The ‘Weapons Priming Effect’ and aggressive behaviour

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The *weapons priming effect*: A robust psychological finding which demonstrates that the mere presence of weapons causes significant increases in aggressive thoughts and violent behaviour, thereby implying that children should not be exposed to weapons (in reality *and* virtual reality, i.e., in vivo and silico).

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Abstract
The weapons priming effect is a psychological phenomenon described in the scientific domain of social and cognitive/affective psychology. It refers to the finding that the mere presence of a weapon (e.g., a picture of a weapon) leads to more aggressive and less prosocial thoughts and behaviors in humans beings. The effect was first described by Leonard Berkowitz & LePage (1967) in their publication " Weapons as Aggressions-Eliciting Stimuli" in the Journal of Personality and Social Psychology. The researchers experimentally corroborated their hypothesis that stimuli commonly associated with aggression (i.e., weapons) elicit aggressive responses from people (i.e., people are primed to act aggressively). The weapons priming effect is a repeatedly replicated empirical finding in psychology. A meta-analysis conducted in 2018 supported the robustness of the effect. These finding are specifically relevant in the context of military PR campaigns which encourage children to "play" with guns. Next to important humanistic concerns, neurobiological considerations concerning brain development, developmental neuroplasticity, and Hebbian long-term potentiation (LTP) are pertinent in this context. If we want to create a peaceful future on this planet we need to 'stop to teach our children how to kill'.

An overview of the psychology of human aggression and violence

Topically related lectures

Prof. Brad J. Bushman: Lecture on the weapons priming effect
Prof. Brad J. Bushman: TED talk on aggression and violence
Noam Chomsky: The Military Is Misunderstood
Noam Chomsky on Technology, Military and Education
Noam Chomsky on Technology and Military Research

Pertinent scientific references

Anderson, C. A., Benjamin, A. J., & Bartholow, B. D.. (1998). Does the Gun Pull the Trigger? Automatic Priming Effects of Weapon Pictures and Weapon Names. Psychological Science, 9(4), 308–314.

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“More than 30 years ago, berkowitz and lepage (1967) published the first study demonstrating that the mere presence of a weapon increases aggressive behavior. these results have been repli- cated in several contexts by several research teams. the standard explanation of this weapons effect on aggressive behavior involves priming; identification of a weapon is believed to automatically increase the accessibility of aggression-related thoughts. two experi- ments using a word pronunciation task tested this hypothesis. both experiments consisted of multiple trials in which a prime stimulus (weapon or nonweapon) was followed by a target word (aggressive or nonaggressive) that was to be read as quickly as possible. the prime stimuli were words in experiment 1 and pictures in experiment 2. both experiments showed that the mere identification of a weapon primes aggression-related thoughts. a process model linking weapons as primes to aggressive behavior is discussed briefly”
Benjamin, A. J., Kepes, S., & Bushman, B. J.. (2018). Effects of Weapons on Aggressive Thoughts, Angry Feelings, Hostile Appraisals, and Aggressive Behavior: A Meta-Analytic Review of the Weapons Effect Literature. Personality and Social Psychology Review : An Official Journal of the Society for Personality and Social Psychology, Inc

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“Guns are associated with aggression. a landmark 1967 study showed that simply seeing a gun can

increase aggression?called the ?weapons effect.? this meta-analysis integrates the findings of weapons effect studies conducted from 1967 to 2017. it includes 162 effect-size estimates from 78 independent studies involving 7,668 participants. the theoretical framework used to explain the weapons effect was the general aggression model (gam), which proposes three routes to aggression?cognitive, affective, and arousal. the gam also proposes that hostile appraisals can facilitate aggression. as predicted by the gam, the mere presence of weapons increased aggressive thoughts, hostile appraisals, and aggression, suggesting a cognitive route from weapons to aggression. weapons did not significantly increase angry feelings. only one study tested the effects of weapons on arousal. these findings also contribute to the debate about social priming by showing that incidental exposure to a stimulus (weapon) can affect subsequent related behavior (aggression).”
Benjamin, A. J., Kepes, S., & Bushman, B. J.. (2018). Effects of Weapons on Aggressive Thoughts, Angry Feelings, Hostile Appraisals, and Aggressive Behavior: A Meta-Analytic Review of the Weapons Effect Literature.. Personality and Social Psychology Review : An Official Journal of the Society for Personality and Social Psychology, Inc, 22(4), 347–377.

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“A landmark 1967 study showed that simply seeing a gun can increase aggression-called the ‘weapons effect.’ since 1967, many other studies have attempted to replicate and explain the weapons effect. this meta-analysis integrates the findings of weapons effect studies conducted from 1967 to 2017 and uses the general aggression model (gam) to explain the weapons effect. it includes 151 effect-size estimates from 78 independent studies involving 7,668 participants. as predicted by the gam, our naïve meta-analytic results indicate that the mere presence of weapons increased aggressive thoughts, hostile appraisals, and aggression, suggesting a cognitive route from weapons to aggression. weapons did not significantly increase angry feelings. yet, a comprehensive sensitivity analysis indicated that not all naïve mean estimates were robust to the presence of publication bias. in general, these results suggest that the published literature tends to overestimate the weapons effect for some outcomes and moderators.”
Benjamin, A. J., & Bushman, B. J.. (2016). The weapons priming effect. Current Opinion in Psychology

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“In many societies, weapons are plentiful and highly visible. this review examines recent trends in research on the weapons priming effect, which is the finding that the mere presence of weapons can prime people to behave aggressively. the general aggression model provides a theoretical framework to explain why the weapons priming effect occurs. this model postulates that exposure to weapons increases aggressive thoughts and hostile appraisals, thus explaining why weapons facilitate aggressive behavior. data from meta-analytic reviews are consistent with the general aggression

model. these findings have important practical as well as theoretical implications. they suggest that the link between weapons and aggression is very strong in semantic memory, and that merely seeing a weapon can make people more aggressive."
Dillon, K. P., & Bushman, B. J.. (2017). Effects of Exposure to Gun Violence in Movies on Children's Interest in Real Guns. JAMA Pediatrics, 171(11), 1057.

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"Importance more us children die by accidental gun use than children in other developed countries. one factor that can influence children's interest in guns is exposure to media containing guns. objective to test whether children who see a movie containing guns will handle a real gun longer and will pull the trigger more times than children who see the same movie not containing guns. design, setting, and participants one hundred four children aged 8 to 12 years recruited through advertisements were randomly assigned in pairs to watch a 20-minute pg-rated movie containing or not containing guns in a university laboratory. children then played with toys and games in a room for 20 minutes while being video recorded. a cabinet in the room contained a real (disabled) gun with a sensor counting trigger pulls. recordings were coded for the time spent holding the gun and in aggressive play. data were collected from july 15, 2015, through january 1, 2016, and analyzed using generalized estimating equations (tweedie log-link for time spent holding the gun; poisson log-link for pulling the trigger). main outcomes and measures the 2 main outcomes were time spent holding the gun and the number of trigger pulls. control variables included sex, age, trait aggressiveness, exposure to violent media, interest in guns, and number of guns at home. results among the 104 study participants (62 boys [59.6%] and 42 girls [40.4%]; mean (sd) age, 9.9 [1.5] years), the adjusted median number of trigger pulls among children who saw the movie containing guns was 2.8 (interquartile range [iqr], 0.2-2.8) compared with 0.01 (iqr, 0.01-0.2) among children who saw the movie not containing guns (adjusted odds ratio, 22.3; 95% ci, 6.0-83.4; p < .001). the adjusted median number of seconds spent holding the gun among children who saw a movie containing guns was 53.1 (iqr, 35.5-53.1) compared with 11.1 (iqr, 10.7-16.7) among children who saw the movie not containing guns (adjusted odds ratio, 3.0; 95% ci, 0.9-9.9; p = .07). qualitative analyses on 4 pairs from each condition found that children who saw the movie containing guns also played more aggressively and sometimes fired the gun at people (ie, self, partner, or passersby on street). conclusions and relevance children in the united states frequently have access to unsecured firearms and frequently consume media containing guns. this experiment shows that children who see movie characters use guns are more likely to use guns themselves. …"
Gallina, M. F., & Fass, W.. (2014). The Weapons Effect in College Females. Violence and Gender

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DOI URL
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"The weapons effect (i.e., the phenomenon in which weapons elicit aggressive thoughts or behaviors)

has been previously studied with male participants. however, we attempted to replicate the weapons effect with female participants. a total of 107 female undergraduates were randomly assigned to one of three image priming conditions. participants were primed with images of assault guns, hunting guns, or brooms, and then responded to questions relating to aggressive behaviors. the results indicated that the weapons effect can be produced in female participants. specifically, participants in the hunting gun condition reported more aggression than participants in the control condition. the replication of the weapons effect in females produced by this study may indicate that this effect is gender neutral. implications of the findings are discussed."
Lust, S. A., Saults, J. S., Henry, E. A., Mitchell, S. N., & Bartholow, B. D.. (2009). Dangerous minds: A psychophysiological study of alcohol, perception of weapons and racial bias. Alcoholism: Clinical and Experimental Research

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"Research has established that participants more quickly and accurately categorize guns following pictures of black men than pictures of white men (e.g., payne, 2001). previous work (see bartholow et al, 2006) also indicates that alcohol can enhance expressions of race bias by impairing cognitive control of inhibition. the n2 component of the event-related brain potential (erp) can serve as an indicator of inhibitory conflict in such paradigms while the ern (error-related negativity) can reflect distress related to race bias errors. here, 67 adults (age 21-35) were randomly assigned to consume alcohol (mean bac =0.101 (sd=0.016), a placebo (9:1 tonic to 100 proof vodka), or a control beverage (all tonic) prior to completing the weapons identification priming task (payne, 2001) in which a picture of a black or white man's face is followed by an image of a gun or a tool (i.e., target). alcohol decreased accuracy overall (m =.79 vs. .90 in placebo), p<.01. ps were also more accurate at identifying tools following white faces (m =.85) than black faces (m =.82), but were more accurate identifying weapons following black faces (m =.89) than white faces (m =.87), p <.01. as predicted, alcohol increased this race bias effect (d=1.11) relative to placebo (d =.66) and control (d =.87). process dissociation procedure analyses (jacoby, 1991) showed that the influence of automatic processing on responses was unaffected by alcohol (ms = .57, .57, and .57), but that alcohol significantly impaired controlled processing (ms = .58, .8, and .76). this pattern also was reflected in n2 and ern amplitudes, suggesting that alcohol impairs the ability to override prepotent responses associated with race bias."

Keywords:

- affective cognitive psychology
- agression
- cross-generational responsibility
- desensitisation
- developmental neuroscience
- habituation
- hebbian long-term potentiation
- humanism
- military pr
- military-industrial-enertainment complex
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- spreading activation
- violence
- world peace

Comments & suggestions

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