


Firearm ownership for protection in the USA, 2023: results from a nationally representative survey

Michelle Degli Esposti ^{1,2}, Rebecca L Sokol ^{1,3}, Daniel B Lee,¹
Douglas J Wiebe,^{1,4} Rebecca M Cunningham,⁴ Alice Hawryszkiewicz,²
Patrick M Carter ^{1,4,5,6,7}

¹Institute for Firearm Injury Prevention, University of Michigan, Ann Arbor, Michigan, USA

²Department of Social Policy & Intervention, University of Oxford, Oxford, UK

³School of Social Work, University of Michigan, Ann Arbor, Michigan, USA

⁴Department of Emergency Medicine, University of Michigan Medical School, Ann Arbor, Michigan, USA

⁵Injury Prevention Center, University of Michigan Medical School, Ann Arbor, Michigan, USA

⁶Youth Violence Prevention Center, University of Michigan School of Public Health, Ann Arbor, Michigan, USA

⁷Department of Health Behavior & Health Education, University of Michigan School of Public Health, Ann Arbor, Michigan, USA

Correspondence to

Dr Michelle Degli Esposti, Institute for Firearm Injury Prevention, University of Michigan, Ann Arbor, Michigan, USA; mesposti@umich.edu

ABSTRACT

Objective This study aims to characterise the motivations of firearm owners and examine whether firearm ownership motivations and carriage varied by state stand your ground law status.

Methods Using a nationally representative survey of US adults in 2023, we asked firearm owners (n=2477) about their firearm motivations and behaviours, including reason(s) for ownership.

Results Of all firearm owners, 78.8% (95% CI 76.0% to 81.0%) owned a firearm for protection, and 58.1% (95% CI 54.3% to 62.0%) carried a firearm outside their home in the last 12 months. Firearm ownership for protection was not significantly associated with stand your ground laws, but firearm carriage was more prevalent in states with stand your ground laws (50.1% (95% CI 47.0% to 53.0%) vs 34.9% (95% CI 25.0% to 46.0%)). Gender (women) and race (minority groups) emerged as key correlates for firearm ownership for protection (vs other ownership motivations). For example, black and Asian women (98.8%) almost exclusively owned firearms for protection.

Conclusions Protection was the dominant reason for firearm ownership in 2023, motivating 65 million Americans to own firearms and appealing to different strata of the population.

INTRODUCTION

In 2021, firearms caused the highest absolute number of deaths on record in the USA with nearly 49 000 fatalities.¹ This unprecedented increase coincided with a surge in firearm purchases during the COVID-19 pandemic, giving rise to 7.5 million new firearm owners.² Owning a firearm increases the risk of dying by firearm at the individual and household level³ while firearm availability is linked to higher firearm death rates at the population level.⁴ The reasons motivating people to own firearms may shed critical insights into the behaviours that have contributed to rising rates of firearm violence.

Historically, firearms were tools of necessity but, by the 20th century, they have evolved into equipment for recreation, including hunting and target shooting.⁵ In the last 20 years, however, protection has emerged as the leading reason for ownership. In 2017–2021, between 60% and 70% of firearm owners cited protection as the primary reason for ownership, compared with 48% in 2013 and only 26% in 1999.^{5–7} The liberalisation of firearm

WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ Firearm-related deaths have sharply increased in the USA since 2019 and during the COVID-19 pandemic, which has coincided with a surge in firearm purchases.
- ⇒ The current reasons motivating different people to own firearms are yet to be characterised.

WHAT THIS STUDY ADDS

- ⇒ We estimate that approximately 65 million Americans now own firearms for protection—79% of all firearm owners in 2023.
- ⇒ We identified that firearm ownership for protection is motivating new and different profile characteristics of firearm owners, including women and minority races.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ As the motivations and profile characteristics of firearm owners evolve, these findings are important for adapting policies that aim to address safe firearm practices.

policies, such as concealed carry and stand your ground (SYG) laws, also reflect a movement towards firearms for protection (ie, self-defence) as more permissive concealed carry laws allow concealed firearms to be carried in public while SYG laws allow firearms to be used in self-defence in public as a first—rather than last—resort. The loosening of concealed carry laws and the enactment of SYG laws have both been linked to increases in firearm homicide.^{8,9}

In this study, we used nationally representative survey data collected from 23 May 2023 to 30 June 2023, to update information about firearm ownership motivations. We explored the characteristics of firearm owners that owned for protection, and whether firearm ownership motivations and carriage varied in states with and without SYG laws.

METHODS

We used cross-sectional data from the National Firearm Attitudes and Behaviors Study, which aimed to examine the prevalence, contextual factors, beliefs and perceptions surrounding firearm behaviours among a nationally representative sample of adults (aged 18 years or older) living in the USA. Gallup fielded the survey from 23 May 2023 to 30 June 2023, using address-based sampling and



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random digit dialling to select 20 284 panel members, of which 8172 completed surveys. For this study, we restricted analyses to firearm owners: 2477 respondents who personally reported owning a firearm (online supplemental figure S1). Online supplemental appendix 1 details full survey methodology.

Measures

We analysed selected survey items on sociodemographic characteristics, context and societal attitudes, and firearm-related motivations and behaviours (online supplemental table S1). Our outcome was the most important reason for owning a handgun and/or long gun. Motivations other than protection, such as hunting and target shooting, were collapsed into one 'other' category due to low counts (online supplemental table S1 and figure S2). Our secondary outcome was carrying a firearm outside the home in the past 12 months, not including for hunting, target shooting or for work. We categorised the state in which each firearm owner lived by SYG law status, updating prior work⁸ and using RAND's State Firearm Law Database¹⁰ and information published by Giffords Law Center to Prevent Gun Violence.¹¹ At the time of the survey, we identified 30 states with SYG statutes and 8 states that had set an SYG law precedent in practice, either by case law or jury instruction (online supplemental figure S3).

Statistical analysis

We calculated weighted percentages and 95% CIs using individual-level survey weights provided by Gallup (online supplemental appendix 1). We estimated the prevalence of firearm ownership motivations and carriage, stratifying by state SYG law status. We then compared the characteristics of firearm owners who owned for protection versus non-protection (all other reasons), which we supplemented with conditional inference trees to identify subgroups mainly owning for protection. Conditional inference tree analysis is a non-parametric class of decision trees which accounts for variable selection and the distributional properties of the variables. Similarly to decision trees, conditional inference trees recursively partition the data but also use a significant test to select the variables and thus avoid the bias of selecting variables that have many possible splits.¹² We iteratively ran two decision trees. The first decision tree included

all sociodemographic characteristics as independent variables, and the second additionally added contextual factors relating to firearm interactions and societal attitudes. Since results did not vary when the contextual factors were added (ie, none of these measures were not identified as important), we report only decision trees that included sociodemographic characteristics as independent variables. We conducted all analyses in R using `svydesign` in the survey package¹³ and `ctree` for the conditional inference tree analyses.¹²

Patient and public involvement

There was no patient or public involvement in developing the National Firearm Attitudes and Behaviors Study survey.

RESULTS

Of all firearm owners, 78.8% (95% CI 76.0% to 81.0%) reported protection to be the most important reason for owning a firearm, and 51.8% (95% CI 49.0% to 55.0%) reported carrying a firearm outside their home in the last 12 months (online supplemental table S2). Ownership for protection was not notably higher among firearm owners living in SYG states, but firearm owners were more likely to carry outside of the home in SYG states (50.1%; 95% CI 47.0% to 53.0%) compared with non-SYG states (34.9%; 95% CI 25.0% to 46.0%) (see online supplemental table S3 and figure 1).

Ownership for protection was characterised by more frequent carriage, despite owning fewer firearms and including more first-time firearm owners (table 1). Gender and race/ethnicity emerged as robust sociodemographic correlates for ownership for protection. Women, black and Hispanic people were more likely to own firearms for protection than for other reasons. Decision tree analyses identified that black and Asian women (98.8%) almost exclusively owned for protection and, while men had a lower overall prevalence, owning for protection was more common among black (88.4%) than white men (69.7%; figure 2). Other characteristics, including political affiliation, were not significantly associated with motivation for firearm ownership; neither was knowing someone who had been shot or killed by a firearm. Rather, endorsing feelings of not knowing

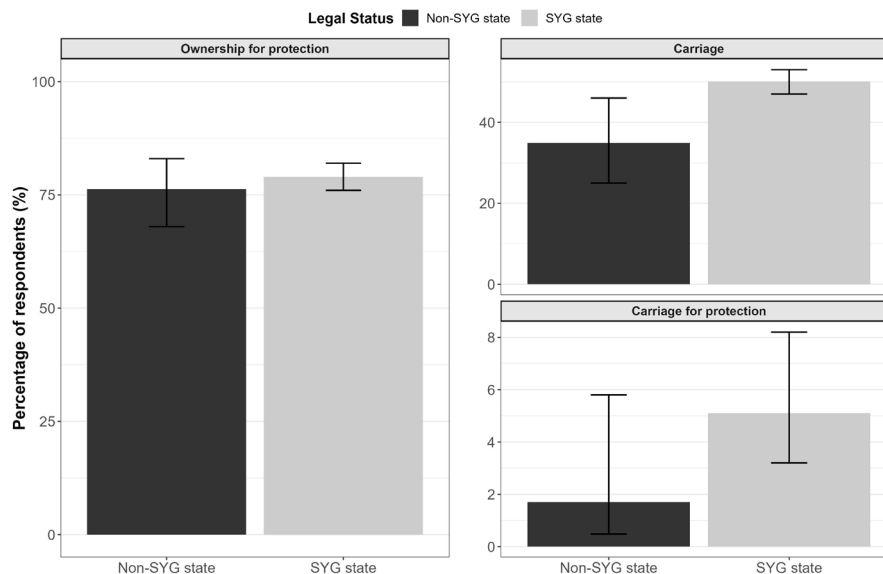


Figure 1 Prevalence of firearm motivations and behaviours (ownership and carriage) by a state's stand your ground (SYG) law status (error bars represent 95% CIs) across the USA, 2023.

Table 1 Characteristics of current firearm owners (n=1630) by motivation, the USA, 2023

Characteristic	Primary motivation for owning a firearm			P value*
	N	Protection (N=1284)	Other (N=346)	
All respondents	1630	78.8 (76, 81)	21.2 (19, 24)	
Sociodemographics				
Age, years	1630	50.0 (15.9)	53.5 (16.5)	0.032
Gender	1630			<0.001
Male		67.4 (64.0, 71.0)	87.2 (83.0, 90.0)	
Female		32.4 (29.0, 36.0)	12.5 (9.2, 17.0)	
Transgender		0.1 (0.04, 0.37)	0.4 (0.11, 1.3)	
Race	1628			<0.001
White		72.1 (69.0, 75.0)	85.5 (81.0, 89.0)	
Black		11.7 (9.9, 14.0)	2.2 (1.3, 3.9)	
Hispanic		12.6 (11.0, 15.0)	9.4 (6.9, 13.0)	
Asian		1.4 (0.77, 2.6)	1.1 (0.29, 3.7)	
Other		2.2 (1.5, 3.1)	1.8 (1.1, 3.0)	
Education	1619			0.082
Less than high school		1.4 (0.36, 5.5)	4.7 (1.6, 13)	
High school		26.5 (22.0, 31.0)	18.2 (12.0, 26.0)	
Some college		4.8 (3.8, 6.1)	7.9 (5.2, 12.0)	
Bachelor's degree or higher		67.2 (63.0, 71.0)	69.2 (61.0, 76.0)	
Employment status	1598			0.063
Full time or part time		68.2 (65.0, 72.0)	61.4 (55.0, 68.0)	
Not employed		31.8 (28.0, 35.0)	38.6 (32.0, 45.0)	
Annual household income, US\$	1498			0.3
<US\$36 000		13.2 (11.0, 17.0)	10.2 (5.9, 17.0)	
US\$36 000–US\$59 999		16.6 (14.0, 20.0)	14.9 (10.0, 21.0)	
US\$60 000–US\$119 999		40.1 (36.0, 44.0)	36.6 (30.0, 43.0)	
US\$120 000+		30.1 (27.0, 34.0)	38.3 (31.0, 46.0)	
Community of residence	1630			0.055
Urban		16.7 (14.0, 20.0)	10.2 (7.3, 14.0)	
Suburban		50.3 (46.0, 54.0)	51.4 (44.0, 59.0)	
Rural		33.1 (30.0, 37.0)	38.4 (32.0, 46.0)	
Marital status	1630			0.13
Single/never married		17.8 (14.0, 22.0)	14.0 (8.6, 22.0)	
Married/partnered		68.2 (64.0, 72.0)	76.4 (69.0, 82.0)	
Divorced/separated/widowed		14.0 (12.0, 16.0)	9.6 (7.0, 13.0)	
Children (<18 year) living in the household	1613			0.15
Yes		31.0 (27.0, 35.0)	24.9 (19.0, 32.0)	
No		69.0 (65.0, 73.0)	75.1 (68.0, 81.0)	
Served in US military	1293			0.2
Yes		19.0 (16.0, 22.0)	22.7 (18.0, 29.0)	
No		81.0 (78.0, 84.0)	77.3 (71.0, 82.0)	
Religion	1602			0.11
Christian (eg, Protestant, Catholic)		74.2 (70.0, 78.0)	66.4 (59.0, 73.0)	

Continued

Table 1 Continued

Characteristic	Primary motivation for owning a firearm			P value*
	N	Protection (N=1284)	Other (N=346)	
Non-Christian (eg, Jewish, Muslim)		2.3 (1.5, 3.4)	3.0 (1.4, 6.5)	
No religion (eg, atheistic, agnostic)		23.5 (20.0, 27.0)	30.6 (24.0, 38.0)	
Political affiliation	1577			0.2
Republican		40.3 (36.0, 44.0)	34.3 (28.0, 41.0)	
Democrat		17.4 (15.0, 20.0)	21.9 (17.0, 28.0)	
Independent party/other		42.3 (38.0, 46.0)	43.8 (37.0, 51.0)	
Contextual factors relating to firearm interactions and societal attitudes				
Grew up with a firearm in the home	1606			<0.001
Yes		80.9 (77.0, 84.0)	91.0 (87.0, 94.0)	
No		19.1 (16.0, 23.0)	9.0 (6.3, 13.0)	
Know of anyone who has been shot or killed by firearm	1582			>0.9
Yes		35.6 (32.0, 39.0)	36.0 (30.0, 43.0)	
No		64.4 (61.0, 68.0)	64.0 (57.0, 70.0)	
Believe that others' have clear moral standards	1630	3.8 (1.2)	3.8 (1.3)	0.4
Believe that people know who they can trust/rely on	1630	2.9 (1.2)	3.3 (1.2)	<0.001
Firearm motivations and behaviours				
Type of firearm owned	1627			<0.001
Handgun only		34.2 (30.0, 38.0)	0.0 (0.0, 0.0)	
Long gun only		5.6 (4.0, 7.7)	0.0 (0.0, 0.0)	
Handgun and long gun		60.2 (56.0, 64.0)	100.0 (100.0, 100.0)	
Number of firearms owned	1030			0.011
1		0.4 (0.13, 1.2)	0.6 (0.12, 3.1)	
2		15.8 (13.0, 20.0)	9.5 (6.7, 13.0)	
3		19.1 (15.0, 24.0)	11.9 (7.4, 19.0)	
4+		64.7 (60.0, 70.0)	77.9 (71.0, 84.0)	
Purchased a firearm for the first time in the last 12 months	1630			0.023
Yes		6.3 (4.0, 9.6)	2.1 (0.81, 5.1)	
No		93.7 (90.0, 96.0)	97.9 (95.0, 99.0)	
Carried a firearm outside of their home	1630			0.059
Never		41.9 (38.0, 46.0)	49.6 (42.0, 57.0)	
Once or more		58.1 (54.0, 62.0)	50.4 (43.0, 58.0)	
Carried for protection	919			0.022
Yes		5.6 (3.3, 9.2)	1.4 (0.42, 4.5)	
No		94.4 (91.0, 97.0)	98.6 (95.0, 100.0)	
Carried for recreation	921			<0.001
Yes		58.8 (53.0, 64.0)	87.2 (81.0, 92.0)	
No		41.2 (36.0, 47.0)	12.8 (8.2, 19.0)	

Percentages (%) and corresponding 95% CI are given for categorical variables while mean and SD are given for continuous variables. N represents the effective sample size and deviate from unweighted sample sizes.

*Wilcoxon rank-sum test for complex survey samples; χ^2 test with Rao and Scott's second-order correction.

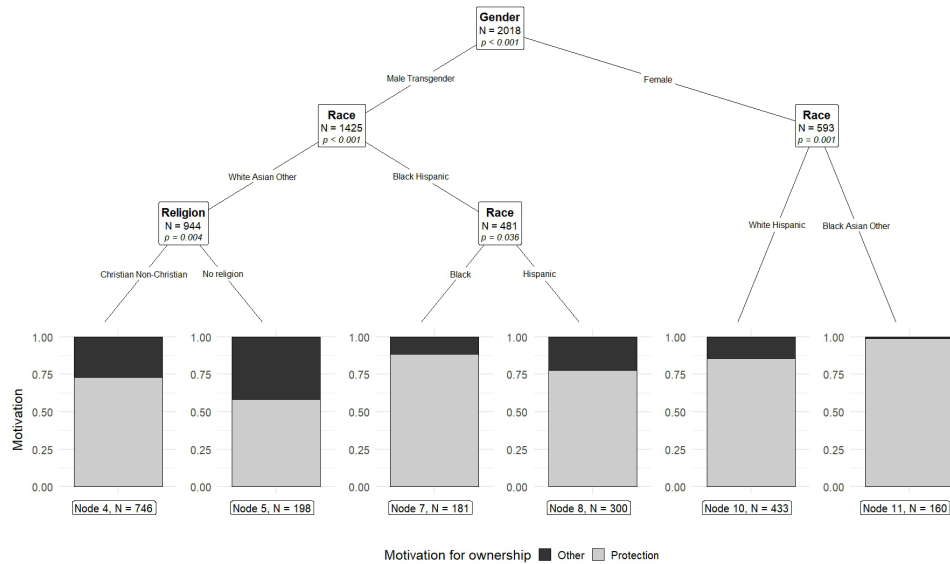


Figure 2 Decision tree diagram characterising subgroups with high prevalence of firearm ownership for protection in the USA, 2023.

who to trust or rely on, was more prevalent among firearm owners for protection (table 1).

DISCUSSION

Given that over 81 million Americans are estimated to own firearms, this nationally representative survey finds that around 65 million people own firearms for protection (79% of firearm owners).¹⁴ These 2023 estimates are higher than previous years, indicating a continuing trend where firearm ownership is now predominantly motivated by protection, and appealing to demographics beyond the ‘traditional’ firearm owner, including women and minority races, regardless of political affiliation. These findings indicate that not only is protection outpacing other reasons for ownership, but it is also resulting in new profile characteristics of firearm owners.

SYG laws were not associated with ownership for protection, but firearm owners living in SYG states were more likely to report carrying their firearms outside the home. SYG laws specifically affect the legal right to use deadly force for self-defence in public places, and therefore, increased firearm carriage might be a mechanism by which states with SYG laws have contributed to higher rates of firearm violence.^{8 15} All states with SYG laws also have more permissive concealed carry laws, and increased firearm carriage has previously been linked to these states.¹⁶ The simultaneous relaxing of concealed carry laws and strengthening self-defence laws may be reinforcing firearm behaviours for protection, particularly carriage in public places. More generally, we found that firearm ownership for protection was associated with higher rates of firearm carriage—influencing firearm owners’ behaviours, irrespective of the state they live in.

Rising rates of firearm ownership among non-traditional firearm-owning groups, particularly members of historically marginalised populations, may reflect a growing desire to protect against external threats, such as hate crimes.^{2 17} Although we found no association between experiences of firearm violence and motivations for firearm ownership, not knowing who to trust was identified as a key correlate. Such feelings of distrust capture the sociological construct of ‘anomie’, where social norms and moral values are weakened when societies go through major changes.^{18 19} In the aftermath of an economic recession in 2008–2012 and the COVID-19 pandemic in 2020, anomie may

explain a rise in the American Division and a perceived need for protection against others using firearms.^{20 21}

Limitations

While this study updates and advances current information on firearm ownership, there are several limitations. Self-report surveys are subject to sampling and response biases (eg, selection and social desirability bias, respectively) that may have affected these findings. Although weights were applied to minimise sampling biases and generate a representative sample at the regional and national level, the study sample may not capture the full spectrum of firearm owners and related characteristics which may be found with a larger sample size that is representative at the state level. Social desirability may also impact the likelihood of reporting specific firearm motivations and behaviours. For example, a small proportion of firearm owners reported carrying their firearm for protection (5%), despite most firearm owners (79%) owning a firearm for protection and more than half of firearm owners (58%) carrying firearms outside their home in the last year. Additionally, this cross-sectional study is unable to address causality or determine the reasons why respondents own firearms for protection, and whether meaningful subcategories exist within this ever-prevalent motivation for firearm ownership.²²

Conclusions

Against a background of rising rates of firearm ownership and firearm legalisation liberalisation,^{2 5} it is increasingly important to understand why Americans own and carry firearms. This study finds that firearm ownership in the USA is now almost exclusively driven by a perceived need for protection, motivating new types of firearm owners, including women and racial minorities. Real-time evidence is needed to monitor the changing characteristics and motivations of firearm owners, and adaptive policies are needed to ensure that all firearms are safely owned so that public health and safety are not jeopardised.

Contributors RC and PMC conceptualised the survey project and obtained funding. RLS and DL managed the project and survey data. MDE, AH and DJW designed the research and MDE performed research, including all data analyses. MDE wrote the paper; and all authors critically reviewed and revised the paper. The

first and corresponding author (MDE) had full access to all the data in the study and had the final responsibility for the decision to submit for publication.

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Competing interests None declared.

Patient consent for publication Consent obtained directly from patient(s)

Ethics approval This study involves human participants and this study was approved by the University of Michigan Institutional Review Board (HUM00165985). Participants gave informed consent to participate in the study before taking part.

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ORCID iDs

Michelle Degli Esposti <http://orcid.org/0000-0002-0068-5754>

Rebecca L Sokol <http://orcid.org/0000-0003-3892-2337>

Patrick M Carter <http://orcid.org/0000-0001-7605-2980>

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