

sion. That the effect was found in such a sample may attest to the insidious power of exposure to literary scriptural violence."<sup>40</sup>

We should note that the lead author of this research article, Brad Bushman, PhD, is well known for his research on the potentially harmful effects of video games, and we commend him for exploring this "politically incorrect" topic. But we also note that in their conclusion, the researchers offer advice that is quite different from that offered by many video game researchers, including Bushman, who found less-compelling results when measuring the effects of that medium:

"Does this ultimately mean that one should avoid reading religious canon for fear that the violent episodes contained therein will cause one to become more aggressive, or that individuals who read the scriptures will become aggressive? Not necessarily. Violent stories that teach moral lessons or that are balanced with descriptions of victims' suffering or the aggressor's remorse can teach important lessons and have legitimate artistic merit."<sup>41</sup>

Unfortunately, the story they used in their experiments does not teach any moral lessons. (To the contrary, the full text describes murder, capturing women as slaves and ways to get around promises that you've made.) There is very little description of the victims' suffering aside from the insult felt by the master of the concubine. Nor is there much remorse for their acts of genocide. So it's difficult to see what important prosocial lessons are being taught.

The authors tie this finding to the behavior of contemporary terrorists who are religious fundamentalists, stating that reading selected violent scriptures might partially account for their behaviors. In essence, they say that this type of violent religious story will have a good effect on most people, but a bad effect on a population that's at greater risk of violent behavior due to other causes. But video game opponents argue the opposite when it comes to that technology: the games are dangerous because their influence over real-world aggression and violence extends to a broad range of people.

What's sauce for the goose should be sauce for the gander.

#### CHAPTER 4

## Grand Theft Childhood?

For every problem there is a solution that is simple, neat and wrong.

—H. L. Mencken (1880-1956)

WE FOUND THE SOMEWHAT SARCASTIC QUOTE ABOVE reprinted in the unlikeliest of places: a federal government report called *The School Shooter: A Threat Assessment Perspective*,<sup>1</sup> published in 2000 by the FBI's National Center for the Analysis of Violent Crime. The report was written in response to the Columbine High School shootings in Littleton, Colorado, and was derived from detailed analyses of eighteen actual or successfully foiled school shootings.

At the time, politicians, pundits and school officials were calling for draconian actions to stanch the supposedly dramatic increase in school violence. Many of those crying the loudest lay blame for the school shootings on violent video games. At the FBI, cooler heads prevailed:

One response to the pressure for action may be an effort to identify the next shooter by developing a "profile" of the typical school shooter. This may sound like a reasonable preventive measure, but in practice, trying to draw up a catalogue or "checklist" of warning signs to detect a potential school shooter can be short-sighted, even dangerous. Such lists, publicized by the media, can end up unfairly labeling many nonviolent students as potentially dangerous or even lethal. In fact, a great many adolescents who will never commit violent acts will show some of the behaviors or personality traits included on the list. . . .

At this time, there is no research that has identified traits and characteristics that can reliably distinguish school shooters from other students. Many students appear to have traits and characteristics similar to those observed in students who were involved in school shootings.<sup>2</sup>

The FBI report mentions violent video games only in passing and within the context of pathological behaviors and personality types. It drives a metaphorical stake through the heart of the “violent video games cause school shootings” myth.

But school shootings are extremely rare events. Could playing violent video games promote aggressive behavior, increase fear, or desensitize children to violence? If the answer is “yes” or “maybe,” then which kids are at greatest risk? Does the amount of time spent playing games matter, or who kids play with? Are there particular types of games that are worse for kids? And what can we do as parents to protect our kids?

Since 2004, we’ve been researching the answers to questions like these. In this chapter, we’ll share findings from our survey of 1,254 middle school students in Pennsylvania and South Carolina. We’ll also draw on comments from in-depth focus groups with middle school boys from Massachusetts who play violent video games.

## How We Gathered Our Data

We ended chapter 3 with a list of questions you can use to judge the value of any video game violence study. In fairness, we should begin by answering those questions about our own study of middle school kids.

**Whom did we study?** We conducted detailed, written surveys in the classrooms of seventh and eighth graders in two middle schools in Pennsylvania (664 students) and South Carolina (590 students) during a Language Arts/English period. Nearly all of the participants were twelve to fourteen years old; half were thirteen.

We chose these schools because they gave us a good mix of kids—Northeastern and Southern, boys and girls, white and black, suburban and small city, richer and poorer—to make our results more applicable to Ameri-

can teens in general. Just as important, the principals and teachers were enthusiastic about working with us on the research. (Latino and Asian teens were underrepresented among the children we studied. We will include more of them in future research.)

We received approval from our human subjects committee at Massachusetts General Hospital to use “opt-out” consent forms. That meant that we could let parents know how to contact us if they didn’t want their child included. Only a handful of parents and/or their children opted out of the survey. This meant our response rate was unusually high; virtually every eligible child who came to school that day took the survey. (School administrators exempted a few classrooms because the children had limited English skills or had disabilities that were serious enough to prevent them from participating.) To make the kids more comfortable and to encourage honest answers, their teachers never saw or touched the surveys.

**How did we define “violence” in video games?** At first, we planned to use Entertainment Software Rating Board “content descriptors”—the short phrases that appear on the back of the game box, under the letter rating. We developed a scale that rated violence from 0 to 3:

- 3 (high): “intense violence” or “sexual violence”
- 2 (moderate): “fantasy violence,” “realistic violence” or “violence”
- 1 (low): other violence-related descriptors (e.g., “mild realistic violence,” “cartoon violence”)
- 0: no violence-related descriptors.

Unfortunately, these content descriptors were not designed to be rank ordered, so we weren’t sure whether a 3 might be worse than a 2, and if so, by how much. They also didn’t tell us anything about the context of violence, such as whether violent behavior is rewarded, which could affect the potential for imitation.

Parents in our focus groups seemed most concerned about games rated M (Mature, for ages seventeen and older). Virtually all games assigned this rating have substantial violent content; some have sexually suggestive content or nudity. Many proposed state and federal policies aim to keep M-rated games out of the hands of children under seventeen. So, to make the clearest and most useful distinction, we focused on children’s exposure to M-rated games.

**How did we measure exposure to video game violence?** We asked participants to “list five games that you played a lot in the past six months.” This was a straightforward way to find out which ones had recently spent a lot of time with M-rated games. All survey questions were about “electronic games,” which we defined for them as “computer games, video games (Xbox, PlayStation, GameCube, etc.) and handheld games (Game Boy, etc.).”

Of the 1,254 kids who filled out surveys, 1,126 wrote down at least one game title, and most listed five. Our research assistants spent days combing through the survey forms, entering game titles into a database and matching them with ESRB ratings. (In cases where a child wrote a game series name, and that series had some recent titles with different ratings, we assigned the lower age rating to that child’s game.)

Since the kids listed more than five thousand game titles or series, we merged titles from series with similar content and mode of play (e.g., *The Sims*) into single categories for analysis, ending up with about five hundred unique titles of games or game series. Over half were listed by only one child; 119 were listed by five or more children.

To help their memories, we also gave them a list of several hundred of the most popular games. As a check on the validity of their reporting, that list included some realistic titles of nonexistent games. No one selected a fake game title. All of the titles written down by the participants actually existed. This provides evidence that they were responding honestly.

**How did we define “aggression”? What did we use as a measure of aggression?** We reviewed existing research to find the best survey questions related to aggressive behaviors and attitudes, and to being a victim of aggression. We also asked about problems at school (such as getting into trouble with a teacher or principal) and delinquent behavior (such as damaging property for fun).

To make it easier to compare our results to those of other studies, we adapted or used questions from validated surveys designed for children or teens, including the Olweus Bully/Victim Questionnaire,<sup>3</sup> the Profiles of Student Life: Attitudes and Behaviors survey,<sup>4</sup> the Youth Risk Behavior Survey,<sup>5</sup> and other public-domain questionnaires compiled by the Centers for Disease Control.<sup>6</sup>

**How did we justify the relationship of this measure to real-world aggression or violence?** We asked kids about real-world behavior and expe-

riences. We didn’t ask about violent crime; we didn’t expect that to be common among kids going to regular public schools, and we didn’t want to ask kids to incriminate themselves.

**How meaningful are the results?** The differences between groups were large enough to make our results statistically significant. But were they of practical significance? As you’ll see, in some cases, kids who regularly played M-rated games were two or three times more likely than others to have certain problems or experiences.

However, a cross-sectional study design can’t prove cause and effect; it can only show correlations. In other words, a one-time survey can’t tell us if, for example, playing M-rated games actually encouraged or triggered aggressive behaviors. It could be that kids who got into fights or suspended from school were more attracted to violent games, or that some third factor influenced both the violent game play and the aggressive behaviors.

Because of these limitations, we focused on identifying unusual patterns of play that could be markers of increased risk for aggression, or for other behavioral or emotional problems.

## What’s Normal?

To understand which children might have problems with video games, we first need to know what typical game play looks like. A few studies have looked at how much time children and teens spend with video games. In 2005, the Kaiser Family Foundation surveyed over two thousand kids in grades three to twelve.<sup>7</sup> On average, young teens spent seventeen minutes per day on computer games, thirty-two minutes on console games, and twenty minutes on handheld games.

The chart below shows some of the most common and striking game play habits of the boys and girls in our survey. Just seventeen children out of 1,254 had never played video or computer games; sixty-three others had not played during the six months prior to the survey. (Those eighty students were left out of our analyses.)

It’s clear that typical video game play for seventh- and eighth-grade boys is very different from the norm for girls. When we asked children how many days per week they usually spent playing electronic games,

GAME PLAY HABITS	BOYS	GIRLS
Plays less than an hour per week	8%	32%
Plays 6 or more hours per week	45%	14%
Plays 15 or more hours per week	13%	2%
Plays 1 day per week	9%	23%
Plays 6 or 7 days per week	33%	11%
Usually plays games only on weekends	37%	43%
Plays games on at least 2 of these: computer, console, handheld device	84%	73%
Often/always plays alone	63%	46%
Often/always plays with multiple friends in the same room	33%	13%
Often/always plays games with friends over the Internet	11%	12%
Often/always plays games with strangers (people they'd never met in person) over the Internet	10%	5%

the most common response for girls was one day per week; for boys, it was six or seven days per week.

Half the girls and three-quarters of the boys said they often or always played video games at home. It was also common for boys in particular to play at a friend or relative's house.

Video games seem to have a more central role in the social lives of boys than of girls: although most boys played games alone at times, most also routinely played with one or more friends. Just 18 percent of boys and 12 percent of girls said they always played alone.

### How Many Kids Are Playing Violent Games?

When we began planning our research studies, our son was in his last year of middle school. *Grand Theft Auto: Vice City* had recently come out. Our son mentioned that he was getting a little tired of hearing the boys at school, including the younger ones, brag about how they just got the game or talk excitedly about getting it soon. We thought he was exagger-

ating; after all, some of these kids were just eleven or twelve years old. This was a game rated M, for ages seventeen and up. How could so many of them be playing that game? We figured that maybe a few kids with older brothers at home would see it.

When our survey results came back, we learned that our son had been, if anything, understating the situation.

### Games Thirteen-Year-Olds Play

Monthly and annual sales figures for video and computer games are tracked by corporations such as the NPD Group and are easy to find

#### Game Popularity: Frequency (%) of Games Among the Five Played Most Often by Boys in the Previous Six Months

GAME RANK	TITLE AND ESRB GAME/SERIES RATING	# OF BOYS LISTING ONE OR MORE IN THAT SERIES	ESRB CONTENT DESCRIPTORS
1	<i>Grand Theft Auto</i> (M)	242 (44%)	Blood and Gore, Intense Violence, Strong Language, Strong Sexual Content, Use of Drugs
2	<i>Madden NFL</i> (football) (E)	189 (34%)	No Descriptors
3	<i>Halo</i> (M)	154 (28%)	Blood and Gore, Violence
4	<i>NBA</i> (E)	111 (20%)	No Descriptors
5	<i>Tony Hawk</i> (skateboard) (T)	90 (16%)	Blood, Crude Humor, Language, Suggestive Themes, Use of Alcohol, Violence
6	<i>NCAA</i> (E)	85 (16%)	No Descriptors
7	<i>Need for Speed</i> (racing) (E or T)	76 (14%)	Mild Language, Suggestive Themes
8	<i>ESPN</i> (sports) (E)	56 (10%)	No Descriptors
9	<i>Medal of Honor</i> (T)	40 (7%)	Violence
10	<i>The Lord of the Rings</i> (T)	28 (5%)	Violence

**Game Popularity: Frequency (%) of Games Among the Five Played Most Often by Girls in the Previous Six Months**

GAME RANK	TITLE AND ESRB GAME/SERIES RATING	# OF GIRLS LISTING ONE OR MORE IN THAT SERIES	ESRB CONTENT DESCRIPTORS
1	<i>The Sims</i> (T)	177 (32%)	Crude Humor, Sexual Themes, Violence
2	<i>Grand Theft Auto</i> (M)	112 (20%)	Blood and Gore, Intense Violence, Strong Language, Strong Sexual Content, Use of Drugs
3	<i>Super Mario Brothers</i> (E)	73 (13%)	No Descriptors
4	<i>Tycoon</i> games (simulations) (E)	69 (12%)	Comic Mischief, Mild Violence
5	<i>Mario</i> games (unspecified) (E)	64 (11%)	No Descriptors or Mild Cartoon Violence
6	<i>Solitaire</i> (E)	63 (11%)	No Descriptors
7	<i>Tony Hawk</i> (skateboard) (T)	57 (10%)	Blood, Crude Humor, Language, Suggestive Themes, Use of Alcohol, Violence
8	<i>Dance Dance Revolution</i> (E)	55 (10%)	Lyrics, Suggestive Themes
9	<i>Mario Kart</i> (racing) (E)	53 (10%)	Mild Cartoon Violence
10	<i>Frogger</i> (E)	45 (8%)	No Descriptors

online. Unfortunately, there is no list of top-selling games by age of purchaser or player. That's why we need to ask children directly about what they play. In our survey, most game titles that kids listed (58 percent) were rated E; 20 percent were rated M. But some M-rated games were extremely popular.

Almost half of these middle school kids played at least one M-rated game "a lot": 68 percent of boys and 29 percent of girls. There was no difference by age group; about as many twelve-year-olds played M-rated

games as did fourteen-year-olds. Ten percent of children played predominantly M-rated games (at least half of the games they listed were rated M).

The intensely violent, satirical *Grand Theft Auto* series was number one among boys and number two among girls; 44 percent of boys and 20 percent of girls routinely played one or more *GTA* games. The top five M-rated game series (based on the number of children who had at least one game in that series on their five-most-played list) were: *Grand Theft Auto* (listed by 359 children), *Halo* (185), *Def Jam* (52), *True Crime* (37) and *Driver* (34).<sup>\*</sup> The average (mean) number of M-rated games played was similar in Pennsylvania and South Carolina.

Since we only asked about "five games played a lot," many more children had probably played a popular M-rated game at least once or twice. The Kaiser Family Foundation's 2005 media survey asked kids if they had ever played a *Grand Theft Auto* game; three-quarters (77 percent) of boys in grades seven to twelve said that they had.<sup>8</sup>

Are children who regularly play Mature-rated games different from children who don't? We compared children who had at least one M-rated title on their list of five games they played a lot to children who listed only games rated E or T.

As a group, children who played M-rated games spent more time with games. They were significantly more likely to play almost every day and to play fifteen or more hours a week. They were also more likely to play with several friends or to play with an older sibling. Teens who had a game console and computer in their bedroom were also more likely to play M-rated games.

Now that we have a glimpse at what typical video game play looks like, what patterns of play are less typical and may require watching by parents? First, most young adolescents who play M-rated games also play less-violent games. Playing M-rated games almost exclusively at that age is unusual enough to be a potential warning sign.

Also, boys were much more likely than girls to have played at least

<sup>\*</sup> Note that because a few children skipped the survey question about gender, these totals are a little different than the numbers in the game popularity charts.

## Portrait of the "M-Rated Game" Player

	PLAYED AT LEAST ONE M-RATED GAME "A LOT"	NO M-RATED GAMES ON THEIR "PLAYED A LOT" LIST
Plays 15 or more hours per week	11%	3%***
Plays 6 or 7 days per week	33%	14%***
Often/always plays with multiple friends in the same room	32%	16%***
Often/always plays with an older sibling	22%	12%***
Often/always plays games with friends over the Internet	14%	11%**
Often/always plays games with strangers over the Internet	11%	4%***

\*\* STATISTICALLY SIGNIFICANT DIFFERENCES AT THE  $P < .01$  LEVEL.

\*\*\* STATISTICALLY SIGNIFICANT DIFFERENCES AT THE  $P < .001$  LEVEL.

one M-rated game "a lot in the past six months." They were also far more likely to play fifteen or more hours per week. This significant gender difference indicates that parents might keep an eye on girls who are frequent players of violent games.

Boys who never play video games are extremely unusual. Since game play is often a social activity for boys, this could be a marker of social problems that bear looking into. Contrary to parents' fears, M-rated game use was linked to playing with friends and was not associated with more time spent in solitary play. Many children have game consoles or computers in their bedrooms, and this is linked to greater amounts of play in general and more M-rated game play in particular.

Finally, we found that children who played M-rated games were twice as likely to play often or always with an older brother or sister. Given this correlation, if you have older teens or young adult children who are often at home, it might be wise to ask them to be careful about exposing younger siblings to mature content.

## Do Violent Games Lead to Behavior Problems?

We asked boys in our focus groups whether the shooting, fighting and blood in the games they played might affect their behavior. Most said no; a few were concerned.

Eric: "Yeah, definitely. 'Cause you might not want to fight a lot, and then when you play one of these games, you might want to fight more, so you might get in trouble a lot more."

Researcher: "Has that ever happened to you?"

Eric: "No, not really."

Researcher: "Has anybody you know gotten into trouble because they play a lot of violent games?"

Eric: "No, not really."

Researcher: "But you just figure it's logical, or . . . ?"

Eric: "Yeah, it could happen."

When pressed, not one boy could point to anyone they knew whose behavior was noticeably influenced by violent games. The same held true for the parents we spoke with. While some expressed concerns or repeated stories they'd read and heard, not one said that they actually knew someone who'd been affected. Perhaps the urban legends and histrionic news reports of video game players suddenly going on real-world shooting rampages had caused them to focus on the wrong behaviors. Or perhaps the effects are more subtle.

We noted earlier that violent crime has steadily decreased since the mid-1990s, over a period when video games—including violent ones—became increasingly available to children. But the pattern is different for less visible aggressive acts. For reasons not yet understood, arrests for simple assault (actual or attempted attack, without a weapon) increased by 106 percent for boys and 290 percent for girls between 1980 and 2004.<sup>9</sup>

Bullying at school also seems to be increasing in the United States, although it's hard to tell how much because of changes in how survey

questions were worded. In 2005, about 28 percent of students aged twelve to eighteen said they'd been bullied at school (from being made fun of or excluded to being pushed, tripped or spat on) at least once in the past six months. About 9 percent had been physically bullied in some way; a quarter of that group said they'd sustained cuts or bruises, chipped teeth, or worse. Young teens were most likely to be victimized.<sup>10</sup>

The focus on school shootings had diverted attention from these everyday problems young people face. Studies conducted in twenty-five countries found broad variation in rates of bullying, but surprisingly similar problems were associated with it. Young teens who are bullies or victims are at greater risk for a range of problems involving emotional adjustment, peer relationships, and physical health. They are also more likely to carry weapons. Worse, these problems can persist into adulthood. Bullying is no longer seen as a trivial and temporary predicament of childhood, but as a public health problem.<sup>11</sup>

Could violent video games have a role in encouraging bullying, or other aggressive or delinquent behaviors? To answer this question, we need to know if there's any real-world relationship between those behaviors and children's exposure to violent video games.

Along with questions about video game play, our middle school survey asked children how many times they'd been involved in any of a dozen undesirable behaviors or situations during the past twelve months: from beating up someone, to getting in trouble at school or with police, to being victimized. We divided the group into kids who'd been involved at least once in the past year and kids who had not been involved. In line with previous research,<sup>12</sup> we set a higher bar for bullying; to be counted, it had to occur at least two or three times a month over the last couple of months.

We then compared children who had any M-rated games on their "played a lot in the past six months" list to children who listed only E- or T-rated games, to see if these two groups were equally likely to be involved with problem behaviors. They were not.

Girls who played M-rated games were significantly more likely to be involved in seven of the twelve problem behaviors. For boys, six of the twelve problem behaviors were significantly more likely among M-game players

Brace yourself for a bit of mathematics here. In the end, it will be worth it. The next two tables and the statistical analysis contain a wealth of information.

### Problem Behaviors and M-Rated Game Preferences: Girls

PROBLEM AREA	TYPE OF BEHAVIOR PREVIOUS 12 MONTHS	OVERALL PERCENTAGE OF GIRLS INVOLVED IN BEHAVIOR	PERCENTAGE OF M-GAMERS	PERCENTAGE OF NON-M-GAMERS
AGGRESSION AND BULLYING	Been in a physical fight	20.9%	40%	14%**
	Hit or beat up someone	34.5%	49%	29%**
	Took part in bullying another student <sup>†</sup>	4.4%	6%	4%
DELINQUENT BEHAVIORS	Damaged property just for fun	7.9%	15%	5%**
	Got into trouble with the police	1.8%	2%	2%
	Stole something from from a store	9.8%	14%	8%
SCHOOL PROBLEMS	Got poor grades on a report card	23.7%	37%	20%**
	Skipped classes or school without an excuse	10.8%	20%	7%**
	Got into trouble with teacher or principal	35.5%	49%	31%**
	Got suspended from school	8.4%	16%	5%**
VICTIMIZATION	Been threatened or injured with a weapon	9.0%	14%	7%*
	Been bullied at school <sup>†</sup>	6.9%	8%	6%

\* STATISTICALLY SIGNIFICANT DIFFERENCE WITHIN GENDER BETWEEN M-GAMERS AND NON-M-GAME AT THE P<.05 LEVEL.

\*\* STATISTICALLY SIGNIFICANT DIFFERENCE WITHIN GENDER BETWEEN M-GAMERS AND NON-M-GAME AT THE P<.01 LEVEL.

<sup>†</sup> THIS BULLYING OCCURRED AT SCHOOL AT LEAST TWO TO THREE TIMES PER MONTH OVER THE PAST FEW MONTHS: OLWEUS BULLY/VICTIM QUESTIONNAIRE DEFINITIONS.

### Problem Behaviors and M-Rated Game Preferences: Boys

PROBLEM AREA	TYPE OF BEHAVIOR PREVIOUS 12 MONTHS	OVERALL PERCENTAGE OF BOYS INVOLVED IN BEHAVIOR	PERCENTAGE OF M-GAMERS	PERCENTAGE OF NON-M-GAMERS
AGGRESSION AND BULLYING	Been in a physical fight	44.4%	51%	28%**
	Hit or beat up someone	53.2%	60%	39%**
	Took part in bullying another student <sup>†</sup>	9.2%	10%	8%
DELINQUENT BEHAVIORS	Damaged property just for fun	18.6%	23%	10%**
	Got into trouble with the police	4.9%	6%	2%
	Stole something from from a store	10.5%	13%	6%*
SCHOOL PROBLEMS	Got poor grades on a report card	31.6%	35%	23%**
	Skipped classes or school without an excuse	11.2%	13%	8%
	Got into trouble with teacher or principal	52.9%	60%	39%**
	Got suspended from school	20.1%	22%	15%
VICTIMIZATION	Been threatened or injured with a weapon	12.6%	15%	6%**
	Been bullied at school <sup>†</sup>	10.2%	8%	15%*

\* STATISTICALLY SIGNIFICANT DIFFERENCE WITHIN GENDER BETWEEN M-GAMERS AND NON-M-GAMERS AT THE  $P < .05$  LEVEL.

\*\* STATISTICALLY SIGNIFICANT DIFFERENCE WITHIN GENDER BETWEEN M-GAMERS AND NON-M-GAMERS AT THE  $P < .01$  LEVEL.

<sup>†</sup> THIS BULLYING OCCURRED AT SCHOOL AT LEAST TWO TO THREE TIMES PER MONTH OVER THE PAST FEW MONTHS; OLWEUS BULLY/VICTIM QUESTIONNAIRE DEFINITIONS.

### What These Data Mean

Let's take a look at the first chart for a minute. Among all the girls we surveyed who played video games, 20.9 percent said that they'd been in

at least one physical fight during the previous year. Among those girls who included at least one M-rated game on their "most played" list (M-gamers), 40 percent reported being in a fight. This compares with 14 percent of those girls who played games, but who didn't include any M-rated games on their list (non-M-gamers). This difference between M-gamers and non-M-gamers is statistically significant at the  $p < .01$  level; the odds of a difference that big occurring by chance is less than one in one hundred.

Among boys, 51 percent of the M-gamers and 28 percent of the non-M-gamers reported getting into a fight during the past year. This difference is also statistically significant at the  $p < .01$  level.

We found significant relationships between M-rated game play and a broad range of aggressive or problem behaviors among middle school students. In fact, M-gamers were more likely to be involved with every one of these problems than non-M-gamers—with one exception (see below). Some of these associations, especially for less-common issues such as getting into trouble with police, were only trends; a few others were only significant at the  $p < .05$  level (i.e., odds of one in twenty that those results occurred by chance). We'd need to repeat this study with more kids to see if those trends might turn out to be significant associations. What's more, in most cases the odds of engaging in these behaviors at least once during the previous year increased with the relative "dose" of M-rated game exposure: the more M games on children's lists, the greater the relationship.

Again, playing M-rated games may not be the cause of such problems as lower grades in school; it may be that children doing poorly in school are attracted to these games so that they can be successful at something. There may be other factors influencing both.

### Problems Among Boys

Compared to other boys who regularly played video games, boys reporting frequent play of at least one M-rated title (M-gamers) were much more likely to get into physical fights, to hit or beat up someone, to damage property for fun, or to steal something from a store. They were also much more likely to report poor school grades, to get into trouble with a



teacher or principal and to report being threatened or injured with a weapon such as a gun, knife or club. The odds of boys' involvement in all of these behaviors increased with each additional M-rated title on their "frequently played" game list.

## Bullying

The picture was different for boys' involvement in bullying. While the differences between the two groups of boys were not statistically significant at the  $p < .01$  level, being the victim of a bully was the only measure on which M-gamer boys were less likely to have a problem. They were also less likely to be victims with each additional M-rated title played. Although boys who listed one or more M-rated games were not significantly more likely to report bullying others at school, they were significantly more likely to be bullies with exposure to more M-rated titles.

Why were the boys who played M-rated games less likely to be victims of bullying? We know that children who play M-rated games are more likely to play in groups. It may be that the teenagers who play M-rated games have better social skills and therefore have a broader repertoire of responses to bullies. It may also be that these teens have more friends, so they're less likely to be picked on. At this point, we simply don't know. It's an area worth exploring to see if this difference holds up.

## Problems Among Girls

Many of these relationships between problem behaviors and M-rated game play were even stronger among girls. This probably reflects the fact that M-rated games were played by a minority of girls but the majority of boys. M-gamer girls were significantly more likely to have hit someone or been in a fight, damaged property for fun, gotten poor grades, skipped school, been in trouble with a teacher or principal, and been suspended from school.

Now that we know a relationship exists between violent video games and some problem behaviors, the next step is to find out what's behind that relationship. We can make logical guesses, but we can't be sure from our research whether violent game play led to these behaviors or vice versa:

whether each aggravates the other; or if a third (or fourth or fifth) factor partially or completely explains the relationship. To know more, we'd need to conduct a larger study that follows a group of children over time.

It's also important to note that the problems we studied are common among teens. For example, over half of boys and one third of girls in our sample had hit or beaten up someone at least once during the previous year. This doesn't mean they are bad kids or are likely to be violent adults.

## Aggressive Behavior and Time Spent on Games

We noted that the more M-rated games on children's "most played" lists, the more likely they were to be involved in problem behaviors. But what about the effects of time spent playing video games in general? (Since playing M games is correlated with more time spent playing games, this gets a bit complicated.)

TIME SPENT PLAYING ANY VIDEO GAMES	PERCENTAGE OF CHILDREN CLASSIFIED AS BULLIES
< 1 hour/week	1.4%
1-2 hours/week	4.1%
3-5 hours/week	7.7%
6-8 hours/week	11.7%
9-11 hours/week	12.1%
12-14 hours/week	8.0%
15+ hours/week	10.5%
0 days/week	2.8%
1 day/week	1.0%
2 days/week	5.0%
3 days/week	7.0%
4-5 days/week	7.4%
6-7 days/week	11.6%

We found that girls who played games nearly every day, regardless of game content, were significantly more likely to report bullying others. They were also more likely to report physical fights or trouble with teachers. Among girls, a pattern of very frequent game play appears to be a marker of higher risk for aggressive behavior. For boys, only one problem behavior—hitting or beating up someone—was significantly linked to near-daily game play, regardless of M-rated game play.

However, as days per week of play went up, both girls and boys were significantly more likely to be bullies. Girls who played games nearly every day were significantly more likely to be bullies than other girls (12 percent vs. 3 percent), *and* more likely to be victims of bullying (17 percent vs. 6 percent).

Although boys and girls who play electronic games a lot (in hours per week and days per week) are significantly more likely to bully others, it's important to note that *most children who play these games are not bullies*. Just 10.5 percent of children who played fifteen hours or more per week, and 11.6 percent of children who played nearly every day, admitted to bullying someone at school more than once or twice in the past couple of months. And of course, not all bullies or victims play violent games.

We need to look more closely at how the relatively small percentage of heavy game users who are bullies may differ from the majority of heavy game users who are not bullies. For example, there may be differences in the types of games they play, their family relationships, school failure, etc., that would help us better identify children at risk for problems from heavy game use. A larger study is needed to sort this out.

One unexpected finding: boys who didn't regularly play video games (i.e., not at all, or zero days during a typical week) were more likely than even boys who played M-rated games to get into fights, steal from a store, or have problems at school. There were too few boys in this category for us to delve into it further.

Since game play is the norm for boys, nonplayers are by definition abnormal. Girls who didn't play games were not noticeably different from others in terms of problem behaviors (a bit better behaved in some categories); this makes sense, since gaming is not as central to girls' daily life and social relationships.

## Are Aggressive Kids More Likely to Play Violent Games?

From the moment they are born (and, according to some researchers, perhaps even earlier), children have behavioral styles that persist throughout childhood into adulthood.<sup>13</sup> Some babies are pretty easy to manage and are quick to figure out ways to calm themselves. Others are easily overwhelmed, overreact to new or noisy situations and need more time to be soothed.

As infants grow into toddlers, traits such as shyness and aggressiveness become more apparent. This means that the behavioral effects of watching a scary movie on a shy three-year-old or seven-year-old might be quite different from the effect on a preschooler who is already showing aggressive tendencies or a first-grader who is known for her daring behavior.

Media researchers have tried to take traits into account, particularly in laboratory studies of aggression. Some studies have found greater effects of violent content in video games among subjects high in trait hostility; others did not.<sup>14</sup> An Australian study that tried to reconcile these differences found that a player's emotional state before starting to play a violent game (*Quake II*) influenced how he or she felt afterward. The researchers looked at subjects' responses to a questionnaire about traits to see if they could find a difference between those who felt angry after play and those who didn't. The angry-after-play group had higher trait anger and aggression.<sup>15</sup>

We might also see inconsistent effects between studies because they leave out other important factors that influence aggression. Feelings of closeness to parents and connectedness to school, for example, are known to buffer the effects of exposure to real-life violence on violent behavior.<sup>16</sup> Children's temperament and behavioral styles will also influence how they are treated and affected by peers, parents and school.

Children with high trait hostility and aggression seem to be drawn to more violent activities, whether those be contact sports such as football or wrestling, more aggressive schoolyard play or more violent media.<sup>17</sup> We don't yet know how these activities might affect aggressive kids differently. For some, playing football or a violent video game might reinforce and worsen their aggressive behavior; for others, these activities

might be socially acceptable ways to work through and get rid of hostile feelings.

## Attitudes Toward Violence

Another charge often made against violence in video games and other media is that it may desensitize children to real violence. The fear is that constant exposure to gory virtual violence, without seeing the consequences that would accompany such violence in real life, could make children less sensitive to suffering caused by violence and reduce their empathy for its victims. They might fail to help people in distress. Thirteen-year-old Alex put it this way:

If you watch lots of violent movies, you can get it into your head that violence isn't a very bad thing, because you see it all the time, and your sense of it is kind of dulled. So when you see someone in a movie get their arm cut off or something, then you don't, like, cry for an hour, 'cause you've seen it before. If you've never seen a movie like that, you'd probably be really sad, but after [you've seen] ten. . . .

Desensitization is not always a bad thing. For example, it's used in psychotherapy all the time to help people overcome phobias and disturbing thoughts. Jeanne Funk, PhD, professor of psychology at the University of Toledo, adds, "It's also something that occurs on a daily basis; it helps us manage life stresses. If we didn't get desensitized to tragedies, we couldn't function."

Funk became concerned that violent media could subtly desensitize children: "Over time, we could develop a group of kids who won't care about other people. Playing violent video games could be one risk factor."

A related concern is that violent video games could make physical aggression a more appealing or first-choice solution for personal conflicts. Constantly practicing aggressive behavior through video games might add to the risk.

Picture a twelve-year-old playing a first-person shooter game, fighting soldiers, aliens or zombies. The player advances through a dim cor-

ridor where enemies may lurk around a corner, pop out from alcoves or come up from behind. To stay "alive," the player must be hypervigilant for attacks and be ready with an almost automatic aggressive response. Researchers such as Funk are concerned that constant repetition of these behaviors in violent games could lead to the development of "aggressive scripts": automatic responses to certain types of situations. At question is whether the conditioned response of pressing a button in a game will generalize to reacting violently in the real world.

In theory, a nonthreatening real-life event, such as an accidental bump in a school hallway, could be seen as a threat and trigger a scripted aggressive reaction. A child who has been desensitized to violence by seeing it over and over in video games or movies might find it harder to suppress an automatic aggressive response.<sup>18</sup>

To investigate these concerns, Funk conducted a series of studies with more than three hundred children in elementary and high school. For example, in one study, children filled out surveys to check their attitudes toward violence, level of empathy and exposure to violence in real life. Funk also asked how many hours per week children played video games, watched television and movies and used the Internet, and their favored type of content for each. She concluded that exposure to video game and movie violence was associated with stronger proviolence attitudes, but only video game violence was linked to lower empathy.<sup>19</sup>

Funk would like to see more longitudinal studies that look at how factors including age, gender, personality and intelligence may interact with exposure to violent media. "My guess is that kids who already have problems with aggression are at higher risk for being affected by violent video games, such as bullies or bully victims," she notes.

Our own survey included a set of eight questions designed to explore children's beliefs about aggression (e.g., "If people do something to make me really mad, they deserve to be beaten up") and whether they consider alternatives to fighting (e.g., "I try to talk out a problem instead of fighting"). We found that boys who regularly played at least one M-rated game had significantly lower belief in the use of nonviolent strategies and significantly more positive perceptions of aggression. This was also true for girls who played M-rated games. Again, we can't say that M-rated games created these attitudes, nor do we know the real-world significance of this.

Michael Jellinek, MD, professor of psychiatry and pediatrics at Harvard Medical School and the chief of child and adolescent psychiatry at Massachusetts General Hospital, sees little evidence of children being desensitized by violent media. "I've seen kids who were exposed to domestic violence learn to numb themselves or to dissociate. I've seen kids in gangs learn to minimize it. Most kids, when they see someone injured on the field or when they come into the emergency room, there's a whole different tone—very realistic—to how they feel about that than when someone's hurt in a video game."

### Violent Video Games and Feeling Safe

Marcy told the other parents in her focus group that her concerns went well beyond the contents and immediate effects of violent video games. "I think it also creates for children—and they may not admit it—a real sense of terror, an underlying sense that life is just violent; that awful things happen all the time to people."

Could violence in games or on TV make children feel less safe and see the world as a scarier place? A quarter of the children we surveyed (24 percent of boys and 26 percent of girls) reported being afraid of getting hurt by someone at school at least once in the previous month. One in three girls and almost one in four boys didn't feel safe walking alone in their neighborhood at night. However, we didn't find any significant link between game play and perceived danger.

Boys in several of our focus groups were more concerned about violence on television news than about gore in video games. For some, TV news violence could make video game violence more upsetting.

Ryan: "I don't really think video games will influence kids as much as, like, the news. That can influence kids, and that's real."

Shawn: "Yeah."

Researcher: "How do you think kids who watch a lot of news might feel different about the world?"

Ryan: "Like, I don't like to watch the news."

Shawn: "I don't either."

Ryan: "I'll tell my dad to shut it off, if I'm in the same room, or I'll just leave."

Researcher: "But how does that make you feel, when you watch the news?"

Ryan: "Well, I play video games, and I go, 'Oh, that stuff won't happen.' And if I see it happen on the news, it kind of freaks me out, 'cause, like, I just . . ."

Researcher: "Like, 'Oh, but it's not a fantasy after all'?"

Ryan: "Yeah."

Shawn: "It's scary, 'cause you don't feel safe."

Parents don't generally think about news as harmful to children or that children even watch news programs. But surveys show that children and teens watch TV news regularly; sometimes, they just happen to be in the room when an adult turns the news on.<sup>20</sup> A child who sees a lot of violence on television, whether it's *Law and Order* reruns or news programs, is more likely to see the world as a scary place with lurking dangers far out of proportion to reality.<sup>21</sup> But realistic depictions of violence, such as those on the news, are thought to be more likely to scare or desensitize children. As one child told us, "In video games, you know it's fake."

Given that older children and teens believe that news represents reality and that TV news programs increasingly show graphic or sensationalized violence, there is a real risk of harm.<sup>22</sup> Parents can help by keeping track of their kids' exposure to TV news and helping them put it into context—for example, stories get on the news because they are rare, and that events on the news, whether it's losing your house to a tornado or winning the lottery, are not likely to happen to them.

Research on television coverage of war shows that children of different ages are upset by different aspects, with younger ones more bothered by the visual images and teens by the complex issues, such as morality and justice, that are raised by news events.<sup>23</sup>

## Violent Games and Criminal Violence

Is there any evidence for a link between violent crime and video game play? So far, there's not much to go on. But we may get some hints from the decades of research on violent television.

Joanne Savage, PhD, of American University's School of Public Affairs reviewed the research on how television violence is related to criminal violence.<sup>24</sup> When we go beyond laboratory measures of aggression and play-fighting among children and look at real-world crime—the outcome we worry about most—there are surprisingly few studies. There are even fewer studies that look specifically at violent media content (rather than assuming that more media use means more exposure to violence) and give enough detail about their methods to judge whether they make sense.

For example, one study she cites compared audience sizes for violent television shows in different U.S. media markets to local violent crime rates. It found a significant relationship, but not in the expected direction. It turned out that the more viewing of violent programs, the *lower* the violent crime rate.

Studies of violent criminals that looked back at their earlier media use (retrospective studies) didn't rule out the possibility that violent children preferred violent media, or the studies found that lots of TV watching in childhood only made a difference when kids also were exposed to violence at home.

Longitudinal studies of childhood TV watching and adult aggression had various problems, such as not actually measuring children's exposure to violent TV, using measures of adult aggression that focused more on obnoxious behaviors than on violent crime, or finding no effect when controlling for children's initial level of aggressiveness.

Savage concludes: "Because legislators and other policymakers make frequent calls to reduce media violence, this line of research, spanning over forty years now, is still relevant and topical and bears further scrutiny. At this point it must be said, however, that there is little evidence in favor of media violence as a means of remedying our violent crime problem."

She does note, and we agree, that lack of good evidence so far doesn't mean there's nothing to find. The key is to focus more specifically on which children in which situations are at greatest risk from which types of media violence. We need large long-term studies that (1) have good measures of violent behavior and of violent media exposure, (2) have a control group of kids who don't use violent media, and (3) take other important influences into consideration, including child factors (such as violent behavior and trait aggressiveness at the start of the study), parent factors (such as their supervision, abuse, and neglect of the child) and environmental factors (such as poverty, schooling and access to other activities).