocultural theory of weight loss and eating disorders:

- While the “ideal” woman has become thinner since the 1950s, real women have become heavier.\textsuperscript{285}
● Thinness has become associated with success. 291
● The “thin look” has become normative, especially for teen girls. 237,292
● Young women have been led to believe that thinness can actually be attained through dieting and exercise. 237,292

**Television.** Prime-time characters are usually happy in the presence of food, yet food is rarely used to satisfy hunger. Instead, it is used to bribe others or to facilitate social interactions. Furthermore, 88% of all characters are thin or average in body build. 232 On shows popular with teenagers, 94% of characters are below average in weight. 293 Sitcoms such as *Friends* and *Ally McBeal*, music videos, and soap operas popular with teenagers may even expose young girls to role models who suffer from eating disorders themselves. 294 For example, one recent study of 837 ninth-grade girls found that the number of hours they spent watching music videos correlated with their concerns about their appearance and their weight. 295 In one interesting experiment, college women concerned with their body shape judged thin celebrities as thinner than they actually were, whereas women comfortable with their body shape assessed them accurately. 296 In another study of 6770 9- to 14-year-olds, with a 1-year follow-up, girls who said that they wanted to look like television or movie stars were twice as likely (1) to be very concerned with their weight, (2) to become constant dieters, and (3) to engage in purging behavior. 292,297

American television is also rife with advertisements that target women with appeals to beauty or cautions about weight control. 291

**Magazines.** Articles about beauty, dieting, and exercise also abound in women’s magazines, 284 far more so than in men’s magazines. 298 Teen magazines such as *Seventeen*, which enjoys a readership of 11 million girls, practically dictate that thin is in, fat is out, and you are doomed to unpopularity unless you are impossibly thin and have big breasts and small hips. Or, as one 15-year-old girl put it:

> Everybody feels like they are not good enough, not pretty enough, not skinny enough. . . . Every time you open a magazine you always see beautiful people. . . . you have to look good to be a good person. 299

Several studies have found a connection between reading teen or fashion magazines and weight concerns or symptoms of eating disorders in teens. 292,299–302 In one recent study, for example, 69% of nearly 600 girls in fifth to twelfth grades reported that their ideal body shape was influenced by reading fashion magazines. 292 Simply reading a fashion magazine in a doctor’s waiting room and then answering a survey about dieting and body image can increase a college woman’s reported dissatisfaction with her weight and also increase her fear of getting fat. 303 Similarly, in a study of nearly 3000 Spanish 12- to 21-year-olds over 18 months, reading girls’ magazines was associated with a doubled risk of developing an eating disorder. 304 Finally, on ongoing meta-analysis of more than 20 experimental studies shows that exposure to images of thin models increases a young woman’s negative feelings about her body. 305

**Do the Media Cause Anorexia Nervosa and Bulimia?**

There is now considerable evidence that the media influence body image in girls and young women. Making the leap to the media as a major cause of...
eating disorders is not yet possible, but, again, there are several very suggestive studies that the media may at least make a significant contribution, especially in some susceptible young girls and women. According to a recent meta-analysis of 66 studies, body image disturbances seem to play an important role in patients with anorexia nervosa or bulimia.\textsuperscript{306} Young women who have eating disorders report that magazines and newspapers have influenced their eating habits and their concept of beauty.\textsuperscript{307} In normal teens, just wanting to look like actresses or models on television, in movies, or in magazines doubles the risk of monthly purging.\textsuperscript{297} College women who most “internalize” the cultural bias towards thinness score higher on tests of body dissatisfaction and bulimia.\textsuperscript{290}

The most powerful link occurred in a naturalistic study on the Pacific isle of Fiji.\textsuperscript{308} Three years after television was introduced onto the island, 15% of teenage girls reported that they had vomited to control their weight compared with only 3% before the introduction of TV. Furthermore, the proportion of teen girls scoring abnormally high on a test for disordered eating doubled. After the introduction of TV, three fourths of the girls reported feeling “too big or fat,” and those who watched more TV were much more likely to feel that way and to diet.

The Internet

No one ever knows whether one is interacting with a ‘real self’ or with someone’s alternative identity... the distinction between fantasy and reality is truly blurred.\textsuperscript{309} K. Subrahmanyam, R. Kraut, P. Greenfield, E. Gross

It is estimated that the online pornography industry will reach $366 million by 2001.\textsuperscript{310} M. Griffiths

For children and teenagers in the new millennium, the Internet may be the most important of all media. Currently, computers can be used for e-mail, video games, movies (via CDs), music, and to access the World Wide Web. Soon, television programs and first-run feature movies may become available as well. In the living room of the future, the television set may become obsolete. Within the next few years, expectations are that half of all children, even as young as 5 years old, will be online regularly.\textsuperscript{311}

The Internet is not only extraordinarily popular with teenagers—it ranks first among 8- to 17-year-old boys and second, after the telephone, with 8- to 17-year-old girls (Fig 27)\textsuperscript{312,313}—it also brings up a unique set of concerns. In recent surveys of teenagers\textsuperscript{314,315}:

\begin{itemize}
  \item 82% reported using the Internet
  \item 75% believed that the Internet was very or somewhat responsible for the Columbine shootings
\end{itemize}
44% said they had seen X-rated content
Of the 1000 most-visited sites, 10% are X-rated
Access to violent pornography has increased
12% reported finding a site where they could access information about how to buy a gun
25% have visited a site promoting a hate group
Many child-oriented web sites have advertisements
62% say their parents know little or nothing about the Web sites they visit.

Few behavioral studies exist concerning the Internet, but a number of recent studies document how children and teens use the Internet and where potential for harm exists. In one recent survey, 95% of all 15- to 17-year-olds have gone online, 29% have Internet access from their bedroom, and half go online at least once a day. Surprisingly, half of parents surveyed believe that their children being online is more positive than watching TV. Yes, the Internet can be an amazing adventure in information and learning. It can also serve as an important source of health information for teenagers who may be too reticent to talk to a physician. Several concerns are evident.

**Pornography.** Sex on the Internet is a half billion dollar industry (Fig 28). In a 2001 survey of more than 1200 youth, 70% of all 15- to 17-year-olds admitted to have “accidentally” stumbled across pornography online (Fig 29). Teenagers have always had more access to sexual content than their parents would have liked. By age 15, 92% of boys and 84% of girls had seen or read *Playboy* or *Playgirl* in one study, and 92% of 13- to 15-year-olds report having seen an X-rated film. The sheer volume of pornography on the Net, the arcane diversity of it (e.g., bestiality, rape, and bondage), and the ease of access to it—within seconds—makes Internet pornography a force to be reckoned with. Research on older forms of pornography and their impact on young adults seems to indicate that purely sexual content is probably harmless, but problems arise when sex is combined with violence against women. Although there is concern about Internet sexual content, to date there are no studies that address this concern.

**Sexual Solicitation.** Data do exist concerning the risk of children and teens being “recruited” online for unwise meetings or sexual encounters. Using a national sample of 1501 youth, ages 10 to 17 years, the Youth Internet Safety Survey found that 19% had received unwanted sexual solicitations online and that 25% of those youngsters had experienced emotional distress as a result. Girls and boys who had conflicts with their parents or who were highly troubled were more likely to have online relationships. A smaller survey of 213 private school students found similar results. Finally, an online survey of 1234 18- to 24-year-olds found that those who go surfing for sexual partners may be at significantly greater risk for sexually transmitted diseases.

**Advertising.** Not only are there web sites devoted exclusively to drinking and smoking, but young people also frequently see ads for cigarettes and alcohol on the Web and can even order beer and alcohol online. Many web sites use promotional techniques that are quite appealing (but exploitive) of teenagers.

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**FIG 28.** Selling sex.

**FIG 29.** Percent of 15-17 year-olds who have accidentally stumbled across pornography online. Reprinted with permission.
Such advertising circumvents rules established in other media.\textsuperscript{325} In addition, many web sites aimed at young children are requesting personal information without asking for parental permission.\textsuperscript{326} For teenagers, offshore gambling sites are now accessible with a credit card or a money order.

**Hate Groups.** Internet hate groups have increased 60\% in recent years, with a newfound ability to reach an audience of millions.\textsuperscript{327} Teenagers can also learn where to buy guns or even how to make bombs. Kip Kinkel, the schoolyard killer in Oregon, described his favorite pastime as “surfing the Web for information on how to build bombs.”\textsuperscript{311}

Despite all of these concerns, the Internet has become an amazing resource for children and teenagers. Not only does it provide a worldwide encyclopedia at blinding speed, but it is also interactive.\textsuperscript{328} The Web also provides a plethora of health information for teenagers, although the accuracy of that information may sometimes be suspect, depending on the web site (eg, sites promoting anorexia). In one survey, half of the teenagers had used the Internet to find health information.\textsuperscript{316} A larger study of more than 1200 teens and young adults found that 75\% had gone online to get health information. Questions about diseases such as cancer and diabetes and about sexual health were the leading topics.\textsuperscript{312} In addition, these young people maintained a healthy skepticism about the trustworthiness of such information. The Internet placed last (17\% trust factor) compared with doctors (85\%), parents (68\%), and school (66\%).\textsuperscript{312}

**Rock Music and Music Videos**

Sex sells in America, and as the advertising world has grown ever more risqué in pushing cars, cosmetics, jeans, and liquor to adults, pop music has been forced further past the fringes of respectability for its rebellious thrills. When Mom and Dad watch a Brut commercial in which a nude woman puts on her husband’s shirt and sensuously rubs his after-shave all over herself, well, what can a young boy do? Play in a rock ‘n’ roll band and be a bit more outrageous than his parents want him to be. Kids’ natural antiestablishmentism is going to drive them to the frontiers of sexual fantasy in a society where most aspects of the dirty deed have been appropriated by racy advertising and titillating TV cheesecakery.\textsuperscript{329}

Terence Moran, *The New Republic*

What else can you rap about but money, sex, murder or pimping? There isn’t a whole lot else going on in our world.\textsuperscript{350}

Rapper Ja Rule

Rock ‘n’ roll has always been controversial, but hip-hop, heavy metal, and music videos continue to push the boundaries even further. In 2000, Eminem’s album *The Marshall Mathers LP* sold nearly 8 million copies, was the number two album in America, and featured such educational lyrics as:

New Kids on the Block sucked a lot of d—Boy-girl groups make me sick/And I can’t wait ’til I catch all you faggots in public/I ma love it.\textsuperscript{331}

As the lead critic of *Entertainment Weekly* noted in a cover study titled, “Lewd Awakening”\textsuperscript{331}:

The fence that separates the decent from the indecent has so many holes in it (what is Granny Klump doing to Buddy Love in that Jacuzzi during prime time?) that homophobes, racists, misogynists, and common potty mouths step right through, unchallenged. Smirking all the way to the bank, they’re indistinguishable from artists and innovators of real, if disturbing substance.

Now that the original rock ‘n’ roll generation has grown up and has children (and grandchildren) of its own, how are Baby Boom pediatricians supposed to react to Eminem, to LL Cool J, or to Limp Bizkit? Is this just a continuing intergenerational dispute? Are there actual data that indicate a need to be concerned? There are many studies on this topic, and the consensus seems to be that rock ‘n’ roll lyrics have been and always will be provocative, but that they are probably relatively harmless, with a few notable exceptions. Music videos, on the other hand, probably have the same impact as television and contain many problematic elements. As the poet Alfred Lord Tennyson once wrote: “Things seen are mightier than things heard.”\textsuperscript{332}

**Rock Music**

From Cole Porter (songs like “Let’s Do It”) to Mamie Smith (lyrics like “You can’t keep a good man down”), songwriter have often seemed obsessed with trying to see how much they could get away with (Arnett, 2002). Yet there is little question that rock music lyrics have gotten more graphic since the 1950s. Between 1980 and 1990 alone, explicit language increased 15\%.\textsuperscript{333} At the same time, rock music has always been an important badge of identity for adolescents.\textsuperscript{121} As corporate America and Madison Avenue have co-opted “mainstream” rock ‘n’ roll for advertising (The Beatles, the Rolling Stones, and James Brown can all now be heard in prime-time commercials), one could argue that teenagers have
simply been pushed into seeking out more “fringe” music such as heavy metal or death metal (Table 10).

Sex is not the only subject that rock music seems historically obsessed with, however. Smoking, drinking, and illicit drugs have been sung about for many decades. Roger Miller sang “Chug-a-lug” back in 1964, Jimmy Buffet sang “Margaritaville” in 1977, and the 1960s and 1970s were the heyday for songs with references to illicit drugs.334,335 Drug-oriented lyrics seem to be making a comeback in the 1990s and the new millennium. Drug use by musicians has also been a recent issue because of their potential role-modeling effect.333 Few researchers scrutinized song lyrics until a 1999 study of the 1000 most popular songs in 1996 to 1997: 17% had references to alcohol (75% of all hip-hop songs), and there was rarely a mention of the negative consequences of drinking (9%) (see Fig 17B, Fig 30, and Fig 31). Tobacco and smoking references were rare, except in hip-hop songs (64% mentioned it), and 18% of songs mentioned illicit drugs. Again, rap music was the worst offender, with 63% of songs mentioning drugs, most commonly marijuana.156

Some observers feel that rock music is the preeminent medium for adolescents.333 But in terms of time—and certainly, in terms of impact—rock music still loses out to television, even in considering adolescents. In the most recent survey of nearly 3200 children ages 2 to 18 years, older children and teens spent 6 hours and 43 minutes a day with media—56% of the total time with TV, 22% with music.11 Unlike television, music is frequently used as an accompaniment to driving, talking with friends, or doing homework rather than as a primary activity.

What is most interesting in the research on rock music is the paucity of evidence for any major behavioral effect.14,336 Several studies have found that teenagers do not know the lyrics to their favorite songs.337,338 And even if they know the lyrics, their comprehension is age-dependent. For example, only 10% of fourth graders could correctly interpret a Madonna song, none could correctly interpret a Springsteen song, and nearly half of college students surveyed thought that “Born in the USA” was a patriotic song, not a song of alienation.338 Instead, certain types of rock music seem more likely to be

- a marker for alienation and an “identity badge” (heavy metal)
- a possible marker for teen suicide (heavy metal)
- unnecessarily violent and misogynistic (rap music)

TABLE 10. Sample “Death Metal” song titles

| “Staring Through the Eyes of the Dead” |
| “F—With a Knife” |
| “Stripped, Raped and Strangled” |
| “She Was Asking for It” |
| “Force Fed Broken Glass” |


- occasionally prosocial, for example, “Safe Sex” by Erick Sermon or “Let’s Talk About Sex” by Salt ‘n’ Pepa (rap music)

For example, a survey of nearly 3000 14- to 16-year-olds found that white boys who engaged in five or more risk-taking behaviors (eg, smoking cigarettes, drinking alcohol, cheating in school, having sex, cutting school, stealing money, smoking marijuana) were most likely to name a heavy metal group as their favorite.339 The relative risk for engaging in risky behaviors and choosing heavy metal music as a favorite was 2.1 for girls and 1.6 for boys. Similarly, heavy metal music seems to be the preference of teenagers in psychiatric units, especially if they have a conduct disorder.340,341 As one researcher notes342:

Not every kid who listens to a suicide song is going to commit suicide. Not every kid who listens to a song that talks about killing a policeman is going to go shoot at a policeman. On the other hand, there are kids who have done that who were inspired by a particular song. They tell me they’re inspired. That the music speaks to them, to their anger and resentment, to the hate.

Hence, the research literature can carefully document the importance of rock music in adolescents’ lives, but from a behavioral viewpoint, it seems to play—at most—a catalyst role in a few rare instances.14 Asking about a teenagers’ music preferences may provide insight into their lives for practitioners but will probably not serve alone as a risk assessment tool.343

Music Videos

Music videos and video games are probably the two newest and most compelling media that parents and health professionals may not have had much exposure to. Whereas music lyrics can be difficult to hear or understand or ambiguous (or “ironic”) in meaning, there is no mistaking a scene of graphic violence or suggestive sexuality.344 In addition, music videos and MTV have defined an entire generation (“the MTV generation”) and for many teenagers continue to demarcate what’s “cool” and what’s “out.” Many teens spend 30 to 60 minutes per day watching MTV.333,344
MTV is available in 40 countries overseas and reaches more than 194 million households. Content. Women do not fare well in music videos. One expert suggests: “If there is such a thing as a typical music video it features one or more men performing while beautiful, scantily clad young women dance and writhe lasciviously” (Reference 118, p. 256). Content analyses show that women are frequently portrayed as “bimbos” and sexually subservient to men. Rap and hip-hop music videos seem to be the worst offenders. In one analysis, there was frequent content about guns (59%), drug use (49%), alcohol use (42%), as well as frequent grabbing (69%), profanity (73%), and explicit violence (36%). Overall, nearly one quarter of all videos across all genres contain overt violence, with a similar number depicting weapons. Music videos also contain considerable drug use. Cigarette smoking is common (25% of all videos). In a recent comprehensive analysis of 258 music videos aired in October 2000 (Fig 17C and Fig 32): • Drug use was shown in 45% of the videos. • Alcohol was the most frequently portrayed drug, in 37% of all the videos. • Tobacco was portrayed in 21% of the videos. • Only 3% of the videos contained visual portrayals of illicit drug use, most often marijuana.
Although music videos contain less alcohol use than movies (98%) or television (77%), they do portray alcohol use as being normative and without consequences.

Behavioral Impact. As with other media, the amount of direct imitation that occurs is rare; but when it occurs, it makes headlines. Recently, a 15-year-old Albuquerque boy was killed imitating a stunt from the MTV show *Jackass*. He jumped off the hood of a moving car and was thrown to the ground and dragged. In Connecticut and Florida, two teens were hospitalized with severe burns after squirting themselves with lighter fluid and laying across barbecue grills, as on the show.

Given their importance in the average teenager’s life, MTV and music videos probably influence their social judgments and “prime” their views. For example, a teenager watches a lot of MTV and BET because he enjoys rap music. Because rap music videos tend to portray women as sex objects, the teen’s social schemata for women as sex objects will be “primed” frequently. Yet, if you were to ask him if he thought music influenced his attitudes or behavior, he would say no and would be giving an honest, if inaccurate, answer. This is a kind of corollary to the third-person effect that the media exerts—call it the “stealth effect.”

Numerous studies have found that music videos do exert a behavioral effect on children and adolescents:

- Densensitization to violence occurs after viewing violent music videos.
- Exposure to music videos with antisocial content leads to greater acceptance of antisocial behavior.
- Eliminating access to MTV in a locked treatment facility significantly decreased violent behavior.
- A study of nearly 1000 ninth-grade girls in California found that hours spent watching videos correlated significantly with the girls’ weight and appearance concerns.
- Two studies have found a strong relation between acceptance of premarital sex for girls and exposure to music videos.
- Only two longitudinal studies exist, but both contain highly significant results. A study of 522 black girls found an association between heavy viewing of rap videos (20 hours per week or more) and increased likelihood to engage in risky sexual behaviors or test positive for a sexually transmitted disease. In addition, girls who watched the most rap videos were 2 to 3 times as likely to have hit a teacher, been arrested, or have had sex with multiple partners. A study of more than 1500 ninth graders found that exposure to music videos correlated with early alcohol use (odds
ratio, 1.31). In fact, music videos exceeded network TV as an important factor in early teen drinking.\(^{185}\)

In summary, despite the fact that rock ‘n’ roll music is middle-aged and MTV is now 22 years old, research on popular music and music videos is still in its infancy. What research exists suggests that popular music is relatively harmless (although that is still no excuse for lyrics that are highly disturbing) but that music videos may be a very significant medium for young teenagers.

**Twelve Solutions**

Parents could once easily mold their young children’s upbringing by speaking and reading to children only about those things they wished their children to be exposed to, but today’s parents must battle with thousands of competing images and ideas over which they have little direct control.\(^{357}\)

Professor Joshua Meyrowitz

The question of ‘which comes first’ is misleading and irrelevant. People are born into a symbolic environment with television as its mainstream. Children begin viewing several years before they begin reading, and well before they can even talk. Television viewing both shapes and is a stable part of lifestyles and outlooks. It links the individual to a larger if synthetic world, a world of television’s own making.\(^{17}\)

Professor George Gerbner

Despite continued and vocal protests from the entertainment industry, the research on the impact of media on children and adolescents is both substantial and solid. Both the entertainment industry and the Federal government need to accept this fact and move on toward solutions that will benefit children and adolescents, minimize the media’s harmful impact, and maximize the media’s prosocial benefits. Listed below are 12 potential solutions that would go far to address these concerns:

(1) Improve the quality of programming for children and adolescents.

(2) Improve and regulate advertising.

(3) Recognize that media violence is a public health threat.

(4) Create a uniform rating system for all media.

(5) Improve the portrayal of sex and sexuality in the media.

(6) Maximize the prosocial aspects of the Internet.

(7) Improve the image of women in programming and advertising.

(8) Fund and conduct more research.

(9) Increase media education for children and adolescents.

(10) Increase media education for parents and pediatricians.

(11) Use media to campaign for health and prosocial purposes.

(12) Increase media advocacy efforts.

1. **Improve the quality of programming for children and adolescents.** Creative and prosocial programming on television and in the movies has lost out to the entertainment industry’s obsession with the “bottom line.” On television, many critics agree that the real purpose is not to produce high-quality entertainment but to deliver a specific demographic audience to a group of paying customers (ie, advertisers).\(^{358,359}\) Writers, directors, and producers are quick to howl about infringement on their First Amendment rights but remain curiously silent about how Madison Avenue has encroached on their territory. Unfortunately, they have little incentive to improve. Congressional legislation mandating at least 3 hours per week of educational or informational programming for children is vague and never enforced.\(^{360}\) “Yogi Bear” cartoons were cited by one station as serving children’s educational needs.\(^{361}\)

Interestingly, the entertainment industry seems to have a fundamental appreciation of what they produce, but only if it is positive. Hollywood executives are quick to cite such works as *Schindler’s List* or the old *Cosby Show* as ennobling society and teaching positive values (and they do). But if programming can have positive effects, surely it can have negative effects as well. The response is often, “we are simply giving people what they want, which is sex and violence.” Yet there is significant evidence that this is not true. When the success or failure of 2000 films between 1988 and 1997 was examined, G-rated films were 8 times more profitable than R-rated films, yet 55% of all films produced were R-rated.\(^{14}\) On TV, nonviolent programs have a higher Nielsen rating than violent programs.\(^{362}\)

Several solutions that would help to improve the quality and quantity of programming for children and adolescents include

- Adequate funding for children’s programming. This could come in the form of a 10% windfall profits tax on children’s toy manufacturers and food producers who target children in their advertising, or a national tax on television sets (Britain funds the BBC...
with a $75 per set per year tax). Unlike other countries, public broadcasting in the United States is woefully underfunded.\textsuperscript{363}

- Increased FCC requirements (and enforcement) including a provision for at least one hour per day of educational programming for children by each broadcast station.
- Creation of at least 10 dedicated, age-specific, noncommercial channels for children and adolescents in an average 200-channel cable network.
- Adherence by broadcasters to their own voluntary guidelines regarding media violence (Table 11) and creation of analogous guidelines regarding sex and drugs in programming. Movie, video game, and music producers also need to consider voluntary guidelines. Similarly, voluntary guidelines need to be created regarding the depiction of very thin women as role models in both programming and advertising.\textsuperscript{237} Finally, the industry could do a far better job of depicting racial and ethnic diversity in its programming.\textsuperscript{364,365}
- Initiation of a broad antismoking campaign in Hollywood. When 85% or more of contemporary movies contain tobacco use,\textsuperscript{170} the situation is rapidly approaching a public health crisis. Smoking in movies needs to be “denormalized.”\textsuperscript{366} The American Academy of Pediatrics, the American Medical Association, The American Public Health Association, and other key national organizations need to join forces to initiate a dialogue with the entertainment industry to weed out smoking in movies (Fig 19).

2. Improve and regulate advertising. American television—and, increasingly, American movies—have become saturated with advertising. The number of commercials on TV has skyrocketed from 11 to 40 per hour during the past two decades, partially because the average commercial is now 22 seconds. Nearly 15 minutes per hour of prime-time TV is devoted to commercials.\textsuperscript{367} Movies are rife with product placements, and movie tie-ins with fast food restaurants have ensured that children will continue to beg their parents to buy them unhealthy fast food. Schools are no longer safe havens from commercialism that they were in the 1960s. In the United States alone, $73 billion is spent annually on mass media advertising.\textsuperscript{367}

Nowhere is the situation regarding advertising and young people more egregious than with cigarette and alcohol ads. Each year, tobacco manufacturers spend

<table>
<thead>
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<th>TABLE 11. Joint network standards on TV violence</th>
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<tr>
<td>Endorses voluntary limits on:</td>
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<td>- Gratuitous or excessive violence</td>
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<tr>
<td>- Glamorous depictions on violence</td>
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<tr>
<td>- Scenes with excessive gore, pain, or physical suffering</td>
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<tr>
<td>- Replicable, unique, or “ingenious” depictions of inflicting pain or injury</td>
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<tr>
<td>- Portrayals of dangerous behavior or weapons that invite imitation by children</td>
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<td>- In children’s programs: realistic portrayals of violence that are unduly frightening</td>
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<tr>
<td>- Gratuitous depiction of animal abuse</td>
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<td>Encourages:</td>
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<tr>
<td>- Portrayal of the consequences of violence</td>
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<tr>
<td>- Scheduling all programs with regard for the likely composition of the intended audience</td>
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Urges caution:
- In stories and scenes showing children as victims
- In themes, plots, or scenes that mix sex and violence (eg, rape)


$8 billion and alcohol manufacturers $2 billion using techniques designed to lure underage smokers and drinkers.\textsuperscript{368} At the same time, the National Youth Anti-Drug Media Campaign targets only illicit drugs, not tobacco and alcohol—the two most significant adolescent drugs—and is funded for $178 million a year.

European countries place far more restrictions on advertising to children on TV than does the United States.\textsuperscript{216} In the United States, toys are deceptively advertised, and Saturday morning television is filled with ads for heavily sugared cereals and calorie dense snack foods. Research shows that even brief exposure to TV food commercials can influence children as young as preschoolers in their choices of what to eat.\textsuperscript{261}

Advertising in schools has similarly spiraled out of control.\textsuperscript{208} By 2001, 200 of the nation’s 12,000 school districts had signed contracts with soft drink companies.\textsuperscript{369} One school district in Colorado Springs signed a 10-year, $8 million deal with Coca-Cola, complete with a consumption clause. When the students were found not to be drinking up to standards, a district administrator asked area principals to allow Coke in the classrooms.\textsuperscript{370}

A variety of remedies exist, but most place the public health of the nation’s children ahead of the needs of big business. As a result, few are likely to be enacted:
- A ban on all tobacco advertising in all media. Commercial advertising does not enjoy the same First Amendment protections as free speech, nor is there a
conflict between the Constitution and common sense. Such a ban would likely be constitutional and would make good public health sense, given the toll that tobacco products exact on American society (Fig 33).

- Restricting alcohol advertising in all media to so-called “tombstone” advertising (in which only the product is displayed, not the qualities the prospective drinker would acquire) (Fig 34). This would avoid the party dogs, the Swedish bikini team, and the sophomoric humor that usually surrounds alcohol ads, attracts children and teens, and “normalizes” drinking. Eliminating the tax deductability of alcohol advertising might also be successful in decreasing consumption.

- Restricting advertising on television to children over the age of 6 to 8 years (as many European countries do). This can be accomplished simply by eliminating advertising on any children’s show where more than 50% of the viewers are below 6 to 8 years of age. In addition, the industry’s watchdog group, CARU (Children’s Advertising Review Unit), needs more teeth in its ability to reign in its voluntary members. Similarly, the Federal Trade Commission needs greater powers to act against unfair or deceptive advertising aimed at children.

- Placing a tax on junk food. This might even the disparity between what the National Cancer Institute spends to influence people to eat sensibly ($1 million a year) and what the food industry spends to encourage people to eat unwisely ($33 billion a year) (Jacobson, 2000). Alternatively, tax deductions for advertising expenses of junk food could be eliminated.

- Requiring all food sold in schools to meet certain nutritional standards. In fact, this is a current proposal by the US Department of Agriculture. It would end contracts with soft drink companies and vending machines filled with junk food in schools.

3. Recognize that media violence is a public health threat. In 1954, Senator Estes Kefauver, chairman of the Senate Subcommittee on Juvenile Delinquency, was the first public official to question openly the need for violence in television programming. The industry responded that perhaps some risk existed but that more research was needed. Now, hundreds of research studies later, the industry actually denies that media violence has any impact on children or adolescents. No other area of media has been so thoroughly researched, with such convincing results.

The connection between media violence and real-life

FIG 33. From the Copyright Cartoon Bank. Reprinted with permission.

FIG 34. One example of a “tombstone” ad for an alcoholic beverage. Such advertising is limited to the inherent qualities of the product rather than depicting the benefits the imbiber will “magically” acquire if he or she consumes the product.
violence is actually nearly as strong as the connection between smoking and lung cancer (Fig 9). Not everyone who smokes will have lung cancer; not everyone who watches violent programming will have aggressive behavior. However, the risk is there, and it is real.

Not only does the Hollywood community refuse to take responsibility for their product, they actually market violence to children, according to a September 2000 government report. The Federal Trade Commission found that:

- Of 44 movies rated R for violence, 80% were targeted to children under 17 according to the studios’ own marketing plans.
- Half of movie theaters surveyed admitted teens ages 13 to 16 to R-rated films without an accompanying adult.
- Of 118 video games for an M (Mature) rating for violence, 70% targeted children under 17.
- Of 55 music recordings with the “parental advisory” label, 27% targeted teens.

Many solutions exist, but they all require some willingness of the entertainment industry to engage in an active dialogue with public health physicians and the academic communications field.

- The entertainment industry needs to accept responsibility for the programming it produces and discontinue deceptive marketing practices (Fig 35).
- The industry needs to modify the manner in which violence is portrayed, including (Fig 36):
  - Showing violent acts being punished.
  - Producing more programs that have less violence.
  - Portraying the consequences of violence.

- Depicting less gun-play.
- Placing greater emphasis on antiviolence themes.
- Creating more prosocial cartoons and other programming for children, especially preschoolers.
- Policymakers in Washington need to accept that there is now a cohesive and persuasive body of research that documents certain risks associated with media violence. The National Television Violence Study, conducted in 1995 to 1997, needs to be refi nanced as an annual study of the content of violence on American television.
- Retailers, such as movie theater owners and chain store owners, need to enforce the existing ratings for movies and video games.
- Parents need to be aware of the risks of allowing their children to view or use violent media and be more proactive in selecting less violent, more educational media for their children.

4. Create a uniform ratings system for all media. Currently, parents and educators are lost in an alphabet soup of ratings. Television programs, movies, video games, and music recordings all have their own separate and unique ratings. Yet, parents frequently misunderstand the ratings or do not agree with them. Most parents, as well as public health organizations, overwhelmingly favor a content-based ratings system for all media.

The primary problems with the current ratings systems are:
1. They are not content-based.
2. They are frequently misunderstood by parents.
They are voluntary (attached by the producers of the programming).

They are inappropriately weighted more heavily for sex than for violence.

They are not enforced.

The oldest ratings system belongs to the Motion Picture Association of America (MPAA) (Fig 37). As such, it is the most recognizable by parents385 and could easily provide the basis for a new, universal ratings system for all media. Currently, the MPAA system is more evaluative than descriptive (Table 12), although recently, with very little publicity, the MPAA added some minimal descriptive information below the symbols (eg, Hannibal is rated R for “strong gruesome violence, some nudity, and language”). Sometimes the ratings defy rationality. Billy Elliot—a fine film for children and teenagers—was rated R for the “f” word that was spoken in a thick northern English accent and was therefore barely decipherable.

On the other hand, Hannibal was rated R, which according to critic Roger Ebert “proves that if a man cutting off his face and feeding it to the dogs doesn’t get the NC-17 rating for violence, nothing ever will”.386 Any depiction of sexual activity is likely to earn an R-rating, whereas a PG-13 movie can contain appreciable amounts of violence.387 Many parents have learned the hard way that G- and PG-rated films can contain much more violence and drug content than they are comfortable with. Of all the animated films produced in the United States between 1937 and 1999, 100% contained violence and nearly half contained at least one scene with tobacco or alcohol use.159,388 Even former members of the MPAA ratings board admit that they are uncomfortable with how some of the ratings are decided.389

Although the movie industry has been amenable to ratings for 35 years, the TV industry aggressively resisted them. In fact, it took congressional legislation to accomplish a TV ratings system (Fig 38).384 However, studies show that the system is not working well. For example, NBC refuses to use content descriptors in its ratings. The current categories are not specific enough regarding content, and the ratings are completely voluntary. Nearly 80% of shows with violence and more than 90% of shows with sex do not actually receive the V or S content descriptors as a result (Fig 39).390

Meanwhile, the video game industry’s rating system bears little resemblance to the other two (Fig 40), and the music industry uses only a single rating, “Parental Advisory: Explicit Lyrics” (Fig 41).

The solution here seems simple: a single, uniform, content-based ratings system that could be applied to all media that children and adolescents use and would be easily understandable by their parents. An external ratings board, with representation from the various industries, as well as parents, health professionals, and academics, could help to administer the system.382,385

5. Improve the portrayal of sex and sexuality in the media. Increasingly, the media have taken up the slack left by the absence of effective and comprehensive sex education in schools.1,4,391 The United States is the only Western country that rates more heavily against sex than violence in its mainstream media.381 European countries tend to have a much different,
healthier view on sex and teenagers. One recent study of teens in the Netherlands, France, and Germany concluded\(^{392}\) the following:

In the countries studied, adolescents are valued, respected, and expected to act responsibly. Equally important, most adults trust adolescents to make responsible choices because they see young people as assets rather than problems. That message is conveyed in the media, in school texts, and in health care settings.

By contrast, American media tend to view teenagers as “hormones with legs.” More than 80% of teenagers’ favorite shows contain sexual content, yet less than half refer to the risks or responsibilities of a sexual relationship.\(^{101}\) Meanwhile, the Federal government insists on funding abstinence-only programs to the tune of $50 million per year but forbids discussion of contraception or safe sex in the classroom.\(^{393}\) The inevitable result is that American teenagers receive inadequate and inaccurate information about sex and sexuality, which could explain why the United States continues to have the highest teenage pregnancy rate in the Western world.

Solutions include

- TV and movie writers, directors, and producers need to understand that they have become the de facto sex educators for young people in America. As such,
they need to take greater responsibility for the sexual dialogue and behavior that they depict, particularly in shows and movies that are popular with teens (Fig 42).

- Birth control needs to be advertised on prime-time television and on MTV (Fig 43). It also needs to be featured prominently in programming.

- School sex education programs need to incorporate media education into their training. In addition, to counteract the suggestiveness of mainstream American media, school programs need to go beyond abstinence in teaching teens about birth control, STDs, and pregnancy.

6. Maximize the prosocial aspects of the Internet. The Internet represents nothing short of a revolution in the way that knowledge can be accessed and acquired. Used properly, it is an amazing tool for learning. Used improperly, it can expose children and adolescents to harmful sexual images, sexual exploitation, cigarette and alcohol advertising, and violent hate groups.

Blocking technology, alone, is not the answer. In a recent study, more than 3000 health Web sites and 500 pornography sites were tested against filtering products. Although filters could block up to 90% of pornography sites, “safe sex” sites were simultaneously blocked 33% of the time with the least restrictive filters, half of the time with intermediate filters, and 91% of the time with the most restrictive filters.

Nor are the courts likely to shut down pornographic sites on the Web. Regulating the Internet is nearly impossible since it is truly a World-Wide Web. In addition, there is a First Amendment/free speech issue as well, since adults have a constitutionally protected right to access such material. Finally, the US Supreme Court has been reluctant even to uphold a “virtual” child pornography law, overturning the most recent attempt in 2002. The Federal law made it a crime to have computer-generated pictures that look like real children engaging in sex acts.

Yet—in addition to increased vigilance on the part of parents (see solution No. 10)—the solutions are surprisingly simple:

- Creation of a kids’ top-level domain, reserved exclusively for material intended for and appropriate for children.

- Sex education programs in schools need to transcend abstinence. As a recent report commented:

  “. . .the most important finding of the committee is that developing in children and youth an ethic of responsible choice and skills for appropriate behavior is foundational for all efforts to protect them—with respect to inappropriate sexually explicit material on the Internet as well as many other dangers on the Internet and in the physical world. Social and educational strategies are central to such development. . . .”

- Creation of an xxx top-level domain for adult-oriented, sexually explicit material.

7. Improve the image of women in programming and advertising. Research shows that there are now tremendous sociocultural pressures on girls and young women to try to attain body shapes that are unhealthy, unnatural, and dictated by media norms. In addition, in mainstream media, women are frequently
depicted in unhealthy ways (eg, R-rated “slasher” movies, “bimbos” in music videos, and so on). Finally, in advertising, women are often depersonalized and reduced to body parts (Fig 44). Clearly, changing the way that women are portrayed in the media would require a quantum leap in the way that the media think and work. But change is possible, and solutions include:

- Encourage manufacturers and advertisers to produce ads that are not gratuitously provocative, suggestive, or demeaning (Fig 10). Also, the entertainment industry, companies, and advertisers need to be encouraged to show a variety of different sizes and shapes of women in their programming and advertising, not just abnormally thin young women (Fig 45).

- Insist that the entertainment industry understands that portrayals of violence against women are unhealthy for children and teenagers. Parents and policymakers also need to understand that the research views “slasher” movies as potentially more dangerous to teenagers’ attitudes towards women than nonviolent pornography.¹⁴

- Consider abolishing the telecast of beauty pageants, as the British Broadcasting Company (BBC) did in the 1980s.

8. Fund and conduct more research. Although the research on media violence is thorough, comprehensive, and authoritative, research on other areas of media impact is woefully incomplete. For example, there are only 7 studies to date on the impact of sexual content in the media on adolescents’ sexual behavior. Four new studies are ongoing,¹⁴⁰ but they will need to be re-funded and expanded. Specific research that is needed includes:

- A new 2008 National Institutes of Mental Health report that would summarize existing knowledge and research. The last such report was published in 1982. Since then, MTV has increased greatly in popularity, the Internet has begun, and video games have increased exponentially.

- More research on the use of media literacy in violence prevention programs in schools. Early re-
search seems to indicate that media literacy may represent a key component in preventing violence among children and adolescents. Activities might include visiting a TV or movie set, having a stunt man explain how fights are choreographed, watching and discussing a variety of violent media, asking students to design their own antiviolence public service announcement, or having students do their own content analyses of violence in various media.

- Ongoing content analyses of violence and sex in television programming, movies, and rock music lyrics. Currently, there is an every-other-year analysis of sexual content on television\textsuperscript{101} and intermittent content analyses of drug portrayals in rock music, music videos, television, and movies.\textsuperscript{155–157} To be effective and useful, content analyses have to be done consistently and be ongoing. This requires significant funding.

- Continued studies on the possible relationship between media exposure, obesity, and eating disorders.

- A longitudinal study of the impact of rock music and music videos on adolescent behavior and attitudes, particularly depression, suicide, antisocial behavior, smoking and drinking, and sexual behavior.

- An updated study on how advertising affects children and adolescents. Virtually all of the research in this area is either proprietary or was conducted more than 20 years ago.

- A study of in-school advertising and its effects on students.

- Additional research on how different individuals respond to different media. For example, a study of teens’ reactions to Madonna’s music video, “Papa Don’t Preach,” found different interpretations according to the race of the teenager.\textsuperscript{18}

- Further research establishing the effectiveness of media education programs. What components are essential? What is the minimum “dose” required?

Very little media research is currently being funded. The Kaiser Family Foundation has funded numerous projects, but other foundations have not shown much interest. Neither has the Federal government. For a subject area that cuts across most areas of public health concern (violence, sex, drugs), media research is remarkably underfunded.

9. Increase media education for children and adolescents. A century ago, to be “literate” meant being able to read and write. In the new millennium, being literate means being able to read, write, and interpret a dizzying array of media.\textsuperscript{396} The United States lags far behind other Western countries in providing media education for children.\textsuperscript{397} Parts of Canada and Australia mandate media education for all schoolchildren. Many other countries incorporate it into various parts of the school curriculum. In the United States, only New Mexico makes media education a part of the regular curriculum.\textsuperscript{398}

Media education has two significant benefits: (1) it holds the promise that young people can be successfully “immunized” against harmful media effects, and there are several studies to support this notion\textsuperscript{399–402} and (2) it is relatively uncontroversial, enjoying the support of public health activists and the entertainment industry alike.

Recently, a very simplified media intervention—reducing the total number of hours of television viewed and teaching children to become more “intelligent viewers”—has been shown to decrease (1) obesity,\textsuperscript{375} (2) children’s request for toys,\textsuperscript{403} and (3) aggressive behavior.\textsuperscript{404}

Like sex education and drug education, schools should not bear the sole burden of teaching these subjects. Parents, too, can play an important role, but only if they watch TV and movies with their children and discuss, explicitly, what is being viewed. Organizations such as the New Mexico Media Literacy Project (www.nmmlp.org) and the National Institute on Media and the Family (www.mediafamily.org) have many materials suitable both for classroom and home use. A number of popular books are also available to help teach parents media education skills.\textsuperscript{405–408}

Solutions include:

- A Federal or state mandate to incorporate media education into every school system in the United States
- Use of media education materials in existing sex education and drug education curricula.
- Increased funding for media education research.
- More widespread dissemination (by the AAP and other organizations) of media education materials for parents.

10. Increase media education for parents and pediatricians. Parents are frequently guilty of using the TV as an electronic baby-sitter. Two national studies have found that a surprising number of children have a television set in their bedroom (Fig 46):
approximately 25% of young children, 50% of older children, and nearly two thirds of teenagers. A recent study of 1200 Boston-area sixth and seventh graders found that 54% of them reported having a TV set in their bedroom. Although parents often express a great deal of concern about media influence, they still allow their children to spend nearly 6.5 hours per day using media (Fig 47). Furthermore, nearly half of the students in the recent Boston study reported that their parents set no limits on their TV viewing.

Pediatricians are not much better. Many still have TV sets on in their waiting rooms, and most children’s hospitals do not exercise much control of programming in patients’ rooms. A recent study of the 209 accredited pediatric residency programs in the United States found that less than one third offered formal training about media influence.

Specific solutions include:

- Pediatricians need to learn to take media histories, especially when they are seeing a child or teenager with
  - Aggressive behavior in school
  - Learning difficulties
  - Obesity
  - Depression or suicidal ideation
  - Eating disorders
  - The American Academy of Pediatrics and other professional organizations need to devote more of their continuing medical education time to issues involving media influence, since the media cut across so many issues that the Academy has historically been concerned about (violence, drugs, sex, etc).
- Parents need to take back control of media in their households. This includes
  - Limiting total media time to no more than 1 to 2 hours per day
  - Monitoring their children’s media use
  - Coviewing TV and movies
Keeping TV sets and Internet hook-ups out of children’s bedrooms

- Preempting the media by discussing key issues with children and teens (e.g., sex, drugs, and so on) (see Table 13).

11. Use media to campaign for health and for prosocial purposes. The media are not all “good” or “bad.” Sometimes, the power of different media can be harnessed for prohealth or prosocial purposes. But the impact of the media is sufficiently complex in some circumstances that success can not always be guaranteed. For instance, a $32 million AIDS campaign in Great Britain accomplished little more than raising people’s anxiety about AIDS. On the other hand, a $50 million antismoking campaign in Massachusetts cut the onset of smoking among young teens by 50%. In California, the state spent $14.5 million annually to confront the cigarette industry using billboards, with a resulting decline in sales that was 3 times faster than anywhere else in the country. A 1988 teen pregnancy campaign in Baltimore used TV ads, billboards, and ads on the sides of buses to target 9-to-14-year-olds with messages such as “Virgin: Teach your kids it’s not a dirty word.” The $7 million a year campaign contributed to a 10% reduction in teen pregnancies.

One of the most famous public health campaigns was the Partnership for a Drug Free America’s antidrug advertising blitz, with the famous “this is your brain/this is your brain on drugs” fried egg ad. According to one study, 75% of nearly 1000 middle and high school students reported that after seeing such ads, they had decreased, stopped, or been convinced never to begin using drugs. NIDA is currently engaged in a $200 million a year campaign for 5 years. However, neither campaign ever took on the powerful alcohol or tobacco industries. The American Legacy Foundation did, with its “Truth” antitobacco campaign. In one ad, which aired during the 2000 Summer Olympics, teenagers were shown at clubs and beaches, surrounded by body bags instead of friends. The ads target teens with messages that they are being manipulated into buying cigarettes by big tobacco, an important tenet that is also taught in antidrug media education curricula.

Some researchers feel that a better approach is to convince the entertainment industry to incorporate positive health messages into mainstream programming, a practice known as “edutainment.” The Harvard Alcohol Project’s designated driver concept did this, with some success. More recently, the producers of the highly rated show ER agreed to write about the need for emergency contraception in two of their plot lines. A follow-up study showed that this did, in fact, increase viewers’ awareness of emergency contraception by 17% (Fig 48).

Research also shows that the media can be powerfully prosocial at times. Clearly, the most prosocial programming occurs on PBS (72% in one study), and preschool children are the most frequent beneficiaries. Many studies have documented that the media can teach children and teens.

- Altruism and helping behavior.
- Helping behavior rather than hurtful behavior.

### TABLE 13. Are parents “clueless” about their teens’ risky behavior?

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Student admits to being involved (n = 89) (percentage)</th>
<th>Parents think their teen is not involved (n = 96) (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrying a weapon to school</td>
<td>25</td>
<td>98</td>
</tr>
<tr>
<td>Suicide attempt</td>
<td>22</td>
<td>98</td>
</tr>
<tr>
<td>Sexual intercourse</td>
<td>58</td>
<td>98</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>55</td>
<td>95</td>
</tr>
<tr>
<td>Marijuana use</td>
<td>38</td>
<td>97</td>
</tr>
</tbody>
</table>


![FIG 48. ER and emergency contraception. A successful example of "edutainment" in which important health messages are embedded in mainstream programming.](image-url)
A variety of other qualities, including friendliness, imagination, racial and ethnic tolerance, and respect for elders.

Possibilities here include

- National antidrug campaigns need to recognize that tobacco and alcohol are the two most significant drugs that children and teenagers encounter and tailor their campaigns accordingly.

- Increased funding needs to be provided for aggressive and creative anti-smoking and anti-underage drinking campaigns.

- The networks need to increase the amount of prosocial programming they produce and air to children and adolescents.

- More research is needed into how to tailor prosocial messages in the media to reach young people.
12. Increase media advocacy efforts. What, exactly, is media advocacy? One definition is the “strategic use of mass media for advancing a social or public policy initiative.” It represents a departure from the more traditional “health belief model,” which theorizes that if a person knows all of the facts, he or she will choose the healthier alternative. The health belief model blames the victim. The media advocacy model blames the purveyors of unhealthiness—the tobacco manufacturers, for example—rather than the smokers. The “Truth” campaign is a good example of refocusing the debate in media advocacy terms by showing the duplicity of the industry in not admitting that nicotine is addictive. Successful reframing involving exposing unethical industry practices rather than urging individuals to improve their health by changing their behavior.

Behind media advocacy lies the hypothesis that individuals are powerless to change unhealthy behaviors unless public policy supports their changing.

Solutions involving media advocacy include:

- More aggressive counteradvertising against common public health problems in the United States such as violence, smoking, and underage drinking (Fig 49). This might mean having the major public health organizations orchestrate a massive public health campaign against underage drinking and smoking, for example.
- Better and more sustained campaign finance reform. Whenever Congress is poised to regulate the tobacco, alcohol, firearms, fast food, or entertainment industries, a flood of “soft money” pours in which nullifies any action. For example, in 1998, the US Senate rejected a new tobacco bill that would have tried to decrease teen smoking by increasing the federal tax on a pack of cigarettes to $1.10. The tobacco lobby reportedly spent millions of dollars to influence the vote.
- Pediatricians should be on the front lines for media advocacy issues. To accomplish this, the American Academy of Pediatrics should have a committee devoted exclusively to children, adolescents, and the media.

Conclusion

In 1961, FCC chairman Newton Minow shocked the broadcasting industry by calling American television
“a vast wasteland.”424 Thirty years later, Minow wrote: “In 1961, I worried that my children would not benefit much from television. But in 1991, I worry that my grandchildren will actually be harmed by it.”

The great tragedy of American media is that they can be so astoundingly creative, informative, and provocative at times, yet they continue to do so little for children and adolescents. It is up to pediatricians and other public health activists to teach parents how to harness the good aspects of media for their children and to teach the entertainment industry that it has major responsibilities for young people that it has not fulfilled (Fig 50).

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