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Violent Video Games and Aggression/Violence: Conjecture and Research

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Aggression · Violence · Violent video games · Adolescents · Bad Science

Definition

Violent video games are any games in which one character seems to do serious physical harm to another character. However, definitions such as this are criticized both for being overly broad (i.e. including mild games such as *Pac Man* or *Minecraft*) as well as being emotionally prejudicial. Terms such as action games or shooter games may be preferred.

Introduction

The potential effects of violent video games remain a contemporary concern in the United States. Despite some reductions in attention, violent video game play is still being linked to

concerns that players will become more aggressive and/or commit real world acts of violence. A pattern has emerged in recent decades and remained consistent that when a mass shooting or school shooting occurs, media and politicians often turn to the violent video game play of the alleged shooter as the cause for the shooter's actions.

Some readers may question the relevance of diving back into the debate about violent video games and the moral panic that ensued over *Mortal Kombat* over 30 years ago. It is true that violent video games are more socially acceptable than they used to be, as there are now, for example, studies that reveal gaming's positive effects on the human brain (i.e. Cleveland Clinic, 2024) and public opinion polls demonstrating the public's favourable attitudes towards gaming (e.g. Gottfried & Sidoti, 2024). In other instances, many people openly mock the idea that violent video games cause players, children in particular, to engage in acts of violence (e.g. Kuchera, 2018; Lancaster, 2024; MacDonald, 2022). Moreover, video games are more popular than ever both in terms of how many people play video games and the revenue made by video game companies.

Despite the above-mentioned factors pertaining to the popularity, social acceptability, and public scepticism over the alleged link between violent video games and aggression/violence, violent video game moral panic persists. In the wake of the December 2024 assassination of UnitedHealthcare CEO, Brian Thompson, NBC

59 News published an article entitled [“Extremely
60 Ironic”: Suspect in UnitedHealthcare CEO slaying
61 played video game killer, friend recalls]
62 (Lozano, 2024). In the article, NBC News inferred
63 that Luigi Mangione’s (suspect) play of the violent
64 cartoonish assassin game was to blame for his
65 crimes (the game, *Among Us*, is, in fact, a cartoonish
66 to the point of cute game, though the players do try to
67 ambush one another). That a major news outlet was
68 willing to link violent video games to an assassination
69 as part of covering one of the most popular and frequently
70 followed news stories of 2024 is incredibly pertinent
71 regarding the state of the violent video game debate.
72

74 In this entry, we expose readers to the violent
75 video game debate, the research in this area, as well as
76 future research directions. To do this, we first expose
77 readers to the history of the violent video game debate,
78 both in terms of the history of panic over violent video
79 games and the efforts to link violent video games to real
80 world acts of violence. Next, we highlight the research on
81 violent video game effects, covering the negative effects
82 revealed through the research, methodological problems,
83 as well as the research demonstrating a lack of relationship
84 between violent games and aggression. Finally, we discuss
85 the future of violent gaming research in this area in
86 hopes of shifting the violent video game debate.
87
88

89 History of Controversy

90 Controversial Games

91 The history of the violent video games controversy
92 arguably begins in 1976, with the release of *Death Race*.
93 *Death Race* was a two-player racing game in which
94 players drove a race car over “gremlins”. After players
95 ran over the gremlins, a tombstone would appear in their
96 place to indicate that the gremlins had died. The problem
97 many observers had with the game was that the gremlins
98 looked like humans. This resulted in media criticism
99 from the National Safety Council, the National Enquirer,
100 and NBC’s Weekend Show (Plunkett, 2012). In 1982,
101 another major video game controversy occurred with
102 *Custer’s*
103

104 *Revenge*, which was designed with the main character
105 as General George Armstrong Custer, from the infamous
106 Battle of the Little Bighorn. To succeed in the game,
107 players moved from left to right across the screen as
108 they dodged arrows. Once they dodged enough arrows,
109 players would rape a Native American woman who was
110 tied to a pole. The shocking pornographic content of
111 the game drew a lawsuit from Atari against the developer,
112 Mystique, for alleged damage to Atari’s name, and
113 many stores across the country pulled the game from
114 its shelves (Plunkett, 2011).
115

116 Perhaps the most significant violent video game
117 controversy occurred with the release of *Mortal Kombat*,
118 the infamous hyper-realistic (at-the-time) fighting
119 game that allowed players to perform fatalities upon
120 defeating their opponent. Winners could rip out their
121 opponent’s spinal column, tear out the loser’s heart,
122 and more. The controversy surrounding the game
123 resulted in a hearing before US Congress in 1993,
124 which resulted in the industry being allowed to create
125 its own self-policing system, the Entertainment
126 Software Rating Board (ESRB). The ESRB, as it is
127 still known today, rates gaming content from “E for
128 everyone” to “Adults Only”, to make consumers
129 aware of exactly what gaming content they are
130 purchasing (Eschner, 2017).
131

132 The 2000s saw several violent video game
133 controversies as well. First, in 2005, then-Senators
134 Hillary Clinton (who is now fuelling moral panics
135 about social media) and Joseph Lieberman proposed
136 legislation to ban the sale of violent video games
137 to children. This move came after the release of
138 Rockstar Game’s *Grand Theft Auto: San Andreas*, which
139 included a hidden mode that allowed players to have
140 sex with other NPC characters. The controversy is
141 famously known as “The Hot Coffee Mod” and is
142 significant because the mini-game that allowed
143 players to perform sexual acts was a result of code
144 being left over from gaming development. Clinton
145 and Lieberman’s bill ultimately did not pass
146 (CBC Arts, 2005). Then, in 2007 the original
147 version of the game *Manhunt 2*, a horror survival
148 game for adults, was essentially banned in the
149 USA by the software rating board. In the game,
150 players could perform extreme acts of violence.
151

152 Much of the content remained in the “M for
153 Mature” version of the game (the previous version
154 was “A for Adult”), but some content, such as a
155 scene in which pliers are used on male genitalia,
156 was cut (Schiesel, 2007). And not to be outdone,
157 in 2009 the popular *Call of Duty* franchise
158 released *Modern Warfare 2*. The game was con-
159 troversial because it included a level entitled, “No
160 Russian”, in which players act as a CIA agent who
161 has infiltrated a Russian terrorist organization.
162 Players had to kill innocent civilians in an airport
163 to complete the mission to prove their loyalty to
164 the terror organization (see Purslow, 2023).

165 Violent Video Games and Mass Shootings

166 Violent video games have become a concern for
167 many people in US society because of their
168 alleged link to school shootings. Politicians, par-
169 ents, media, and conservative interest groups have
170 pushed for legislation, regulation, and in some
171 cases, criminalization surrounding the play of
172 violent video games by children. In this section,
173 we highlight some of these controversies.

174 In 1997, Michael Carneal shot and killed three
175 students, while injuring six more students who
176 were attending a prayer circle at Heath High
177 School in West Paducah, Kentucky. In the wake
178 of the shootings, now disbarred Attorney Jack
179 Thompson sued several large media companies,
180 many of which developed video games.
181 Thompson’s argument was that the violent video
182 games played by Carneal acted as a “murder sim-
183 ulator”. Thompson did not win that case (Guay &
184 Arsenault, 2012). In other instances, Thompson
185 has referred to video games as “mental masturba-
186 tion” (Benedetti, 2007).

187 Perhaps the most infamous example of an
188 alleged link between violent video game play
189 and school shootings occurred with the Colum-
190 bine massacre in 1999. On April 20, 1999, Dylan
191 Klebold and Eric Harris killed 13 people and
192 injured 23 others before killing themselves. Prior
193 to their deaths, Harris and Klebold recorded
194 videos of themselves in which they acted out
195 gameplay from the violent game, *Doom*. In this
196 game, of which the shooters were reportedly
197 obsessed, players act as marines tasked with
198 going to hell to fight demons (Anderson & Dill,

199 2000). In the wake of the shooting, several video
200 game makers and other entertainment companies
201 were sued by the families of the survivors; the
202 lawsuit was dismissed (Wadhams, 2002). The
203 event had such a cultural impact on US society
204 that it prompted a study commissioned by the US
205 Secret Service on the relationship between violent
206 video games and school safety.

207 In 2005, Jeff Weise shot and killed nine people
208 at his Red Lake, Minnesota school, before taking
209 his own life. Weiss liked to play video games and
210 created journal entries and animations that
211 focused on death and suicide that were later
212 interpreted as clues to his intentions. In an inter-
213 view with NBC News, a sociology and public
214 affairs professor at Princeton University,
215 Dr. Katherine Newman, described Weiss’ actions
216 as following a “script”. Newman stated in the
217 interview that, “What I mean by ‘a script’ is that
218 when you look at popular culture, movies, video
219 games, you will see this kind of ‘shoot ‘em’ path-
220 way running through many of them” (see De,
221 2005, n.p.).

222 Mass shooting controversies involving violent
223 video games continued into the 2000s. In 2012,
224 Adam Lanza shot and killed 27 people total,
225 including 20 children, 6 adults, and his mother
226 in Newtown, Connecticut, before killing himself.
227 In this case, law enforcement was alleged to have
228 found a cache of violent video games, though
229 these claims later proved apocryphal. This, as
230 well as the horrific nature of Lanza’s crimes, pro-
231 mpted high-profile individuals from across the
232 country to call out the violent video game indus-
233 try. Wayne LaPierre, the National Rifle Associa-
234 tion CEO., called out violent video games such as
235 “Mortal Kombat” and “Splatter House”, among
236 others, as being “vicious” (Jaslow, 2013). Then-
237 Vice President Joe Biden also held a meeting
238 among video game industry leaders and aca-
239 demics to determine the causes of mass real-
240 world violence (Grubb, 2013; Jaslow, 2013). In
241 the end, it turned out that Lanza was mainly a fan
242 of the non-violent game *Dance, Dance Revolution*
243 (State’s Attorney for the Judicial District of Dan-
244 bury, 2013).

245 Next, the Parkland shooting suspect of the
246 February 2018 shooting at Marjory Stoneman

247 Douglas High School, which left 17 people dead,
 248 was even formally criticized in the courtroom by
 249 an opposing attorney for playing violent video
 250 games (CBS Miami, 2019). Then-President
 251 Donald Trump weighed in on the debate, stating,
 252 “I’m hearing more and more people say the level
 253 of violence on video games is really shaping
 254 young people’s thoughts” (Phelps, 2018). How-
 255 ever, the report from the Federal Commission on
 256 School Safety, (2018) from his own administra-
 257 tion would ultimately conclude there was no evi-
 258 dence video games played a role in the shooting.
 259 The most recent violent video game controversy
 260 pertains to the alleged crimes of Luigi Mangione
 261 (mentioned above), as he has been linked in the
 262 media to being a virtual assassin in the “kids’
 263 game”, “Among Us” (Mercante, 2024).

264 Controversies in Research

265 There exists a significant debate in the psycholog-
 266 ical literature as to the effects that violent video
 267 games have on players (if any) (Kowert &
 268 Quandt, 2015). In one camp, a group of
 269 researchers contend violent video games directly
 270 influence aggression in players. In another group,
 271 there are many scholars who consider the research
 272 on an alleged link between violent video games
 273 and aggression to be methodologically flawed;
 274 thus, this research contributes to a moral panic
 275 regarding the effects of video games. In this sec-
 276 tion, we highlight the research demonstrating a
 277 link between violent video games and aggression,
 278 the methodological critiques offered by other
 279 researchers, and the research demonstrating no
 280 effects or that violent gaming improves prosocial
 281 outcomes.

282 Violent Video Games and Negative Effects

283 There are many studies in psychological research
 284 that show some sort of relationship, whether it be
 285 correlational or causal, between violent video
 286 games and aggression. Exploring this relationship
 287 became a very popular area of research after the
 288 Columbine shooting in 1999. Some scholars refer
 289 to this stage of the violent game research as the
 290 “smoking and lung cancer phase”, due to the
 291 overwhelming number of studies attempting to
 292 identify negative associations between video

293 games and aggression/violence. In addition, a
 294 scholar even attempted to show the effects of
 295 violent video games on aggression exceeding that
 296 of the cigarette smoking impact on lung cancer
 297 (see Ferguson’s (2011) discussion; Huesmann,
 298 2007).

299 Anderson and Bushman’s 2001 meta-analysis
 300 is arguably the most influential study that shaped
 301 the immediate future of violent video game stud-
 302 ies. In a meta-analysis of experimental and non-
 303 experimental studies, they found violent video
 304 game play is associated with increases in
 305 aggression-related thoughts and feelings, as well
 306 as physiological arousal. In the paper, Anderson
 307 and Bushman put out a General Aggression
 308 Model (GAM) to explain how repeated violent
 309 video game play increases aggressive personality
 310 traits indirectly via aggressive cognitions. Expanding
 311 on the GAM, Bushman and Anderson (2002) found
 312 playing violent games increases hostile expectation
 313 bias in players, as they experienced more aggres-
 314 sive thoughts and felt angrier than players of non-
 315 violent games. Players have also been shown to be
 316 specifically motivated by revenge motivation, as it
 317 is thought to mediate the relationship between
 318 violent games and aggression (Anderson & Mur-
 319 phy, 2003). Anderson’s (2004) work revealed an
 320 updated meta-analysis showing violent video games
 321 to be linked to aggressive behavior, aggressive cog-
 322 nition, and aggressive affect in a *causal* fashion.
 323 Additionally, Anderson argued violent video games
 324 are correlationally linked to *real world aggression*.
 325

326 Some of these studies focused on populations
 327 of juveniles. For example, one longitudinal study
 328 by Anderson et al. (2008) found that violent game
 329 play predicted later physical aggression, albeit the
 330 effect size was very tiny, near zero.

331 Research in the “smoking and lung cancer
 332 phase” continued mostly unabated until around
 333 2009, when researchers began to question
 334 whether violent video games really have such a
 335 strong effect on aggression or whether something
 336 else might explain these effects. As such, re-
 337 searchers began to explore the context in which
 338 gamers played violent video games, examining
 339 factors including, but not limited to motiva-
 340 tion, frustration, and competition. For example,

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341 the reward structure and narrative context of a
342 violent game have been shown to affect gamer
343 aggression as opposed to self-activation or
AU6 344 character-identification (Sauer et al. 2015). Con-
345 text may also be important as it pertains to gender
346 differences in violent game players, as some gam-
347 ing context factors have been shown to increase
348 aggression in boys, but reduce violence in girls
349 (Shibuya et al., 2008). Whether games/game
350 modes are designed to be played cooperatively
351 or competitively also helps shape player aggres-
352 sion, as players who play more cooperative games
353 are less aggressive (Ewoldsen et al., 2012). Other
354 studies have demonstrated that other background/
355 demographic factors may explain actual criminal
356 behavior, such as family violence, male gender,
357 etc., but not violent gaming (Ferguson et al.,
358 2008).

359 **Methodological Flaws in Violent Games Research**
360 Around the same time that researchers began to
361 question the true effects of violent gaming on
362 aggression, researchers began to question the
363 methodological rigor of prior studies. For exam-
364 ple, Ferguson (2007) found via meta-analysis that
365 experimental studies of aggressive behavior, and
366 non-experimental studies of both aggressive
367 behavior and thoughts, are affected by publication
368 bias. In the case of meta-analyses, the processes
369 used to determine study inclusion criteria are often
370 lacking (Ferguson et al., 2020). Other criticisms
371 levied against prior research include that much of
372 this research has incorporated the use of
373 unstandardized and unreliable measures, as well
374 as well as poorly defined operationalizations of
375 what is meant by the words “aggression” and
376 “violence” (Ferguson, 2011). Many studies also
377 employ the use of the Hot Sauce Paradigm,
378 whereby researchers will measure the effects of
379 violent games on aggression as a measure of a
380 player’s willingness to make their opponent drink
381 hot sauce upon losing a game (e.g. Adachi &
382 Willoughby, 2011). Thus, extrapolating the use
383 of hot sauce against an opponent in a lab setting
384 is hardly the equivalent of a violent video gamer
385 robbing a gas station at gunpoint.

386 Some studies will research the effects of a
387 violent game and then fail to compare the effects

of playing the violent game to a non-violent game 388
(Ferguson et al., 2020). Furthermore, researchers 389
often cannot agree on what is meant by “violent 390
game”. This has led some researchers to question, 391
for example, is “Super Mario” a violent video 392
game since you control the main character while 393
tasked with jumping on enemies’ heads and 394
squishing them? (e.g. Mikołajewska and 395
Mikolajewska-Furmanek 2023). 396

Overall, violent effects studies may be partic- 397
ularly prone to false positives (Ferguson, 2018). 398
Ferguson and Kilburn (2010) contend that many 399
violent gaming study effect sizes are likely over- 400
inflated due to the use of bivariate correlations, 401
instead of controlled estimates, and likely do not 402
include quality measures of real world aggression. 403
Compound this with the fact that many 404
researchers are preoccupied with assessing statisti- 405
cal significance (or lack thereof), causing many 406
researchers to ignore that when statistical signifi- 407
cance is found in such studies, the effect size is 408
often very small (Ferguson et al., 2020). This is 409
particularly concerning, considering some 410
researchers have criticized negative effects that 411
researchers have for arguing that directional is 412
the new null when it comes to the study of violent 413
video game effects on aggression (Deville et al., 414
2023). 415

Lack of a Relationship Between Violent Gaming 416 and Aggression 417

Just as there is research that shows an association 418
between violent gaming and aggression, there is 419
also research which demonstrates that such a link 420
does not exist. For example, an important piece in 421
the history of violent gaming research is 422
Ferguson’s (2007) meta-analysis, as it was one 423
of the first published pieces that questioned the 424
alleged link between violent gaming and aggres- 425
sion. In that same year, Giumetti & Markey 426
(2007) found that anger mediates the relationship 427
between violent gaming and aggression. Further 428
longitudinal research has also failed to find the 429
link between violent gaming and aggression 430
(Kühn et al., 2019). Breuer et al. (2015) generated 431
similar findings and thus recommend a more indi- 432
vidualistic approach to studying the relationship 433
between violent gaming and aggression. In more 434

435 recent, pre-registered studies, researchers have
 436 also failed to identify a positive relationship for
 437 violent gaming on aggression (Ferguson et al.,
 438 2020, McCarthy et al., 2016; Przybylski &
 439 Weinstein, 2019).

440 There is also a significant amount of research
 441 that calls into question the dominant research nar-
 442 rative that violent gaming negatively impacts pro-
 443 social outcomes. There is some research that
 444 shows violent gaming has no effect on prosocial
 445 outcomes (Jerabeck & Ferguson, 2013; Tear &
 446 Nielsen, 2014; Tear & Nielsen, 2013). In some
 447 instances, violent gaming can improve prosocial
 448 outcomes in players. For example, Ding et al.
 449 (2023) found that cooperation in violent games
 450 can reduce aggression. In another example,
 451 players who played Halo II in a cooperative fash-
 452 ion, versus a competitive fashion, expressed more
 453 tit for tat behaviors (Ewoldsen et al., 2012). Fur-
 454 thermore, players can also experience guilt
 455 regarding the violent actions they perform in
 456 game (Olah, 2024). Markey et al. (2015) even
 457 found an inverse relationship between the release
 458 dates of violent video games and homicides.
 459 Regarding inconsistencies in the findings in this
 460 area of research, Ferguson (2020) points out that
 461 since many psychologists have started pre-
 462 registering their research to avoid accusations of
 463 “p-hacking”, several prior studies demonstrating a
 464 positive link between violent gaming and aggres-
 465 sion have been retracted due to critical methodo-
 466 logical flaws or unethical research. This suggests
 467 that such research demonstrating the positive link
 468 was flawed and included false positive rates.

469 **Future of Violent Video Game Research**

470 There will likely be a great deal of future research
 471 published on violent gaming and aggression.
 472 Despite much of the evidence presented above
 473 that calls into question an alleged link between
 474 violent gaming and aggression, many organiza-
 475 tions like the American Psychological Association
 476 (APA) have accepted the alleged positive
 477 relationship between violent gaming and aggres-
 478 sion (Copenhaver & Ferguson, 2018). Over the
 479 last two decades, the APA has adopted various
 480 versions of a resolution on the relationship
 481 between violent gaming and aggression. In 2015,
 482 the APA issued a press release stating, “APA

483 review confirms link between playing violent 483
 video games and aggression” (see American Psy- 484
 chological Association, 2015, n.p.), as the result 485
 of a meta-analysis conducted by scholars who had 486
 previously identified a positive link in their own 487
 research (American Psychological Association, 488
 2015). This, despite the opposition of roughly 489
 230 scholars who requested the APA not issue 490
 more declarative policy statements on the issue. 491
 Many scholars warned that such a move would 492
 confuse the public regarding policy implications 493
 of such declarative documents (Ferguson, 2015). 494
 This is exactly what happened later, when the 495
 APA released another updated policy statement 496
 in 2020 that simultaneously sought to clarify that 497
 violent video games do not cause violent behav- 498
 ior, but also “reaffirms” their position on violent 499
 gaming and violent behavior (American Psycho- 500
 logical Association, 2020). Reanalysis of the 501
 APA’s work, however, has demonstrated that it 502
 was seriously flawed and even unreproducible in 503
 a very basic sense (Ferguson et al., 2020). 504

505 Future violent gaming and aggression research 505
 will likely attempt to further explore causal path- 506
 ways for violent gaming to affect aggression via the 507
 GAM. This will likely also incorporate brain scan 508
 studies as a way to measure a possible link between 509
 violent gaming, changes in brain wave patterns, and 510
 aggression. However, the future of this research 511
 should do the following to provide a clearer and 512
 more comprehensive study of any potential link 513
 between violent gaming and aggression: (1) Avoid 514
 declarative policy statements that seek to establish 515
 causal laws between complex psychological con- 516
 cepts and human behaviors; (2) continue with open 517
 science policies and practices such as providing data 518
 sets during manuscript submission, pre-registering 519
 studies, etc., to avoid p-hacking and confirmation 520
 bias; (3) focus on individual explanations of aggres- 521
 sion and violence, such as history of violence 522
 (American Psychological Association, 2020); 523
 (4) explore sociological links between violent gam- 524
 ing and aggression, such as history of abuse, pov- 525
 erty, etc.); and (5) continue to explore violent 526
 gaming in relation to the moral panic literature, as 527
 violent gaming will likely continue as a target of 528
 moral panics used to explain mass violence and 529
 school shootings. 530

531 **Competing Interest Declaration** The author(s) has no
532 competing interests to declare that are relevant to the con-
533 tent of this manuscript.

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Chapter No.: 1-1

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