


# Passion for guns and beliefs in a dangerous world: An examination of defensive gun ownership

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## Abstract

This research examines the notion of defensive gun ownership using the Dualistic Model of Passion. We hypothesized that an obsessive (vs. harmonious) passion for guns would be associated with a belief in a dangerous world (BDW). We expected this relationship to intensify in threatening contexts, leading to a more expansive view on defensive gun ownership. We tested this hypothesis across three threat contexts: a gun-control message (Study 1,  $N = 342$ ), a live shooting simulation (Study 2,  $N = 398$ ), and the aftermath of the Christchurch mass shootings (Study 3,  $N = 314$ ). In the experimental Study 1, exposure to a gun-control message increased the intention to purchase guns among those with an obsessive passion (OP) for guns. Study 2 revealed that BDW mediated the relationship between OP and assertive modes of protection, the desire to purchase high-stopping-power guns, and anti-Black racial bias in a shooting task. Study 3 showed that knowledge of the Christchurch attack intensified the link between OP and BDW, leading to increased support for gun access, a willingness to act as a citizen-protector, and prejudice against Muslims. Comprehending these dynamics can assist policymakers in crafting messaging campaigns for firearm regulation and public safety measures that are more effective.

## KEYWORDS

belief in a dangerous world, gun control, gun ownership, mass shootings, passion

When Guns are a Passion: Examining Beliefs in Defensive Gun Ownership

"...it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail."

- Abraham Maslow (1962)

People are passionate about guns for various reasons including hunting, collecting, recreational shooting, and preserving traditions (Gallup, 2014; Pew, 2017). Gun enthusiasts, often well-versed in firearms history, devote time and resources to firearm-related activities and form connections within the gun culture community (Kalesan et al., 2016). Many advocate for gun safety and policies to reduce firearm injuries and

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crime, supporting measures like universal background checks and restrictions on certain high-capacity and semi-automatic weapons. Thus for many enthusiasts, gun ownership is not merely a hobby; it is a vital aspect of their identity and personal fulfillment.

While a majority of gun owners regard firearms as tools for self-protection (Pew, 2017), a subset of individuals hold expansive views on protection, identifying themselves as “citizen protectors” (Carlson, 2015). This perspective often stems from a perceived moral obligation to safeguard oneself and others, upholding societal values in the face of escalating disorder (see Buttrick, 2020; Leander et al., 2019). Whereas research has yet to distinguish the psychological pattern associated with this type of passion toward gun ownership, popular culture might already derogate and stigmatize such persons (e.g., “gun nuts”).

Here, we argue that an array of gun-related attitudes and behavior can be understood by differentiating between harmonious and obsessive passion (OP). A harmonious passion (HP) for guns is restrained by other goals and social norms, and integrated into a person's overall lifestyle and values (Vallerand, 2015). It does not dominate a person's thoughts and behaviors and does not interfere with other aspects of their life (Bélanger et al., 2019). This may fit the assumptions of a typical gun enthusiast. In contrast, an OP can be consuming, leading to feelings of insecurity and a belief that the world is unsafe (Bélanger et al., 2013a, 2021). An OP for guns may thus correspond with not only broader threat perceptions, like other OPs but also the perception that guns are an effective solution to address various threats. This type of passion may result in advocating for more proactive firearm usage as a strategy to bolster personal security, particularly in a context where an individual with an OP for guns is likely to find threatening—such as negative information about guns (e.g., mass shootings and gun-control messages), which threatens to cast their chosen activity in a negative light and even deprive them of access to the activity.

## 1 | THE DUALISTIC MODEL OF PASSION

According to the dualistic model of passion (Vallerand et al., 2003), passion is a “strong inclination toward an activity that people like, find important, and invest time and energy in” (p. 756). A passion can be for an activity (e.g., playing the piano), a person (e.g., a romantic partner), or an object (e.g., a gun). As the activity becomes more central to a person's identity, it becomes self-defining (Vallerand, 2015). The dualistic model identifies two types of passion: HP and OP. One key characteristic that distinguishes both types of passion is how the activity is balanced with other goals (Bélanger et al., 2019).

HP is characterized by a strong desire to engage in the activity, with a sense of personal choice and without external pressure or self-worth contingencies (Mageau et al., 2011). The activity is an important part of a person's identity but remains under the person's control and is well-integrated with other aspects of their life (Vallerand, 2015). Supporting this view, research by Seguin-Levesque et al. (2003) has shown that HP for an activity is associated

with less interpersonal conflict and greater dyadic adjustment. An expression of HP for guns could be seen in individuals who devote time to activities such as visiting shooting ranges and researching firearms, all while effectively balancing these pursuits with other significant aspects of life, such as career and relationships.

OP is a different type of passion; it is characterized by a powerful drive to engage in the activity that is difficult to control and frequently conflicts with other aspects of an individual's life (Vallerand et al., 2003), leading to interpersonal conflict (Seguin-Levesque et al., 2003). This is due to self-worth being tied to the activity, leading to significant pressure on the individual to engage in it and resulting in rigid (rather than flexible) task engagement (Vallerand et al., 2023). Goals that interfere with the pursuit of an OP are often suppressed, a psychological mechanism referred to as goal-shielding (Shah et al., 2002), and the passionate activity becomes the dominant focus of their attention, shaping their perception of opportunities to engage in the activity (Bélanger et al., 2013b; Bélanger et al., 2019). Consequently, the number of areas from which individuals can derive self-worth becomes limited, making them vulnerable to situations that threaten the object of their passion, triggering ego-defensiveness and aggression (Bélanger et al., 2013a, 2021; Donahue et al., 2009; Rip et al., 2012). An example of OP for guns could be seen in an individual who constantly seeks out opportunities to purchase new firearms, spends excessive amounts of time at shooting ranges, neglecting relationships with family, friends, and work commitments. This neglect highlights the all-consuming nature of their passion, leading to strained relationships and potential professional setbacks.

Developed by Vallerand et al. (2003), the passion scale has been extensively utilized, finding application in hundreds of studies across fields such as sports, education, politics, and interpersonal relationships (for a review, see Vallerand, 2015). Its reliability and validity have been well-documented, with significant support found in research by Marsh et al. (2013). In line with the theoretical framework, both types of passion are positively associated with integrating an activity into one's identity and loving it. However, despite these similarities, HP and OP are related to different outcomes (for a meta-analysis, see Curran et al., 2015). HP positively predicts flexible engagement, positive emotions, the experience of flow, life satisfaction, and subjective vitality (Chicheckian & Vallerand, 2022; Lafrenière et al., 2012; Lalande et al., 2017; Philippe et al., 2009). OP, in contrast, is negatively related to such outcomes, instead being strongly associated with experiencing conflict with other domains of life (Seguin-Levesque et al., 2003) and suppressing alternative goals that conflict with one's passionate activity (Bélanger et al., 2013b, 2019). Furthermore, the distinction between OP and general tendencies towards obsessiveness is supported by research, such as that by Adam-Troian and Bélanger (2023), which provides evidence that OP operates as a unique psychological factor, including its differentiation from obsessive-compulsive symptoms. Moreover, the nuanced relationship between HP and self-esteem—where HP is not related to implicit self-esteem and positively related to explicit self-esteem—underscores its distinction from general positivity or a positive worldview (Lafrenière et al., 2011). This specificity of HP indicates that its contribution to well-being and positive outcomes

extends beyond the effects of a generally positive outlook, highlighting the qualitative aspect of how individuals relate to their passions in a harmonious and self-congruent manner.

Of specific relevance to the present research, individuals who obsessively pursue activities often feel insecure and resort to ego-defensive behaviors, a phenomenon highlighted by Bélanger et al. (2013a) and Donahue et al. (2009). This insecurity likely stems from their neglect of other life domains, leading them to almost exclusively base their self-worth on their passionate pursuits (Mageau et al., 2011). Building on this, prior studies, including those by Bélanger et al. (2021) and Rip et al. (2012), have observed that individuals with an OP react negatively when confronted with information that challenges their beliefs, displaying psychological reactance and a heightened propensity for violence. In this context, exposure to negative portrayals of guns, whether through antigun rhetoric or reports of mass shootings, may represent a psychological threat to those deeply passionate about gun ownership. Consequently, this threat may drive them to advocate more strongly for widespread gun ownership and develop negative attitudes towards outgroups, particularly those perceived as symbolic or realistic threats to their core values and beliefs (Stephan et al., 2015).

## 1.1 | OP and belief in a dangerous world (BDW)

The association between OP for guns and an increased reactivity to threats suggests that individuals with a strong OP for guns may view the world as inherently hostile. This perception of hostility aligns with the broader psychological concept known as BDW. Initially conceptualized by Altemeyer (1988), BDW characterizes a worldview where the environment is seen as filled with threats and dangers, influencing individual perceptions and behaviors, especially in contexts related to security and intergroup relations.

For example, individuals with a heightened BDW are more likely to support conservative policies and exhibit increased prejudice toward perceived outgroups (Duckitt & Fisher, 2003; Riek et al., 2006), demonstrating a defensive posture against the perceived threats of the world. Additionally, consistent with the principles of cultivation theory (Gerbner et al., 1980), studies have shown that exposure to violent media content can intensify BDW, further entrenching this worldview (Kreienkamp et al., 2021).

This broader understanding of BDW sets the stage for examining its interplay with OP for guns. The present research considers the possibility that OP for guns is positively linked to BDW, proposing that OP for guns might not only predispose individuals to perceive the world as more dangerous but also influence their responses to such perceptions, including a propensity towards intergroup prejudice and outgroup derogation. Specifically, this connection hints to the possibility that individuals with an OP for guns might be more likely to endorse firearms as a means of personal defense against the myriad threats they perceive, aligning with Buttrick's (2020) overview of the motivations behind gun ownership.

Furthermore, the relationship between OP for guns and BDW might illuminate why gun owners exhibit a stronger belief in BDW compared to

non-owners (Stroebe et al., 2017), and why there is a positive association between BDW and tendencies toward defensive gun ownership (Kreienkamp et al., 2021). Notably, if OP for guns predicts both the perception of the problem (BDW) as well as the conclusion that guns are the solution to the problem, then OP toward guns may indirectly influence a wide range of outcomes commonly associated with BDW. In contrast, HP toward guns can be similarly concerned with threat but in a manner constrained by other important goals, and thus should not be related to BDW or the same outcomes (Bélanger et al., 2019).

Given these considerations, we anticipate that a OP for guns positively correlates with increased responsiveness to gun-related threats, indirectly influencing a spectrum of threat-reduction behaviors through BDW, from acting as a citizen-protector to engaging in intergroup conflict. For example, OP for guns could be related to stronger support for carrying, drawing, or discharging a firearm across a range of threat scenarios. In a high-threat simulated shooting paradigm, OP would be related to shooting targets stereotyped as threats (i.e., Black men; see Miller et al., 2012). Likewise, in response to a societal-level threat such as a mass shooting, OP for guns should motivate endorsement of societal solutions such as a culture of gun ownership and willingness to act as a citizen-protector, and more negative intergroup attitudes such as prejudice against outgroup members (Cook et al., 2018). Even exposure to messages advocating against gun ownership could be perceived as threatening to those who possess an OP for guns. This perception might, in turn, stimulate a more pronounced intention to purchase additional firearms.

Taken together, the model delineates a trajectory from an OP for guns to a perception of the world as inherently dangerous (BDW), culminating in defensive gun ownership. This progression is substantiated by research on passion, which illuminates how deep emotional connections, exemplified by OP, intensify sensitivity to perceived threats, thereby nurturing a BDW (e.g., Bélanger et al., 2013a, 2021). Conversely, attributing BDW as the primary impetus for OP and subsequent defensive gun ownership lacks theorizing and empirical support. The crux of the argument lies in recognizing that OP extends beyond mere safety concerns—it embodies a profound and identity-defining fascination with firearms. In essence, OP for guns transcends pragmatic considerations, intertwining firearms with one's emotions and identity in a manner that surpasses the explanatory power of BDW alone.

## 2 | OVERVIEW OF STUDIES

Guided by prior research, we propose that OP and HP for guns will be differentially linked to gun-related attitudes and behaviors, especially in high-threat situations. Our research begins with an investigation into the impact of gun control messages on individuals passionate about firearms. In Study 1, we hypothesized that exposure to a gun control message, compared to pro-gun or neutral messages, would significantly increase the intentions to purchase firearms among those with OP due to fears of losing access to their guns. This effect was expected to be non-existent among those with HP.

Advancing to Study 2, our exploration deepens into how these passions translate into actual behaviors in high-stress scenarios. We first examined the relationship between gun-related attitudes—specifically, the preference for firearms designed for protection and self-defense—and passion for guns. We posited that OP would be linked to BDW, which in turn would be associated with a preference for more lethal firearms, indicative of a defensive ownership motivation. The second part of Study 2 introduced participants to a simulated shooting task, requiring them to distinguish between armed and unarmed targets of different racial backgrounds (Correll et al., 2002; Leander et al., 2020). We expected that OP for guns would be related to a classic, anti-black bias in shooting errors through BDW, which is known to promote prejudice against outgroup members (Cook et al., 2018).

Study 3 brings our investigation to a poignant real-world context, following the 2019 Christchurch mosque shootings in New Zealand. We examined how knowledge of the event might exacerbate the association between OP for guns and BDW. This, in turn, would be linked to attitudes regarding societal access to guns and the role of citizen-protectors to reduce crime. However, this stance should not be misconstrued as empathy for the minority group victimized in the shooting; we anticipated that BDW would positively correlate with Islamophobic attitudes, even though Muslims were the targeted victims of this terrorist attack.

### 3 | STUDY 1 – GUN CONTROL

Mass shootings often ignite polarized national debates on gun control. In this study, we examine how gun owners respond to advocacy for gun control compared with messages in favor of gun ownership and a neutral condition, aiming to understand the nuances of their reactions across different messaging contexts. We hypothesize that individuals with an OP for guns will react negatively to gun control messages, viewing such laws as infringements on their perceived right to self-defense in a perceived threatening world. Accordingly, we expect that OP (but not HP) for guns will correlate with an increased willingness to purchase firearms in the next 6 months, particularly in response to gun control advocacy. This response could be interpreted as a preemptive action against anticipated restrictions. By doing so, we aim to reveal the counterintuitive finding that pro-gun messages do not necessarily increase gun purchase intentions; instead, it is the prospect of control or restriction that triggers a significant reaction, particularly among those with OP.

## 4 | METHOD

### 4.1 | Participants

Using G\*Power (Faul et al., 2007), we conducted an a priori power analysis for linear multiple regression (fixed model,  $R^2$  increase), targeting small to medium effect sizes ( $f^2 = 0.085$ ) with the power set at 0.80 and alpha at 0.05. This analysis estimated the required

sample size to examine the interaction between the experimental conditions and OP. According to the power analysis, a sample size of 95 participants was recommended. To enhance the accuracy of our findings, we exceeded the suggested minimum sample size from our power analysis. Three hundred and forty-seven American gun owners were recruited via MTurk. Five participants did not complete the questionnaire, and one participant provided invalid responses on the dependent variable, resulting in a final sample of 342 participants (168 women, 174 men;  $M$  age = 39.47 years,  $SD$  age = 11.81 years). Participants were pre-screened for gun ownership by undergoing a survey in which they indicated ownership of various household items. In all studies, participants provided informed consent, and ethical guidelines were followed. Research material is included in File S1. The data related to this manuscript are available here: [https://osf.io/es8mk/?view\\_only=eeea6c430abf4c7caa563763b821926b](https://osf.io/es8mk/?view_only=eeea6c430abf4c7caa563763b821926b).

### 4.2 | Procedure and measures

Participants first completed the passion scale for guns and indicated the extent to which guns are important to them. Then, they were randomly assigned to read one of three messages: one informing about the risks of owning guns and supporting gun control laws (“gun control condition,” see Vignette A in File S1,  $N = 114$ ), one about the positive aspects of owning guns (“gun support condition” Vignette B,  $N = 115$ ), and one message informing about the risks of having black mold at home (“baseline condition” Vignette C,  $N = 113$ ), which served as a baseline condition mirroring the negative valence of Vignette A. After participants read the message, we assessed their intentions to purchase firearms, specifically measuring how many guns they planned to buy in the next 6 months.

A MANOVA was conducted to examine differences in OP, HP, gun importance, age, gender (coded as one for Male and two for Female), and ethnicity across experimental groups. The results revealed differences in gender [ $F(2, 339) = 3.08, p = .04$ ] and gun importance [ $F(2, 339) = 4.00, p = .01$ ], with all other  $p$ -values greater than .12. Specifically, there were more women in the gun support condition ( $M = 1.57, SD = 0.49$ ) than the gun control group ( $M = 1.40, SD = 0.49, p = .01$ ), but no significant difference compared to the baseline condition ( $M = 1.50, SD = 0.50, p = .37$ ). Additionally, gun importance was rated higher in the gun control condition ( $M = 4.94, SD = 1.76$ ) than in the gun support condition ( $M = 4.22, SD = 2.07, p = .005$ ), but there was no significant difference when compared to the baseline condition ( $M = 4.60, SD = 1.93, p = .19$ ). Given these differences, our analyses controlled for age, gender, ethnicity, and gun importance.

#### 4.2.1 | Passion

The Passion Scale (Vallerand et al., 2003) consists of two six-item subscales measuring harmonious and OP. Participants rated their

**TABLE 1** Means, standard deviations, and correlations involving all variables from Study 1 ( $N = 342$ ).

	M	SD	2	3	4	5	6
HP (1)	3.44	1.65	0.59***	0.66*	0.30***	-0.07	-0.10
OP (2)	1.76	1.14		.38***	.35***	-0.22***	-0.16**
Importance of guns (3)	4.58	1.94			0.23***	0.05	-0.04
Gun purchase intentions (4)	0.28	0.83				-0.08	-0.13*
Age (5)	39.47	11.81					-0.03
Gender (6)	1.49	0.51					

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

agreement for each of these items on a 7-point scale ranging from 1 (*not agree at all*) to 7 (*very strongly agree*). HP (e.g., "Gun ownership is in harmony with other things that are part of me,"  $\alpha = .92$ ) and OP (e.g., "Gun ownership is so exciting that I sometimes lose control over it,"  $\alpha = .88$ ) were moderately correlated ( $r = 0.59$ ,  $p < .001$ ).

#### 4.2.2 | Importance of guns

The importance participants attribute to gun ownership was measured with a single item ("Gun ownership is important to me") from the passion scale (Vallerand et al., 2003) and responded on a 7-point scale ranging from 1 (*not agree at all*) to 7 (*very strongly agree*).

#### 4.2.3 | Intentions to purchase guns

We asked participants how many guns they planned to purchase in the next 6 months. We provided five categories (handgun, shotgun, precision rifle, modern sporting rifle, and other) and asked them to indicate the number of guns they planned to purchase in each category; their responses were then summed.

## 5 | RESULTS

The baseline condition ( $M = 0.26$ ,  $SD = 0.69$ ) and the gun support message ( $M = 0.15$ ,  $SD = 0.43$ ) yielded comparable levels of gun purchase intentions,  $F(1, 226) = 2.03$ ,  $p = .15$ . Therefore, we chose to merge these two conditions and refer to them as the neutral condition to streamline the presentation of results.<sup>1</sup> Using the PROCESS macro (Model 1) by Hayes (2018), multiple regression analyses were conducted to explore how OP for guns interacts with experimental conditions (0 = neutral condition, 1 = gun control message) to influence gun purchase intentions, controlling for HP, the interaction between HP and experimental conditions, the importance of guns, age, gender, and ethnicity.<sup>2</sup> In accordance with Aiken and West's (1991) procedures, the independent variables were standardized before calculating the interaction terms. The means,

standard deviations, and correlations for all measures can be found in Table 1.

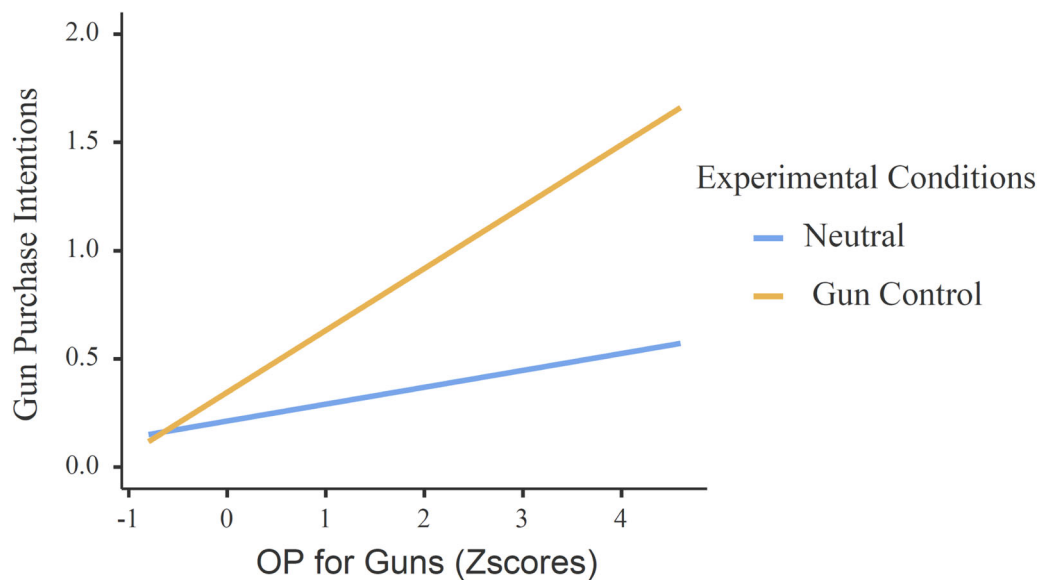
Results revealed that HP ( $\beta = .09$ ,  $SE = 0.06$ ;  $p = .12$ , 95% CI =  $[-0.02, 0.22]$ ), importance of guns ( $\beta = .05$ ,  $SE = 0.05$ ;  $p = .36$ , 95% CI =  $[-0.06, 0.16]$ ), age ( $\beta = -0.01$ ,  $SE = 0.04$ ;  $p = .81$ , 95% CI =  $[-0.09, 0.07]$ ), gender ( $\beta = -.05$ ,  $SE = 0.04$ ;  $p = .20$ , 95% CI =  $[-0.13, 0.03]$ ), ethnicity ( $\beta = -.004$ ,  $SE = 0.04$ ;  $p = .90$ , 95% CI =  $[-0.08, 0.07]$ ) and the "HP X experimental condition" interaction ( $\beta = .02$ ,  $SE = 0.05$ ;  $p = .60$ , 95% CI =  $[-0.07, 0.12]$ ) were not statistically significant. OP ( $\beta = .18$ ,  $SE = 0.05$ ;  $p = .0009$ , 95% CI =  $[0.07, 0.28]$ ) was positively associated with gun purchase intentions, and as expected, the interaction between OP and experimental condition was significant ( $\beta = .10$ ,  $SE = 0.04$ ;  $p = .03$ , 95% CI =  $[0.006, 0.20]$ ). The model explained 17.78% of the variance.

Simple slope analyses revealed that the relationship between OP and gun purchase intentions was significant in the gun control condition ( $\beta = .32$ ,  $SE = 0.08$ ,  $t = 4.08$ ,  $p = .0001$ , 95% CI  $[0.17, 0.48]$ ), but not in the neutral condition ( $\beta = .10$ ,  $SE = 0.06$ ,  $t = 1.55$ ,  $p = .12$ , 95% CI  $[-0.02, 0.24]$ ). Figure 1 displays the results.

## 6 | DISCUSSION

Study 1 supports the notion that the impact of gun control messages on gun purchase intentions differs across gun owners. Specifically, the relationship between OP for guns and intentions to purchase guns increased in the gun control condition, while no significant change was observed in the neutral condition. Importantly, there was no interaction between HP and the experimental conditions. These results are in line with previous research showing that OP tends to be associated with ego-defensive reactions and psychological reactance (Bélanger et al., 2013a, 2021).

The observed increase in intentions to purchase firearms among those with an OP for guns calls for a deeper exploration into attitudes associated with defensive gun ownership, including the types of guns sought and their intended uses. Additionally, it prompts an investigation into the behavioral implications of OP for guns by examining how it relates to defensive actions in simulated high-threat scenarios. These aspects were the central focus of Study 2.



**FIGURE 1** Gun purchase intentions as a function of obsessive passion and experimental conditions (Study 1). [Color figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/doi/10.1002/ab.22146)]

## 7 | STUDY 2 – SIMULATED ACTIVE SHOOTER SCENARIO

Study 2 had two components: a survey measuring gun attitudes and a simulated shooter task. The overarching objective of Study 2 was to provide additional evidence showcasing that OP for guns is marked by increased threat perception and response. In the first part, we expected that OP for guns is related to owning firearms for protection (rather than hunting or target shooting) and a preference for guns with more stopping power, whether through symbolic means (e.g., intimidating size) or physical attributes (e.g., large caliber or quick fire-rate), beyond other concerns such as reliability and safety. In line with our theory, we expected this relationship to be mediated by BDW.

In the second part, participants faced a mass shooting scenario, where they were armed and had to respond to an active shooter nearby. Within our theoretical framework, we proposed that OP for guns might be related to a heightened threat response in participants' shoot-or-don't-shoot decisions. Specifically, we predict that, due to prevailing stereotypes that depict Black men as more threatening, Black male targets will be shot at a higher frequency than White male targets (cf., Correll et al., 2002; Maner et al., 2005). Furthermore, considering the connection between OP and BDW, along with BDW's role in predicting racial bias in shooter tasks (Correll et al., 2011; Miller et al., 2012), we hypothesize that BDW will mediate our findings, reinforcing the link between OP for guns, BDW, and social prejudice.

To contextualize these expectations, it is important to consider the deep-seated stereotypes that historically link race, specifically Black identity, to criminality within the USA. These pervasive stereotypes are not merely the result of individual biases but are deeply rooted in and perpetuated by systemic policies that have historically criminalized and

disproportionately penalized Black communities (see Najdowski, 2023). The research conducted by Nosek et al. (2007) reveals a widespread tendency to associate Black individuals with weaponry and White individuals with non-threatening objects. This association is not an isolated phenomenon but rather a reflection of complex cognitive schemas that develop over time through interactions across various layers of society. These schemas are shaped by a myriad of factors, including the social environment, political climate, and historical contexts specific to the era, as discussed by Bronfenbrenner and Morris (1998) and further explored by Payne and Hannay (2021). This understanding highlights that the stereotypes contributing to racial biases in threat assessment and reaction are embedded within the broader societal consciousness, influenced by a long history of structural inequities and dynamics.

## 8 | METHOD

### 8.1 | Participants

Based on prior research linking OP and violent attitudes ( $r = 0.50$ ; Wolfowicz et al., 2021), we conducted a power analysis with large effect sizes ( $r = 0.50$ ) and power set at 0.80. A sample size of 73 people was suggested by 5000 Monte Carlo simulations. However, we chose to recruit additional participants because the established strong correlations with attitudes might not be directly applicable to behaviors. There could be greater variation and complexity in behavioral responses, and we wanted to ensure our study was sufficiently powered to detect these variations. Four hundred and sixty-seven American gun owners were recruited via MTurk. Of this group, 17 participants were removed from the analysis because they reported not having a firearm, and 52 were removed because they

did not complete the shooting task. The final sample comprised three hundred and ninety-eight American gun owners (207 women, 191 men;  $M_{\text{age}} = 36.17$  years,  $SD_{\text{age}} = 10.87$  years).

## 8.2 | Procedure and measures

Participants were invited to take a survey to assess their attitudes, beliefs, and emotions related to guns. Following the survey, they participated in a simulated shooting task designed to examine any potential anti-Black racial bias in their shoot/no-shoot decisions.

### 8.2.1 | Passion for guns

HP and OP for guns were assessed using three-item scales each, scored on a 5-point Likert scale from 1 (*do not agree at all*) to 5 (*completely agree*). The scales demonstrated good reliability (HP at  $\alpha = .80$  and OP at  $\alpha = .69$ ) and were moderately correlated ( $r = 0.40$ ,  $p < .001$ ). We used shorter versions of the HP and OP scales because the survey included the shooting task, and we aimed to keep the study as brief as possible for the participants. The selected items had factor loadings above .76 in Study 1.

### 8.2.2 | Importance of guns

This variable served as a control and was measured as in Study 1.

### 8.2.3 | Belief in a dangerous world

BDW was measured using nine items taken from Duckitt's (2001) dangerous world scale (rated 1 = *disagree strongly* to 5 = *agree strongly*;  $\alpha = .89$ ).

### 8.2.4 | Reason to own guns

On a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), participants indicated to what extent guns should be used for protection/self-defense, hunting, and sport/target shooting.

### 8.2.5 | Gun characteristics

Participants reported their preferences for different gun features for their next gun purchase, on a 7-point scale ranging from 1 (*do not agree at all*) to 7 (*very strongly agree*). Some pertained to stopping power (high-capacity magazine, large caliber round, quick fire-rate, automatic, number of accessories on gun, intimidating sound, intimidating size, and lethality;  $\alpha = .83$ ). Other features pertained to reliability (ergonomic grip, durability, accuracy, safety, and small recoil;  $\alpha = .74$ ).

## 8.2.6 | Anti-Black shooter bias

Participants completed an online shooter simulation task based on the design and stimuli provided by Correll et al. (2002). In this task, participants were presented with images of Black and White male targets holding guns or harmless objects in front of various backgrounds. They were instructed to "shoot" armed targets ("bad guys") and "not shoot" unarmed targets ("innocents") within a time limit of 1000 ms by pressing one of two buttons on the keyboard. This results in four possible outcomes: (1) correctly "shooting" an armed target (true positive), (2) wrongly "shooting" an unarmed target (false positive), (3) correctly "not shooting" an unarmed target (true negative), (4) wrongly "not shooting" an armed target (false negative).

Each trial in the task followed this sequence: After an initial fixation cross, between 1 and 5 scenery images were presented in serial order for 500–1000 ms (e.g., parks, sidewalks, interior rooms). On the last scenery image, the target stimulus was superimposed, causing it to suddenly appear in the scenery (see File S1). There were 8 practice trials and 40 test trials presented in a random order (10 armed White men, 10 armed Black men, 10 unarmed White men, and 10 armed Black men). Participants received feedback after each trial in the form of points (Correll et al., 2002).

To study anti-Black shooter bias, researchers analyze reaction times or error rates. This approach, as outlined by Correll et al. (2002), involves deriving a single score for the anti-Black shooter bias. This score is computed by subtracting the errors or reaction times in specific scenarios: (unarmed Black targets not shot–armed Black targets shot)–(unarmed White targets not shot–armed White targets shot). This method accounts for societally induced biases by considering the cognitive processes involved in recognizing armed and unarmed individuals of different racial backgrounds. For instance, in a society where stereotypes associate Black men with danger, people may be fast at recognizing armed Black persons due to confirmation bias and slower at recognizing unarmed Black persons. Conversely, for White targets, the expectation might be the opposite—quicker recognition of unarmed individuals and slower recognition of armed ones. A higher score in reaction time or a lower score in error rate suggests that participants find it mentally simpler to decide to shoot a Black man holding a gun compared to making the same decision about a White man in a similar scenario. Similarly, it is mentally simpler to decide not to shoot an unarmed White man and more difficult to refrain from shooting an unarmed Black man, underscoring a potential bias toward shooting unarmed Black individuals.

## 9 | RESULTS

We utilized the PROCESS macro (Model 4; Hayes, 2018) to compute indirect effects, testing the relationship between the independent variable (OP), the mediator (BDW), and a series of dependent

**TABLE 2** Means, standard deviations, and correlations involving all variables from Study 2 ( $N = 398$ ).

	M	SD	2	3	4	5	6	7	8	9	10	11	12	13	14	
HP (1)	3.19	1.05	.40***	.63***	.08	.28***	.24***	.26***	.18***	.27***	.01	-0.14**	.01	-0.14**	-0.02	
OP (2)	1.47	0.66		.21***	.15***	-0.03	-0.06	-0.07	-0.04	.36***	.04	-0.12**	-0.00	-0.16***	.01	
Importance of guns (3)	3.91	1.12			.16***	.47***	.26***	.31***	.25***	.28***	.02	-0.17***	.08	-0.15**	-0.04	
BDW (4)	3.04	0.87				.24***	-0.08	-0.08	.09	.23***	-0.01	-0.17***	.16***	.24***	-0.00	
Protection/self-defense (5)	4.64	0.69					.26***	.29***	.30***	.16***	-0.01	-0.13**	.10*	.09	-0.06	
Hunting (6)	4.58	0.85						.46***	.08	-0.11*	-0.02	-0.02	.03	-0.06	-0.09	
Sport/target shooting (7)	4.55	0.85							.19***	-0.01	-0.02	.02	.13**	-0.08	-0.08	
Reliability (8)	5.33	1.09								.31***	.00	-0.05	.05	.09	-0.00	
Stopping power (9)	2.84	1.23									.04	-0.07	.04	-0.06	.10*	
Shooter bias (RTs, 10)	31.87	69.47										.04	-0.15**	-0.04	.00	
Shooter bias (Error rate, 11)	-0.22	2.06											-0.12*	-0.04	-0.03	
Age (12)	36.17	10.87												.12*	-0.12*	
Gender (13)	0.52	0.50														-0.03
Ethnicity (14)	1.59	1.50														

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

variables while controlling for HP, the importance of guns, age, gender, and ethnicity. As in Study 1, all independent variables were standardized. We utilized 5000 bootstrapping samples to estimate the indirect effects. Means, standard deviations, and correlations for all measures are presented in Table 2, while Table 3 showcases all betas and mediation analyses.

### 9.1 | Reasons for gun ownership

HP was positively related owning a gun for hunting and sport/target shooting; OP was negatively related to these variables. Additionally, we found a negative direct effect of OP on owning guns for self-protection. However, the relationship between OP (but not HP) and owning guns for self-protection was significantly mediated by BDW.

### 9.2 | Gun characteristics

OP was positively related to a preference for stopping power and negatively related to a preference for reliability. The relationship between OP and stopping power was mediated by BDW. HP was unrelated to either outcome variable.

### 9.3 | Shooter bias

Results from the shooting task indicated no direct effects of OP or HP on the anti-Black shooter bias, nor any effects on reaction times. However, OP was indirectly related to an anti-Black bias in error rates via BDW.

## 10 | DISCUSSION

Study 2 revealed two different patterns of results with passionate gun owners. OP for guns was related to a greater likelihood of owning guns for protection and prioritizing stopping power in subsequent gun purchases—these relationships were mediated by BDW, suggesting that OP is linked to evaluating guns in terms of threat response. Conversely, HP for guns was related to a higher tendency to own guns for hunting, sport, and target shooting.

In addition to these findings, OP for guns was indirectly related to racially biased decisions in simulated shoot/no-shoot decisions. Specifically, our findings indicate that OP for guns is related to BDW, which in turn is associated with individuals being more likely to shoot Black targets, regardless of whether they were armed while being more selective with White targets.



**TABLE 3** Results from mediation analysis (Study 2).

IV	Effect of IV on BDW ( $R^2 = 0.15$ )															
	$\beta$		SE		$\beta$		SE		$\beta$		SE		$\beta$		SE	
OP	.19***		0.05													
HP	-.09		0.06													
Importance of guns	.21***		0.06													
Age	.12*		0.04													
Gender	.28***		0.04													
Ethnicity	.02		0.04													
DV	OP on DV		HP on DV		Importance of guns on DV		BDW on DV		Age on DV		Gender on DV		Ethnicity on DV			
	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE		
Protection/self-defense	-.12***	0.03	.05	0.04	.30***	0.03	.11***	0.03	.01	0.03	.06*	0.03	-.02	0.02		
Hunting	-.13**	0.04	.16**	0.05	.15**	0.05	-.09*	0.04	.02	0.04	-.07	0.04	-.06	0.04		
Sport/target shooting	-.16***	0.04	.16**	0.05	.19***	0.05	-.10*	0.04	.11**	0.04	-.03	0.04	-.04	0.03		
Reliability	-.13*	0.05	.11	0.07	.24***	0.07	.04	0.05	.02	0.05	.11*	0.05	.01	0.05		
Stopping power	.35***	0.06	.03	0.07	.22**	0.07	.20***	0.06	.02	0.05	-.03	0.05	.13	0.05		
Shooter bias (RTs)	2.65	3.90	-1.70	4.82	2.70	4.61	.51	3.76	-11.31**	3.58	-1.23	3.74	-1.31	3.50		
Shooter bias (Error rate)	-.16	0.11	-.07	0.14	-.24	0.13	-.23**	0.10	-.19	0.10	-.09	0.10	-0.10	0.10		

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

DV	Indirect effect (HP → BDW → DV)				Indirect effect (OP → BDW → DV)				$R^2$
	$\beta$	SE	CI lower	CI upper	$\beta$	SE	CI lower	CI upper	
Protection/self-defense	-.01	0.008	-0.02	0.004	.02 <sup>a</sup>	0.008	0.009	0.04	0.29
Hunting	.008	0.008	-0.004	0.02	-.01	0.01	-0.04	0.002	0.12
Sport/target shooting	.009	0.008	-0.004	0.02	-.02 <sup>a</sup>	0.01	-0.04	-0.001	0.17
Reliability	-.003	0.007	-0.02	0.008	.008	0.01	-0.01	0.03	0.09
Stopping power	-.01	0.01	-0.05	0.007	.04 <sup>a</sup>	0.01	0.01	0.07	0.21
Shooter bias (RTs)	.02	0.01	-0.008	0.06	.10	0.80	-1.50	1.71	0.02
Shooter bias (error rate)	.02	0.01	-0.009	0.06	-.04 <sup>a</sup>	0.02	-0.09	-0.004	0.07

<sup>a</sup>Significant indirect effect.

Overall, these findings reinforce the notion that OP for guns is associated with a perception of the world as fraught with danger, which, in turn, is positively correlated with a motivation to use firearms for protection. This understanding carries significant implications, particularly for outgroup members who might be construed as more threatening. The third study advances this premise, examining the attitudes of gun owners in the wake of a real-world mass-shooting event, leveraging the methodological advantage of studying attitudes and behaviors in a genuine societal context.

### 11 | STUDY 3 - CHRISTCHURCH SHOOTING

On March 15, 2019, a gunman opened fire on mosque attendees in Christchurch, New Zealand, killing 51 people, injuring 49 others, and live-streaming his actions on Facebook. This tragic event marked the deadliest shooting in the country's history and led to a significant shift in New Zealand's approach to gun control. In contrast with the United States, where the constitutional right to bear arms and a deeply rooted gun culture often complicates the response to similar acts of violence, New

Zealand's swift legislative action and public outcry for stricter gun control measures provide a different context for understanding the dynamics of gun ownership.

In the days following this event, we surveyed New Zealand gun owners to understand their reaction to the mass shooting. We particularly looked into how their views might be related to OP for guns and BDW. We hypothesized that an OP for guns would be related to a stronger BDW, which in turn could be correlated with responses such as endorsing a culture of gun ownership and a willingness to act as a citizen-protector. Additionally, we considered the potential moderating influence of the mass shooting's salience, predicting that these indirect effects would be heightened among individuals with greater subjective knowledge of the event (Leander et al., 2019). This perspective allows for an exploration of how deep-seated beliefs and passions about guns interact with external events to shape attitudes and behaviors in the context of a national tragedy.

Furthermore, we tested how the proposed model extends to perceptions of intergroup threat. If OP for guns is related to BDW, this belief may then lead to viewing outgroups as hostile and threatening. In the wake of the Christchurch shooting, a rigorous examination of our hypotheses would include investigating whether this heightened sense of threat extends beyond the mass shooting to include prejudice against the outgroup victimized by the shooting. This may be manifested in Islamophobia, given that Muslims were specifically targeted.

## 12 | METHOD

### 12.1 | Participants

As in Study 2, we assumed large effect sizes ( $r = 0.50$ ) and power was set at 0.80. A sample size of 292 people was suggested by 5000 Monte Carlo simulations. Three hundred and fourteen New Zealand gun owners were recruited through Qualtrics' panel service with a pre-screening survey similar to Studies 1–2 (107 women, 207 men, Age: 18–24 = 14.6%, 25–34 = 24.5%, 35–44 = 24.2%, 45–54 = 13.4%, 55–64 = 16.6%, 65+ = 6.7%).

### 12.2 | Measures

#### 12.2.1 | Passion for guns

Building on the approach from Study 2, we measured participants' HP and OP for guns, using scales with three items each, demonstrating strong reliability ( $\alpha = .86$  for HP and  $\alpha = .95$  for OP). The imperative for an expedited response to the Christchurch attack led us to employ these abbreviated versions of the OP and HP scales, ensuring rapid and effective data collection while maintaining the robustness of our measures.

#### 12.2.2 | Importance of guns

This serves as a control variable in the analyses. Following Gómez et al.'s (2017) identity fusion measure, participants were presented with eight pairs of circles, each with a different degree of overlap. In each pair, one circle represented the participant's gun, and a larger circle represented the participant (me). Participants were asked to choose which picture best reflected how central the gun is to their identity. This variable served as a control variable in our analyses.

#### 12.2.3 | Knowledge about christchurch

Participants' knowledge of the Christchurch mass shooting was measured with a single item (How knowledgeable are you about the recent mass shooting at the mosques in Christchurch?) rated on a 5-point scale ranging from 1 (*not at all knowledgeable*) to 5 (*extremely knowledgeable*).

#### 12.2.4 | Belief in a dangerous world

Participants' BDW was measured using Duckitt's (2001) 10-item dangerous world scale ( $\alpha = .70$ ).

#### 12.2.5 | Armed citizenship

Participants' belief that private gun ownership reduces societal crime was measured with a single item taken from Stroebe et al. (2017): "In general, if more people had guns, there would be less crime." The item was rated on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

#### 12.2.6 | Citizen-protector

Participants' willingness to act as a citizen-protector to engage in gun-related vigilantism was measured using the vigilantism scale ( $\alpha = .78$ ) developed by Leander et al. (2019). They were asked about their likelihood of drawing or discharging a firearm in three different scenarios: "saving a vulnerable stranger in distress," "stopping an active shooter situation," and "detering intimidation by trouble-makers." The scale was scored on a 5-point Likert scale ranging from 1 (*definitely not*) to 5 (*definitely yes*).

#### 12.2.7 | Islamophobia

Participants attitudes toward Islam ( $\alpha = .69$ ) were measured using five items (e.g., "Islam has an aggressive side that predisposes it toward terrorism" and "Islam shares the same universal ethical principles as

other major world religions"; reverse-scored). The scale was scored on a 5-point Likert scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*).

## 13 | RESULTS

In our study, we employed the PROCESS macro (Model 7; Hayes, 2018) to explore how the influence of OP for guns on certain attitudes and behaviors (e.g., endorsement of armed citizenship and willingness to act as a citizen-protector) is mediated by BDW, and how this mediation varies depending on individuals' knowledge of the Christchurch attack. This analysis was conducted while controlling for other relevant variables including HP, the interaction between HP and knowledge, the importance of guns, as well as demographic factors such as age, gender, and ethnicity. Following the guidelines of Aiken and West (1991), we standardized the independent variables. To estimate the indirect effects, we utilized 5000 bootstrapping samples. Detailed descriptive statistics including means, standard deviations, and correlations for all measures can be found in Table 4. Furthermore, Table 5 presents the outcomes of the moderated mediation, including direct and indirect effects, as well as the index of moderated mediation, which tests whether the indirect effects differ at different levels of the moderating variable (i.e., knowledge).

As shown in Table 5, the OP  $\times$  Knowledge interaction was statistically significant ( $\beta = .18, p = .0005$ ), whereas the HP  $\times$  Knowledge was not ( $\beta = .06, p = .13$ ). Simple slope analyses revealed that the relationship between OP and BDW was significant for individuals with low ( $-1$  SD) knowledge of the attacks ( $\beta = .33, p < .001$ ), but twice as large when individuals have high ( $+1$  SD) knowledge of the attacks ( $\beta = .70, p < .001$ ).<sup>3,4</sup> Figure 2 displays the results.

### 13.1 | Armed citizenship

Both HP and OP were related to the belief that an armed citizenry reduces crime, but the effect was four times stronger for OP. Additionally, the indirect effect between OP and armed citizenship was mediated by BDW and moderated by knowledge about the Christchurch mass shootings, such that the indirect effect was stronger for people with a strong ( $+1$  SD) versus limited ( $-1$  SD) knowledge of the event.

### 13.2 | Citizen-protector

OP (but not HP) was positively related to willingness to act as a citizen-protector. This relationship was mediated by BDW and moderated by knowledge about the Christchurch mass shootings. Specifically, the indirect effect was stronger for individuals with a strong ( $+1$  SD) compared to limited ( $-1$  SD) knowledge of the event.

### 13.3 | Islamophobia

As expected, the relationship between OP and Islamophobia was mediated by BDW and moderated by knowledge about the Christchurch mass shootings, such that the indirect effect was stronger for individuals with a strong ( $+1$  SD) versus limited ( $-1$  SD) knowledge of the event.

## 14 | DISCUSSION

Study 3 shows how passionate gun owners react to knowledge about a mass shooting event. Both HP and OP for guns were linked to the belief that armed society reduces crime—a solution within the bounds of the law, which is expected for most gun owners. However, only OP for guns

**TABLE 4** Means, standard deviations, and correlations involving all variables from Study 3 ( $N = 314$ ).

	M	SD	2	3	4	5	6	7	8	9	10	11
HP (1)	3.17	1.24	0.52***	0.50***	0.26***	0.44***	0.46***	0.40***	0.22***	0.02	0.30*	-0.08
OP (2)	1.84	1.29		0.72***	0.50***	0.79***	0.69***	0.65***	0.29***	-0.15**	0.11**	-0.00
Importance of guns (3)	2.65	2.37			0.38***	0.63***	0.56***	0.53***	0.19***	-0.08	0.16***	-0.01
Knowledge about Christchurch (4)	3.67	0.98				0.43***	0.41***	0.40***	0.27***	-0.25***	-0.06	-0.06
BDW (5)	3.47	0.64					0.62***	0.60***	0.30***	-0.09	0.10	0.01
Armed citizenship (6)	2.41	1.36						0.57***	0.40***	-0.13*	0.19***	0.02
Citizen-protector (7)	3.04	1.08							.29***	-0.14**	0.19***	0.01
Islamophobia (8)	2.77	0.88								0.10	0.08	0.04
Age (9)	3.13	1.49									0.17**	-0.10
Gender (10)	0.66	0.47										-0.05
Ethnicity (11)	1.59	1.25										

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**TABLE 5** Results from mediation analysis testing the moderated mediation with OP (Study 3).

IV	IV on BDW ( $R^2 = 0.66$ )	
	$\beta$	SE
OP	.52***	0.06
HP	.02	0.04
Importance of guns	.08	0.04
Knowledge	.08*	0.04
HP $\times$ Knowledge	.06	0.04
OP $\times$ Knowledge	.18***	0.05
Age	.004	0.03
Gender	.01	0.03
Ethnicity	.02	0.03

Simple effects of OP $\times$ Knowledge						
Moderator levels Knowledge	Estimate	SE	95% confidence interval		t	p
			Lower	Upper		
Mean -1 SD	0.33	0.09	0.15	0.52	3.66	<.001***
Mean +1 SD	0.70	0.06	0.57	0.82	11.06	<.001***

\*\*\* $p < .001$ .

DV	OP on DV		HP on DV		Importance of guns on DV		BDW on DV		HP $\times$ Knowledge of DV		Age on DV		Gender on DV		Ethnicity	
	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE
Armed citizenship	.58***	0.10	.14*	0.06	.08	0.08	.24**	0.09	.02	0.06	-.09	0.05	.13*	0.05	.04	0.05
Citizen-protector	.43***	0.08	.03	0.05	.07	0.06	.24**	0.07	-.03	0.05	-.08	0.04	.12*	0.04	.01	0.04
Islamophobia	.17*	0.08	.06	0.05	-.08	0.07	.19**	0.07	-.07	0.05	.13**	0.04	.009	0.05	.06	0.04

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

DV	Indirect effect (OP $\rightarrow$ BDW $\rightarrow$ DV) <sup>b</sup>				Index of moderated mediation				$R^2$
	$\beta$	SE	CI lower	CI upper	$\beta$	SE	CI lower	CI upper	
Armed citizenship	.08 <sup>a</sup> (.17) <sup>a</sup>	0.04 (0.07)	0.01 (0.02)	0.17 (0.30)	.04 <sup>c</sup>	0.02	0.005	0.09	0.52
Citizen-protector	.08 <sup>a</sup> (.16) <sup>a</sup>	0.03 (0.05)	0.02 (0.05)	0.16 (0.28)	.04 <sup>c</sup>	0.01	0.01	0.08	0.47
Islamophobia	.06 <sup>a</sup> (.13) <sup>a</sup>	0.03 (0.05)	0.01 (0.03)	0.14 (0.24)	.03 <sup>c</sup>	0.01	0.006	0.07	0.14

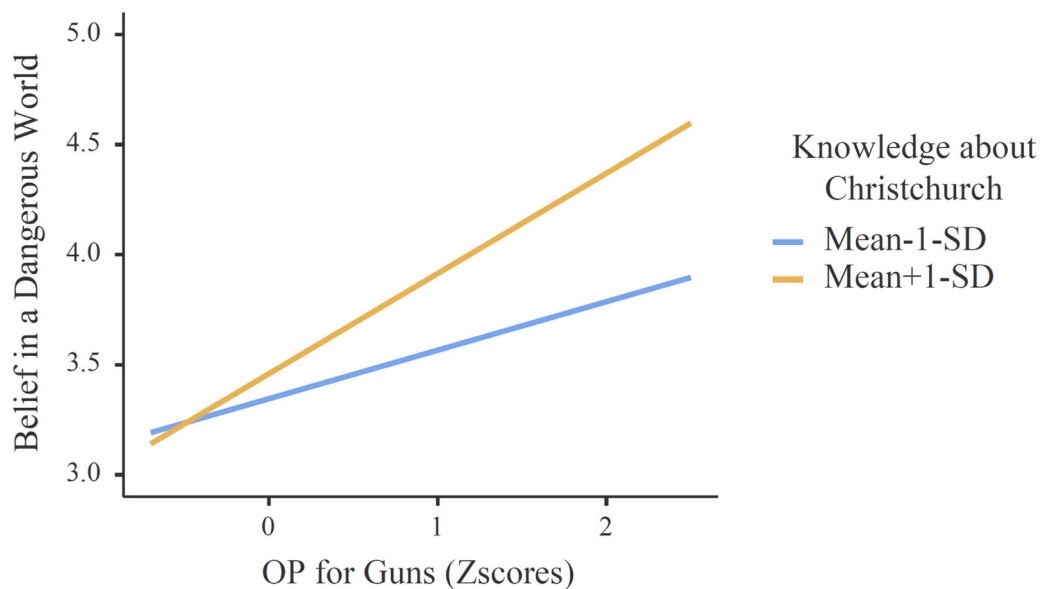
<sup>a</sup>Significant indirect effect.<sup>b</sup>numbers outside and inside the parentheses represent the indirect effect for 16th percentile and 84th percentile of knowledge, respectively.<sup>c</sup>This suggests that the indirect effects significantly differ from one another, underscoring the variation in indirect effects across different levels of the moderator.

was related to willingness to act as a citizen-protector. This suggests that OP for guns is associated with advocating for more widespread gun use by private citizens to address societal threats. Supporting that claim, the relationships between OP and firearms use by private citizens (i.e., armed citizenship and willingness to act as a citizen-protector) were mediated by BDW and exacerbated by gun owners' knowledge of the Christchurch attacks. Furthermore, the model revealed that OP gun owners' attitudes extend beyond guns to include perceptions of intergroup threat. Specifically, despite Muslims being the primary victims of the terrorist attack, OP for guns was associated with viewing them as a threat as well. This pattern was unique to OP, as HP was not associated with BDW and

remained unaffected by knowledge of the attack. This suggests that OP for guns is associated with perceiving threats indiscriminately, even to the extent of derogating the victims of gun violence.

## 15 | GENERAL DISCUSSION

The goal of this research was to examine the relationship between passion for guns and defensive gun ownership through three consecutive studies. Each study built on the findings of the last, offering insights into the complex interplay of gun passion and



**FIGURE 2** Belief in a dangerous world as a function of obsessive passion and knowledge about the Christchurch attack (Study 3). [Color figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/doi/10.1111/ab.12541)]

ownership behaviors. Study 1 laid the foundation by investigating how exposure to gun control messages influenced intentions to purchase firearms among those passionate about guns. Study 2 expanded on the findings by examining the attitudes and preferences of gun enthusiasts, delving deeper into their motivations and behaviors, particularly in simulated high-threat shooting scenarios. Finally, Study 3 shifted focus to real-world implications by examining the attitudes of gun owners following a mass-shooting event, providing valuable insights into how passion for guns is related to support for gun attitudes, policies, and attitudes toward outgroups. Together, these studies offered a comprehensive understanding of the complex relationship between passion for guns, psychological and behavioral reactions to gun-related stimuli, and responses to real-world threats, including attitudes toward outgroups.

The first contribution of this work is to provide evidence that the type of passion for gun ownership—whether harmonious (HP) or obsessive (OP)—is related to how gun owners feel, think, and act regarding firearms. As shown in Study 1, when exposed to messages promoting stricter gun control, OP (but not HP) for guns was positively associated with gun purchase intentions. This suggests that individuals with an OP for guns may respond defensively when feeling threatened or insecure, aligning with prior research showing that OP predicts reactance when individuals encounter opposing viewpoints (Bélanger et al., 2021).

The second contribution of this research is to show that OP for guns is linked with BDW, and this connection serves as a mechanism linking OP for guns to defensive gun ownership. Unlike HP for guns, which does not show this connection, OP for guns is associated with a tendency to own firearms for protection and to prioritize firearms with greater stopping power (Study 2). This mindset further correlates with a more expansive view on protection: that increased societal access to firearms and a willingness to act as a citizen-protector can effectively mitigate

crime (Study 3). The link between OP and BDW may highlight a current challenge in the modern discourse on gun ownership—namely, whether a defensive gun ownership mindset can exacerbate a bias towards gun use against minority groups that are historically stereotyped as threats. Specifically, through BDW, OP for guns was related to racial bias towards black targets rather than white ones in a simulated task (Study 2), a pattern that could have potentially severe consequences in real-world situations.

The third contribution of this research is highlighting how gun owners respond to recent mass shootings, another context in which the relationship between OP for guns and defensive gun ownership is intensified. The findings from Study 3 reveal that in the aftermath of such an attack, the more knowledgeable gun owners are about the incident, the stronger the connection becomes between OP for guns and BDW. This linkage is positively associated with support for a well-armed society and a willingness to act as a citizen-protector. Furthermore, defensive gun ownership is elevated to such a degree that even members of outgroups (who were the targets of the mass shooting) were perceived more negatively, as evidenced by an increase in Islamophobic attitudes. The findings illuminate the nuanced dynamics at play, demonstrating how awareness of a threatening event, coupled with OP for guns, may influence attitudes and perceptions, further shaping the rationale of defensive gun ownership.

An intriguing finding in both Study 1 and Study 2 is that while both HP and OP were highly correlated with the importance ascribed to guns, the correlation was notably stronger with HP compared to OP. This pattern of results is consistent with prior research on passion (e.g., Bélanger et al., 2022), which has been discussed in relation to the concepts of multifinal and counterfactual means (Kruglanski et al., 2015). According to this view, individuals with HP integrate their passionate activity into their

lives in a balanced manner, viewing it through a lens of multifinality—where their engagement fulfills multiple goals simultaneously. In contrast, OP is akin to pursuing counterfinal means, focusing narrowly on pursuing their passionate activity but at the expense of other life domains and broader life integration (Bélangier et al., 2019). In the context of our study, this could mean that guns are perceived as an important aspect of people's lives, particularly when this passion is harmoniously regulated because firearms fulfill multiple goals. For instance, individuals with HP may see guns as tools for recreation and community bonding, integrating them into different facets of their lifestyle. Conversely, with OP, gun ownership may be narrowly centered around defensive purposes, neglecting other potential functions or considerations. These differences in integration with one's life could elucidate the contrasting correlation patterns between OP, HP, and the perceived importance of guns.

In summary, our findings indicate that OP and HP for guns are associated to distinct perceptions, emotions, and behaviors related to firearms. We observed that both types of passion are linked to a strong emphasis on gun ownership (quantity of motivation). However, what distinguishes them is how they integrate their passion for firearms with other aspects of life (quality of motivation, whether harmonious or obsessive). Specifically, individuals who fixate on firearms as a means of protection against perceived threats (OP for guns) tend to exhibit a pattern of relying heavily on firearms, particularly in threatening situations. This information holds significant value for policymakers, as it underscores the fact that messages related to gun control can be perceived as threatening by certain gun owners. Additionally, high-threat scenarios, such as mass shootings, can further intensify people's desire for self-protection. Understanding these dynamics can aid policymakers in formulating more effective messaging campaigns for firearm regulation and public safety measures.

## 16 | LIMITATIONS AND FUTURE RESEARCH

The primary limitation of this research stems from its cross-sectional design, which limits our ability to establish clear causal links between the types of passion—namely, OP and HP—and the range of attitudes and behaviors related to gun ownership. Future research could benefit from employing experimental methodologies that deliberately manipulate levels of OP and HP to elucidate their direct causal effects on gun-related outcomes. Such an approach would enhance our comprehension of the intricate dynamics inherent in passionate gun ownership, thereby facilitating the development of more targeted interventions and comprehensive strategies to promote gun safety. Building on this, longitudinal research designs could further elucidate relationships among key variables like OP and BDW, including the

lasting effects of mass shootings on gun owners. Evaluating temporal changes could provide clarity on whether the observed relationships are stable over time.

In addition to these considerations, it is essential to address the variability in correlation patterns across our studies. Notably, Study 3 exhibited larger effect sizes compared to Studies 1 and 2, prompting a closer examination of several factors in future research. These factors include differences in sampling strategies (Qualtrics vs. MTurk), geographical variations, and the timing of the studies in relation to significant events like the Christchurch shooting. Further exploration of these factors will enhance our understanding of the observed variability in correlation patterns and illuminate the nuanced dynamics of gun ownership attitudes and behaviors. Additionally, the inconsistent measurement of key constructs across the studies, such as the use of shorter scales for OP and HP in Studies 2 and 3, underscores the need for cautious interpretation. It is important to note, however, that these methodological choices were made to address specific constraints. Specifically, in Study 2, the inclusion of a time-intensive video game component necessitated a more concise questionnaire to maintain participant engagement and manage survey length. Similarly, Study 3 was swiftly conducted in the aftermath of the Christchurch attack, requiring rapid data collection.

Our research faces several limitations, including the reliance on internet-based, self-reported measures for data collection. Additionally, we used a single-item measure to assess knowledge about incidents, such as the Christchurch attack. This approach may introduce biases and inaccuracies, thus affecting the reliability and broader applicability of our findings. Additionally, employing convenience samples restricts the representativeness of our results. Future research should address these methodological challenges by incorporating diverse sampling techniques, significantly enhancing our understanding of the complex relationship between passion for guns and its implications for policy.

Nonetheless, the present research forms a crucial base for exploring the link between OP for guns, BDW, and owning guns for defense. It points out the need for a deeper analysis into the psychological roots of such passions. Future research should focus, for example, on a detailed examination of personality traits, cognitive biases, and social influences that drive obsessive (vs. harmonious) passion for firearms. This involves looking into personal experiences and environmental factors, along with the diverse cognitive and emotional reactions to firearms across various demographics (e.g., Bartholow et al., 2005). Understanding these elements is key to designing interventions that minimize the harmful effects of an OP for guns. Moreover, incorporating findings from Crifasi et al. (2018), which highlight a significant link between concerns over home defense and unsafe gun storage practices, suggests broadening the research scope to examine how defensive gun ownership contributes to unsafe storage.

**TABLE 6** Results from mediation analysis testing the moderated mediation with HP (Study 3).

IV	IV on BDW ( $R^2 = 0.66$ )	
	$\beta$	SE
OP	.52***	0.06
HP	.02	0.04
Importance of guns	.08	0.04
Knowledge	.08*	0.04
HP × Knowledge	.06	0.04
OP × Knowledge	.18***	0.05
Age	.004	0.03
Gender	.01	0.03
Ethnicity	.02	0.03

Simple effects of HP × Knowledge						
Moderator levels Knowledge	Estimate	SE	95% confidence interval		t	p
			Lower	Upper		
Mean -1 SD	-0.04	0.05	-0.15	0.06	-0.78	0.43
Mean +1 SD	0.09	0.06	-0.03	0.22	1.38	0.16

DV	OP on DV		HP on DV		Importance of guns on DV		BDW on DV		OP × Knowledge of DV		Age on DV		Gender on DV		Ethnicity	
	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE
Armed citizenship	.62***	0.10	.13*	0.06	.09	0.08	.28**	0.09	-.09	0.07	-.07	0.05	.13*	0.05	.04	0.05
Citizen-protector	.44***	0.08	.03	0.05	.08	0.06	.24**	0.07	-.06	0.06	-.07	0.04	.12	0.04	.01	0.04
Islamophobia	.21**	0.09	.08	0.05	-.07	0.07	.22**	0.07	-.16	0.06	.14**	0.04	.003	0.04	.06	0.04

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

DV	Indirect effect (HP → BDW → DV) <sup>b</sup>				Index of moderated mediation				$R^2$
	$\beta$	SE	CI lower	CI upper	$\beta$	SE	CI lower	CI upper	
Armed citizenship	-0.01 (0.02)	0.01 (0.02)	-0.05 (-0.01)	0.02 (0.08)	0.01	0.01	-0.008	0.06	0.53
Citizen-protector	-0.01 (0.02)	0.01 (0.02)	-0.04 (-0.01)	0.01 (0.07)	0.01	0.01	-0.008	-0.05	0.47
Islamophobia	-0.01 (0.02)	0.01 (0.01)	-0.04 (-0.009)	0.01 (0.06)	0.01	0.01	-0.008	0.04	0.15

Furthermore, future research endeavors could delve into the impact of OP on attitudes toward a range of social groups by conducting shooting simulations with various out-groups, similar to the approach undertaken in Study 2. This extension of the study's scope would provide valuable insights into the broader implications of OP for intergroup relations, shedding light on how attitudes toward different social groups are influenced by passionate attachment to firearms. Understanding these dynamics can inform interventions aimed at reducing biases and promoting social cohesion in diverse communities.

## 17 | CONCLUSION

Examining the influence of two distinct gun-related passions, this research delved into attitudes and behaviors associated with defensive gun use. One form of passion, HP for guns, signifies an

interest in firearms within a broader life context, while the other, OP for guns, denotes an intense focus on defensive gun ownership. These passions are associated with different patterns of responses to gun control laws, behaviors during perceived threats, reactions to mass shootings, and attitudes toward various social groups. OP for guns corresponds with defensive reactions, such as heightened intentions to purchase firearms after exposure to stringent gun control messages. Furthermore, it aligns with prioritizing protection through powerful firearms and embracing a citizen-protector role. However, this focus on protection may not extend to victimized minorities; instead, high OP for guns correlates with anti-black racial bias and Islamophobia. This study underscores the influence of these passions on firearm-related perspectives and actions, providing novel information to navigate the intricate interplay between gun ownership, defensive behaviors, and social dynamics following mass shootings.

## FOOTNOTES

1. The merging of the baseline and gun support conditions did not yield a discernible impact on the results. Specifically, when the Experimental Conditions were coded with 0 for baseline and 1 for the gun control message, the interaction with OP was significant ( $\beta = .12$ ,  $SE = 0.05$ ;  $p = .03$ , 95%  $CI = [0.007, 0.23]$ ). Similarly, when coded with 0 for gun support and 1 for the gun control message, the interaction with OP remained significant ( $\beta = .14$ ,  $SE = 0.05$ ;  $p = .01$ , 95%  $CI = [0.02, 0.25]$ ).
2. Across all studies, we statistically controlled for age, gender, and ethnicity. Removing these covariates from the analyses did not alter the nature of the results.
3. Scores below the mean at  $-1$  SD (2.69) show lower knowledge of the attacks, just above the 10th percentile. Scores above the mean at  $+1$  SD (4.56) indicate higher knowledge, near the 76th percentile.
4. Table 6 presents the findings of a secondary model utilizing Macro Model 7, offering a comprehensive analysis of the moderated mediation examination with HP (instead of OP) as the primary predictor. The discrepancy between the two models lies in a unique path. In the initial model (where OP serves as the primary predictor), this path encompasses the interaction between HP and Knowledge when predicting the dependent variable. Conversely, in the subsequent model (where HP serves as the primary predictor), it involves the inclusion of the OP  $\times$  Knowledge interaction in the prediction of the dependent variable. The results reveal that the HP  $\times$  Knowledge interaction failed to achieve significance, and none of the indirect effects exhibited significance, nor were they moderated.

## CONFLICTS OF INTEREST STATEMENT

The authors declare no conflicts of interest.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in the Open Science Foundation at [https://osf.io/es8mk/?view\\_only=eeeea6c430abf4c7caa563763b821926b](https://osf.io/es8mk/?view_only=eeeea6c430abf4c7caa563763b821926b).

## ETHICS STATEMENT

In all studies, participants provided informed consent, and ethical guidelines were followed.

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