Scientists who monitor television and other entertainment research say one message is clearly being broadcast - media violence can foster aggression in youngsters.

Decades of studies on television and movies, along with a growing body of data on video games, have yielded undeniable evidence of a media-aggression link, an expert panel argues in a newly released treatise. Violence in such media more often contributes to milder forms of aggression, but its effects on more severe forms "are also substantial," the eight-member panel writes.

The panel makes its case in the most recent issue of the journal Psychological Science in the Public Interest. "The research is clear, it's solid, it's consistent, that there are these harmful effects," says panelist and media violence researcher Craig Anderson. "These harmful effects occur in both the short term and the long term. And the harmful effects are large enough that we as a society should be concerned."

The data are clearest for TV and movies, but the emerging body of video-game studies points in the same direction, the panel says. With television, scientists have decades-long studies where early exposure to violent media, along with later aggression, was measured, says researcher Jeanne Funk, who studies video games and violence. But video games haven't been around long enough for that to happen. While she praises the panel's work, she says, "I think we need a lot more than we have now on video games."

The new panel report outlines several explanations for how media violence may be influencing kids:

* Children learn social behaviors by observation, even though they are often unaware that learning has occurred. And they imitate what they've seen.
* Frequent exposure to violence may make aggressive thoughts or social "scripts" more readily available in a child's mind - making it easier to summon aggression-related emotions or behaviors in a given circumstance.
* Media violence causes physiological arousal, which may amplify an existing aggressive mood or tendency, among other things.
* Repeated exposure to media violence may "desensitize" a viewer, diminishing the unpleasant physical effects of seeing or thinking about violence. "Many youths who consume media violence will not be obviously influenced by it," the panelists point out, "but the psychological processes that can produce the effect operate in everyone, thereby putting all at some risk."

Influences vary

How much a child is affected by aggression seems influenced by various factors, the
panel writes. For instance, young children seem most vulnerable. And boys appear to be affected differently than girls.

Identifying with aggressive characters can enhance a child's risk of aggression, as can seeing violent characters portrayed attractively, research has suggested. Parental influence, meanwhile, can be an important moderator.

"Although there is evidence of a number of moderating factors," the panelists write, "there is no evidence that any group is completely protected from the effects of media violence or that any moderator provides complete protection."

The researchers also note that violence rarely results from a single cause. The influence of mass media is "best viewed as one of the many potential factors" that can shape behavior, the article states.

The panel, convened by the federal government in 2000 because of its members' expertise on media violence, was to contribute to a surgeon general's report on youth violence. But most of their contribution was omitted from the report after editors sought heavy revisions, the scientists said.

The group was chaired by longtime media violence researcher Rowell Huesmann of the University of Michigan. Besides Dr. Anderson, other members were Leonard Berkowitz of the University of Wisconsin; Edward Donnerstein of the University of Arizona; James D. Johnson of the University of North Carolina at Wilmington; Daniel Linz of the University of California, Santa Barbara; Neil Malamuth of UCLA; and Ellen Wartella of the University of Texas at Austin.

Further studies should explore just what can reduce children's exposure to violent media, the scientists wrote. In addition, very large, longer-term studies are needed to see exactly what role media violence plays in the rarest but most dangerous forms of aggression. Dr. Funk, a psychology professor at the University of Toledo, says research should focus more on protective influences - for instance, why two children can play the same violent game for the same amount of time, yet one child be more aggressive. It's also important to continue to study television, she says. "There's a different kind of TV now than there was 20 years ago," Dr. Funk says.

She is particularly interested in learning more about desensitization. "If people lose sensitivity to people in distress, I think that as an outcome would be as bad as being more aggressive," she says.
Evidence that media violence can affect aggressive behavior has been accumulating for decades, says Dr. Anderson, chairman of Iowa State University's psychology department. "Certainly by 1975, overall research evidence was strong enough to conclude that there is a real effect here," he says.

The medical community has worried about the issue since the 1950s. An American Academy of Pediatrics committee in 2001 urged pediatricians to work with government, educators and others "to keep media violence on the public health agenda."

Yet all that hasn't had a public impact, Dr. Anderson laments. "There's a need to make the case again because most people don't get it. There are very strong, very powerful forces at work, very wealthy forces that have essentially been quite successful at keeping many ... [people] unaware of how good the research is," he says.

Social science isn't like chemistry, where a scientist can control all facets of a chemical reaction, Dr. Funk notes. "In social science we look at things over the long term to see how behavior changes, but we can't control every aspect of a person's environment. So there are some inferences we're making based on accumulated data." Because of that, "some people feel that research on violence in the media can never be as convincing as it needs to be," she says.

Other people doubt the findings, she says, because murder is not rampant even though media violence is. "But I think what these researchers are saying is that some people become obviously violent; some people probably become more aggressive in subtle ways."

Critics tied to the entertainment industry have worked on a number of fronts to discount the media violence findings. "They have a playbook almost," Dr. Anderson says. By discounting one aspect of one type of study, and another aspect of another type, they cast doubt on a whole body of evidence, he says.

By the time you dismiss an array of research approaches, "you've pretty much ruled out the possibility that there will be any research that will show ... one of these motivated skeptics that their product is harmful."

While the panel says that no single approach can prove a link between media violence and aggression, different studies together point to the same conclusion. Although statistically the effect of violent media on societal aggression is small, the impact is amplified because a broad population is repeatedly exposed, the scientists note.
"If parents really understood what the research shows about these effects, the viewing habits of children would change rather dramatically," Dr. Anderson says.

Shielding youngsters

A 2000 report to Congress by the Federal Trade Commission found that the movie, music and video-game industries frequently marketed violent fare to children despite cautionary messages the companies had devised to inform parents. In a test, teens ages 13 to 16 could buy tickets for R-rated movies in almost half of their attempts.

Follow-up reports have noted progress. However, a 2002 FTC report found that movie studios continue to advertise R-rated films on TV shows that are popular with teens. Video games rated M, for "mature" players, continued to be advertised in youth game magazines.

"You can't rely on an industry to self-police," Dr. Anderson says.

Parents, however, may have difficulty weeding out violence from children's video-game fare. One analysis, of 396 games rated for teen use, found that 94 percent were described as including violence, scientists from Boston's Children's Hospital and the Harvard School of Public Health found. In a smaller, random sample of 81 such games, 90 percent required or rewarded the player for injuring characters - and most of those games required or rewarded killing, the scientists reported in February in The Journal of the American Medical Association.

A recent survey found that fifth-grade boys average 19 hours a week, and eighth-grade boys 23 hours, playing video games. The survey found that girls spend roughly half as much time playing the games, reports Bradley Greenberg of Michigan State University and colleagues. While girls preferred board games, card or dice games, quiz, arcade and puzzle games, boys favored games involving fighting, shooting, sports, fantasy role-playing, action-adventure and strategizing.

Although less is known about the effects of violent video games, the psychological processes underlying the link to aggression appear to be the same as with TV and film, Dr. Anderson argues. Still, scientists don't know things like whether an hour of playing a violent video game could be worse than an hour of a violent TV show.

Television research has suggested that identifying with a character - as a child might do
for a video character he controls - increases propensity for aggression, Dr. Anderson says. And because a player is actively engaged, he may be more likely to learn violence than with an activity that requires less engagement.

A new study by Dr. Funk has found that fourth- and fifth-graders who play violent games have lower empathy and stronger pro-violence attitudes than peers who don't. While that doesn't prove the games caused the attitudes, "it's still an interesting link," she says. That study also found elevated pro-violence attitudes among children who saw violent films, but no link for television or the Internet. The research assessed children's exposure by asking them what their favorite games, TV shows and movies were. "Kids weren't watching violent programs," Dr. Funk says. "So it made us think in this group that parents were probably monitoring TV," but maybe not cable or rental movies.

Whether it's video games or movies or television, Dr. Anderson says, parents need to be cautious. "Anything that gets kids thinking about violent solutions to problems and observing violent solutions to problems is going to have some negative impact," he says. Dr. Funk would like parents to be especially vigilant for children age 12 and younger. "Somewhere in that early adolescence you are probably going to have to let go," she says. "But if you've done the right education up till then, about what's real and what's not real, and that violence has consequences, and talking about good ways to solve problems ... that's the best the parent can do."

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RESOURCES
* To read the Psychological Science in the Public Interest report "The Influence of Media Violence on Youth," visit www.psychologicalscience <http://www.psychologicalscience.org/journals/index.cfm?journal=pspi&content=pspi/4_3>
* For a statement on media violence by the American Academy of Pediatrics' Committee on Public Education, visit <http://pediatrics.aappublications.org/cgi/content/full/108/5/1222>
* To read the U.S. surgeon general's 2001 report on youth violence, as well as related material, visit www.surgeongeneral.gov/library/youthviolence/youvioreport.htm <http://www.surgeongeneral.gov/library/youthviolence/youvioreport.htm>