

## BRIEF REPORT

## Deadly but Protective: Americans' Unique Perception of Weapons

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Global levels of violence are declining, yet gun violence and other instances of instrumental violence still occur. While previous research has examined motivations for owning firearms, cognition about firearms—and in particular, perceptions of weapons as affording safety or as affording danger—has remained largely unexplored. We conducted a cross-national mixed-methods investigation involving the United States and three European countries (France, Spain, and Greece). Our findings indicated that Americans perceived weapons (assault rifle, handgun, hunting rifle, combat knife) as more protective and less dangerous than their European counterparts. These differential perceptions have implications for understanding variations in worldwide rates of violence.

**Public Significance Statement**

Americans perceive firearms and weapons as less dangerous than their European counterparts, despite being at a greater risk of gun violence. Elucidating the psychological processes behind firearm perception can inform our understanding of firearm ownership, as well as future research and policy on the subject.

**Keywords:** firearms, weapon perception, word association, cross-national

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Despite an overall decrease in global rates of violence (Pinker, 2012), it remains a widespread problem. One example is gun violence, which can take many forms, including violent crimes, suicide, and mass shootings. Research has examined what motivates individuals to own firearms. Studies have shown that hunting and the recreational use of firearms, protection, and personal empowerment are established predictors of firearm ownership (Leander et al., 2019; Stroebe, Leander, & Kruglanski, 2017).

Psychological research on firearms, and particularly research on individuals' motivations for owning firearms, is scarce. However, some attention recently has been paid to this issue. For example, researchers found that the salience of a mass shooting interacted with an individual's thwarted goals, influencing participants to view firearms as tools of personal empowerment (Leander et al., 2019). Previous work also has examined how laypeople perceive firearms, gun control, and perpetrators of gun violence to better understand the general public's opinion about the issue of firearm ownership and gun violence (Kruis, Wentling, Heirigs, & Ishoy, 2019). Of the few studies that exist within the domain of weapon perception, the protective capacity of firearms is often highlighted (Barragan, Sherman, Reiter, & Tita, 2016; Price, Kandakai, Casler, Everett, & Smith, 1994). Therefore, past research concurs that firearms can represent tools of empowerment and sources of protection (also see Buttrick, 2020). However, it is unclear how universal this perception of firearms might be. In particular, do Europeans view firearms differently than Americans?

The current investigation sought to chart laypeople's perceptions of firearms in a comparison between the United States and other Western countries (France, Spain, and Greece). We chose to compare Americans' perceptions of firearms relative to Europeans as past research has emphasized that the high rate of firearm ownership in the United States is a unique phenomenon (e.g., Buttrick, 2020). The particular European countries were selected as they share some cultural similarities (e.g., they are all individualistic cultures; Triandis, 1993), while differing in their rates of gun violence and firearm ownership (Alpers & Picard, 2020).

Given that past research has highlighted Americans' reliance on firearms for their protection (Stroebe et al., 2017), we hypothesized that despite having a higher gun violence rate, individuals from the United States would perceive firearms as less dangerous and more protective than individuals from Europe. Thus, despite being statistically more likely to be killed by a firearm in the United States (Giffords Law Center, 2018; Politifact, 2019), we expected Americans to perceive weapons as relatively less dangerous.

## Method

### Participants and Procedure

Data were collected online via a 15-min survey from four different countries: the United States ( $N = 147$ ,  $N_{\text{female}} = 66$ ,  $N_{\text{male}} = 81$ ), France ( $N = 148$ ,  $N_{\text{female}} = 23$ ,  $N_{\text{male}} = 125$ ), Spain ( $N = 117$ ,  $N_{\text{female}} = 19$ ,  $N_{\text{male}} = 98$ ), and Greece ( $N = 134$ ,  $N_{\text{female}} = 93$ ,  $N_{\text{male}} = 41$ ). For the American sample, data were collected via Amazon Mechanical Turk; data from France and Spain were collected via Reddit; and data from Greece were collected via a university sample. Studies have shown that data collection from Amazon Mechanical Turk (Buhrmester, Kwang, &

Gosling, 2011) and Reddit (Shatz, 2017) can provide reliable and valid data for psychological research. Despite the mismatch in the recruitment strategies across these samples, they were all roughly matched in their demographic characteristics. The samples were all of moderate political orientation ( $M = 3.69$ ,  $SD = 1.57$ , min. = 1, max. = 7), average education level ( $M = 4.65$ ,  $SD = 1.93$ , min. = 1, max. = 10), and close to average income ( $M = 2.62$ ,  $SD = 1.40$ , min. = 1, max. = 6). Across the four countries, the mean age was 29.44 years, with a standard deviation of 10.25. For more details on demographic characteristics for each country, see the [online supplementary materials](#). All materials for the European countries were translated and back translated by the authors and their research teams at their respective institutions. This study was approved by the ethical boards of each participating institution.

## Measures

**Perception of firearms.** Five pictures of weapons were generated by the research team: an assault rifle, a hunting rifle, a handgun, a combat knife, and a clenched fist. For these pictures, see the [online supplementary materials](#). The use of pictures helped to control for variability in conceptualizations of different weapon types. Participants rated the degree to which these weapons were protective or dangerous on a slider scale ranging from 0 = *protective* to 10 = *dangerous*.<sup>1</sup>

**Word association task.** Participants were asked to write down the first three words that came to their mind for each of the five pictures. The order of both tasks and the items within each task were randomized. Additional measures pertaining to perceived safety, willingness to own a firearm, and personality traits were also included in the study but are outside the scope of this brief report (see [online supplementary materials](#) for details). All measures were presented in a unique random order for each participant.

## Results

### Cross-National Comparison of Perception of Firearms

All analyses were performed in SAS, Version 9.4. For any comparisons, the general linear model procedure for  $t$  tests, analyses of variance, and moderated regressions was utilized. The general linear model procedure outputs  $F$  instead of  $t$  values; thus,  $F$ s are reported below. The corresponding  $t$  values can be determined according to  $F = t^2$ .

Five general linear models were conducted, with region as the independent variable and perception of each specific weapon as the dependent variable. Given our focus on examining differences between the United States and Europe, we collapsed across the samples from Spain, France, and Greece. A significant difference was observed for the assault rifle,  $F(1, 543) = 20.33$ ,  $p < .001$ ,  $\eta^2 = .036$ , with Americans perceiving the weapon as significantly more protective (or less dangerous), as well as for the hunting rifle,  $F(1, 543) = 67.92$ ,  $p < .001$ ,  $\eta^2 = .111$ , the handgun,  $F(1, 543) = 71.93$ ,  $p < .001$ ,  $\eta^2 = .117$ , and the combat knife,  $F(1, 543) =$

<sup>1</sup> Safety/security (synonyms of protection) and threat/danger are generally considered to be opposites (see Slavich, 2020), thus justifying placing them at polar ends of our scale.

Table 1  
Means and Standard Deviations for the Perception of Each Weapon for Every Country

Country	<i>N</i>	Assault rifle	Hunting rifle	Handgun	Combat knife	Clenched fist
France	147	8.49 (2.55)	7.71 (2.65)	7.84 (2.63)	6.95 (2.52)	4.34 (2.61)
Greece	134	8.59 (2.01)	8.25 (2.01)	6.90 (2.64)	6.54 (2.60)	4.11 (2.59)
Spain	117	9.37 (1.23)	8.58 (1.90)	8.74 (1.74)	6.75 (2.07)	4.45 (2.50)
USA	147	7.77 (2.89)	6.16 (3.03)	5.48 (3.53)	5.33 (2.82)	3.80 (2.75)
Europe	398	8.78 (2.08)	8.15 (2.26)	7.78 (2.51)	6.76 (2.43)	4.30 (2.57)

Note. Higher scores indicate perceptions of the weapon as more dangerous, and lower scores indicate perceptions of the weapon as more protective. Scores on the scale ranged from 0–10.

33.74,  $p < .001$ ,  $\eta^2 = .056$ . No significant difference was observed for the clenched fist,  $F(1, 538) = 3.78$ ,  $p = .052$ ,  $\eta^2 = .007$ . (Means for each country are reported in Table 1).<sup>2</sup> Further, even when comparing the United States with each European country individually, these results are identical for each individual comparison (see online supplementary materials).

### Word Association Task

To further explore the potential differences in weapon perception between Americans and Europeans, we examined differences in the words used to describe firearms. Four primary categories emerged from participants' responses: (a) positive/protective, (b) negative/dangerous, (c) quality/utility of the weapon, and (d) other/uncodable. The first two categories were of primary interest as they pertained to the same dimensions that were featured in the quantitative investigation; thus, only these findings are reported here. However, all four categories were included in our analyses to avoid any potential skew or bias. The first author and one of the coauthors acted as coders. Overall, initial intercoder reliability was high ( $k = .90$ ). Any inconsistencies were solved through discussion between these two researchers. Given that we were investigating frequencies of response types across regions and weapon types, we computed a chi-square test to determine if the percentages were significantly different across the two groups (Americans and Europeans).

For each test, the  $\chi^2$  was significant: assault rifle:  $\chi^2(3) = 75.98$ ,  $p < .001$ , Cramer's  $V = 0.20$ ; hunting rifle:  $\chi^2(3) = 69.98$ ,  $p < .001$ , Cramer's  $V = 0.19$ ; handgun:  $\chi^2(3) = 125.94$ ,  $p < .001$ , Cramer's  $V = 0.26$ ; combat knife:  $\chi^2(3) = 79.55$ ,  $p < .001$ , Cramer's  $V = 0.21$ ; clenched fist:  $\chi^2(3) = 9.52$ ,  $p = .023$ , Cramer's  $V = 0.07$ . Overall, Americans ascribed a higher number of positive/protective words for all five weapons and a lower number of negative/dangerous words for the hunting rifle, the handgun, and the combat knife (but not the assault rifle or the clenched fist), compared to Europeans. For a closer look at these percentages, see Figure 1.

### Discussion

Americans, despite facing a higher rate of gun violence than Europeans, perceived firearms as less dangerous compared to their French, Spanish, and Greek counterparts. These findings were observed quantitatively, with Americans' self-report measures of perceived dangerousness being significantly lower than those of Europeans. They were also found qualitatively, in a free response task, with the percentage of protective/positive words being higher

and dangerous/negative words being lower for Americans relative to Europeans.

This study was not without limitations. The most prominent limitation was that our sample was not nationally representative in any of the four countries. Further, our study did not include a question identifying gun owners, who might potentially differ in their responses from nonowners. The nature of the samples differed across countries, which also negatively impacts the generalizability of our study. Moreover, the proportion of male/female participants was not equally distributed, leading to the European samples weighing heavily on male participants (Spain, France) or female participants (Greece). Despite these limitations, our results were still robust and in the hypothesized direction. Future research should attempt to replicate and extend these findings by utilizing nationally representative samples and differentiating between gun owners and nonowners.

It is somewhat counterintuitive that Americans perceived weapons (including a combat knife) as less dangerous given that firearm ownership has been associated with increased rates of violent crime (Monuteaux, Lee, Hemenway, Mannix, & Flegler, 2015) and suicide (Anestis, Houtsma, Daruwala, & Butterworth, 2019) in the United States. One reason why this might be true is because of an increased potential need for individuals to feel safe and protected due to the sheer widespread availability of firearms in the United States. (Alpers & Picard, 2020). In fact, this claim receives some credence from a new theory arguing that protective gun ownership acts as a coping mechanism against psychological threats to a person's safety, control, and belongingness (Buttrick, 2020). Further, previous evidence demonstrates that firearms can be seen as tools of empowerment (Leander et al., 2019) and that individuals are motivated to own firearms if they believe that the world is dangerous (Stroebe et al., 2017). Future work should delve more deeply into the psychological underpinnings of this unique American perception, with an aim of understanding what personality, cultural, and political factors can explain some Americans' affinity toward firearms and the feelings of safety that they often derive from owning weapons. Ultimately, this is a first attempt to better understand how Americans differ from Europeans

<sup>2</sup> For the clenched fist, there was a significant difference in the same direction for the comparison with Spain ( $p = .048$ ) but no significant differences for the other countries ( $ps > .05$ ). Paired-sample  $t$  tests (see online supplementary materials) showed that for both Europeans and Americans, the clenched fist was perceived as the least dangerous weapon, while the assault rifle was perceived as the most dangerous weapon (all  $ps < .005$ ).

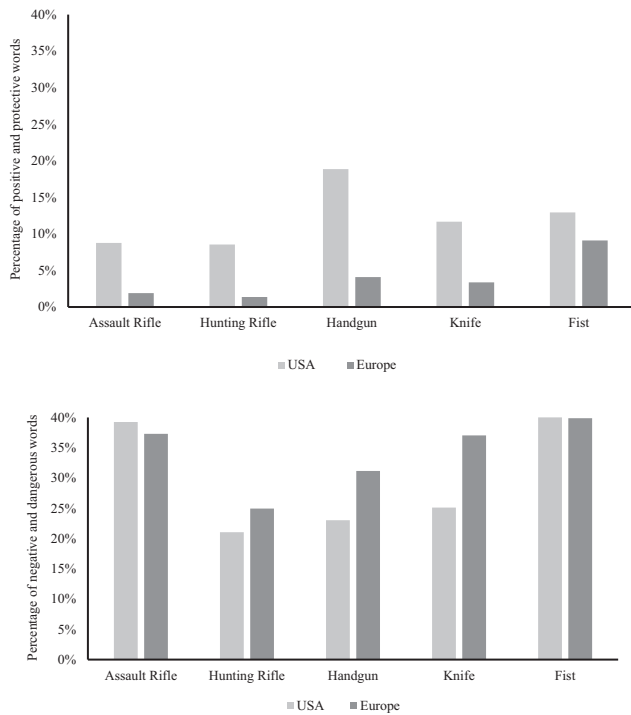


Figure 1. Percentages of positive/protective (top) and negative/dangerous (bottom) words ascribed by Americans and Europeans for the five stimuli.

in their attitudes toward firearms. Future studies can further investigate the relationship between perceptions of firearms and firearm ownership, thus continuing to inform policies that aim to provide alternative means of protection and to reduce overreliance on firearms as a coping mechanism.

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