

Firearm Storage Practices and Risk Perceptions



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Introduction: During the past 2 decades, gun owners have become more likely to store household firearms loaded and unlocked, and believe that guns make homes safer rather than more dangerous.

Methods: Self-reported household firearm storage practices were described among 2,001 gun owners in relation to whether they report that firearms make homes (1) safer, (2) more dangerous, or (3) it depends. Data were from a probability-based online survey administered in 2015 (completion rate, 55%) and analyzed in 2018.

Results: Nearly 60% of gun owners said that guns make homes safer (57.6%, 95% CI=55.1%, 60.1%), 39.9% (95% CI=37.4%, 42.5%) said that it depends (on other factors), and 2.5% (95% CI=1.8%, 3.4%) said that guns make homes more dangerous. A higher proportion of gun owners who reported that they believe guns increase household safety said that they store household firearms loaded and unlocked (39.2%, 95% CI=35.9%, 42.6%), compared with those who thought guns make the home either more dangerous (3.7%, 95% CI=1.3%, 10.1%) or those who thought the effect of guns on household safety depends on additional factors (17.5%, 95% CI=14.7%, 20.7%).

Conclusions: Gun owners who are most likely to assert categorically that firearms in the home make homes safer are, as a group, far more likely to store guns in their home loaded and unlocked.

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INTRODUCTION

In the past 20 years, the fraction of U.S. gun owners who store at least 1 household firearm loaded and unlocked has increased.^{1–3} This increase in unsafe storage has occurred in tandem with a growing public perception that guns make homes safer rather than more dangerous,^{4–6} and a shift toward owning guns for protection (and away from hunting and sports shooting).⁷ To what extent perceptions about firearm-related risk versus benefit are related to how guns in homes are stored is not known. This study is the first to examine this relationship in a nationally representative sample of U.S. adults.

METHODS

The sample was collected using a web-based survey described in detail elsewhere.⁸ In April 2015, a total of 7,318 panel members

were drawn from Ipsos' (formerly Growth for Knowledge) KnowledgePanel, which consists of a sampling frame of approximately 55,000 U.S. adults selected using equal probability, address-based sampling.⁹ Gun owners and veterans were over-sampled from this sampling frame. The survey completion rate was 55%, comparable to other surveys administered by Ipsos, yielding a final sample size of 3,949 gun owners and nongun owners. Analyses presented here are limited to the 2,001 respondents (of 2,072 gun owners) for whom the survey has

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complete information about both risk perceptions and gun storage practices. The survey was reviewed and approved by the Northeastern University IRB.

Gun owners were identified through 2 questions; the first was: *Do you or does anyone else you live with currently own any type of guns?* This question was followed by, among all respondents who answered in the affirmative: *Do you personally own a gun?* To evaluate risk perceptions, respondents were asked: *Do you think having a gun in the house makes it a safer place to be or a more dangerous place to be?* Respondents indicated whether guns in the home make it: *safer, more dangerous, it depends, or refused.*

Gun owners were asked about their storage practices and reasons for gun ownership. Gun owners reported the number of handguns, long guns, or other guns stored loaded, unlocked, or both. For the analyses, this measure was collapsed into 3 mutually exclusive categories: (1) any firearm loaded and unlocked, (2) all firearms unloaded and locked, and (3) everything else. Everything else included gun owners with any firearms stored either loaded and locked, unloaded and unlocked, or both. Gun owners identified their reasons for gun ownership as for *protection against strangers, protection against people I know, protection against animals, protection against unspecified agents, hunting, other sporting use, a collection, work, or for some other reason.* The measure was recoded into 2 mutually exclusive categories: (1) any gun for protection against people or unspecified agents and (2) reason other than protection against people or unspecified agents.

All analyses were conducted using Stata, version 15.1 and were weighted with survey weights provided by Ipsos to produce nationally representative estimates of U.S. adults (aged ≥ 18 years) in 2015. More detail about KnowledgePanel sampling and weighting methods is available elsewhere.⁹ First, the unadjusted distribution of gun owner responses to the question about perceptions about guns in the home was described. Next, cross-tabulations and the SUBPOP command were used to describe differences in gun storage practices stratified by household firearm risk perception.

RESULTS

Overall, 57.6% (95% CI=55.1%, 60.1%) of gun owners said that guns in the home make it a safer place to be and 39.9% (95% CI=37.4%, 42.5%) said *it depends* if guns in the home make it safer or more dangerous. Less than 3% of gun owners thought that guns make the home more dangerous (Table 1). Among gun owners who believed that a gun in the home makes it safer, the great majority own guns for protection against people (81.8%, 95% CI=79.0%, 84.3%) and own handguns (82.8%, 95% CI=80.0%, 85.3%). By contrast, among those who said *it depends*, about half own for protection (48.6%, 95% CI=44.5%, 52.7%) and 7 of 10 own handguns (71.9%, 95% CI=68.1%, 75.4%).

Gun owners who perceived guns as increasing safety in the home were more likely to store a gun loaded and unlocked (39.2%, 95% CI=35.9%, 42.6%) than to store all

guns unloaded and locked (18.3%, 95% CI=15.8%, 21.0%) (Table 2). By contrast, more gun owners who indicated that safety depends on additional factors stored all guns unloaded and locked (33.3%, 95% CI=29.6%, 37.2%) compared with any gun loaded and unlocked (17.5%, 95% CI=14.7%, 20.7%). The relationship between risk perception and storage practices did not vary substantively by political ideology or presence of children in the home but was more pronounced among gun owners who owned at least 1 gun for protection and handgun owners.

DISCUSSION

In this large nationally representative survey, gun owners who think that the risk of firearms in the home is contextually dependent tend to store their guns more safely than gun owners who assert categorically that guns make the home safer. Given that the presence of household guns substantially increases the risk of suicide and unintentional firearm deaths for household members of all ages,^{10–15} and that for children and young adults risk is especially elevated when household guns are stored unlocked (versus locked) and loaded (versus unloaded),¹⁴ it is noteworthy that a larger proportion of gun owners who believe that firearms in the home make homes safer (compared with those who say otherwise) store at least 1 household gun in the least safe manner.

Limitations

The findings presented here should be considered in light of several limitations. First, given the cross-sectional nature of the data, results reflect only the co-occurrence of risk perception and storage practices (i.e., not the direction of the relationship). Second, the measure of risk perception does not identify what factors respondents believe modify the risk of household guns, factors that future research should try to identify using both quantitative and qualitative approaches. Third, although the findings are based on a nationally representative sample, results may nevertheless be susceptible to response bias. This concern is mitigated, to some extent, by the survey completion rate (55%), which is higher than completion rates of most nonprobability, opt-in, online surveys, and far higher than previous national surveys that included questions on firearm ownership.^{16,17} Fourth, self-report surveys, such as in this study, may suffer from social desirability response bias. To the extent that online surveys in general are less subject to such biases than are other forms of eliciting opinions,¹⁸ findings from the survey may be less biased than alternative approaches.

Table 1. Characteristics of Gun Owners in the U.S. 2015 National Firearms Survey by Household Gun Safety Perceptions

Characteristics	Total (n=2,001)		Guns in the home make it safer		Guns in the home make it more dangerous		It depends if guns in the home make a home safer or more dangerous	
	n	Weighted % (95% CI)	n	Weighted % (95% CI)	n	Weighted % (95% CI)	n	Weighted % (95% CI)
Total	—	—	1,131	57.6 (55.1, 60.1)	55	2.5 (1.8, 3.4)	815	39.9 (37.4, 42.5)
Gun type ^a								
Owns ≥1 handgun	1,518	77.5 (75.2, 79.6)	934	82.8 (80.0, 85.3)	24	39.9 (25.9, 55.9)	560	71.9 (68.1, 75.4)
Owns only long guns	444	22.5 (20.4, 24.8)	189	17.2 (14.7, 20.0)	28	60.1 (44.1, 74.1)	227	28.1 (24.6, 31.9)
Reason for gun ownership								
Any gun for protection	1,300	67.3 (64.9, 69.7)	911	81.8 (79.0, 84.3)	15	27.2 (15.5, 43.3)	374	48.6 (44.5, 52.7)
Reason other than protection	664	32.7 (30.3, 35.1)	211	18.2 (15.7, 21.0)	40	72.8 (56.7, 84.5)	413	51.4 (47.3, 55.5)
Holds CCW permit								
Yes	559	28.8 (26.5, 31.2)	401	36.5 (33.2, 39.9)	4	6.5 (2.3, 17.0)	154	19.2 (16.2, 22.5)
No	1,433	71.2 (68.8, 73.5)	726	63.5 (60.1, 66.8)	51	93.5 (83.0, 97.7)	656	80.8 (77.5, 83.8)
Veteran								
Yes	559	19.3 (17.5, 21.3)	341	21.0 (18.5, 23.7)	21	25.0 (15.3, 38.2)	197	16.6 (14.1, 19.4)
No	1,442	80.7 (78.7, 82.5)	790	79.0 (76.3, 81.5)	34	75.0 (61.8, 84.7)	618	83.4 (80.6, 85.9)
Political ideology								
Liberal	275	14.2 (12.4, 16.1)	108	11.0 (8.9, 13.5)	22	33.9 (21.2, 49.4)	145	17.5 (14.7, 20.8)
Moderate	815	42.0 (39.5, 44.6)	402	37.3 (34.0, 40.8)	22	49.2 (33.9, 64.7)	391	48.3 (44.3, 52.3)
Conservative	884	43.8 (41.3, 46.4)	606	51.7 (48.2, 55.1)	9	16.8 (8.0, 32.1)	269	34.2 (30.4, 38.1)
Gender								
Male	1,493	71.8 (69.4, 74.1)	852	72.5 (69.3, 75.5)	49	90.6 (79.3, 96.0)	592	69.7 (65.8, 73.3)
Female	508	28.2 (25.9, 30.6)	279	27.5 (24.5, 30.7)	6	9.4 (4.0, 20.7)	223	30.3 (26.7, 34.2)
Age, years								
18–29	139	11.1 (9.4, 13.2)	81	11.4 (9.1, 14.1)	6	19.9 (8.9, 38.5)	52	10.3 (7.7, 13.5)
30–44	331	22.4 (20.2, 24.8)	184	22.4 (19.5, 25.6)	9	23.2 (11.9, 40.2)	138	22.4 (19.0, 26.1)
45–59	637	31.7 (29.4, 34.1)	341	30.6 (27.6, 33.8)	14	24.9 (14.4, 39.5)	282	33.8 (30.1, 37.6)
≥60	894	34.7 (32.4, 37.1)	525	35.7 (32.6, 38.9)	26	32.1 (20.7, 46.0)	343	33.6 (30.1, 37.3)
Race/ethnicity								
White, non-Hispanic	1,698	80.0 (77.5, 82.3)	962	79.0 (75.6, 82.1)	50	89.0 (70.7, 96.4)	686	80.8 (76.9, 84.2)
Black, non-Hispanic	104	7.6 (6.1, 9.3)	56	8.2 (6.2, 10.9)	0	0 (0, 0)	48	7.0 (5.2, 9.5)
Hispanic	101	8.7 (7.0, 10.7)	61	9.3 (7.1, 12.1)	1	2.4 (0.3, 15.0)	39	8.2 (5.7, 11.6)
Other	98	3.8 (2.9, 5.0)	52	3.4 (2.4, 4.9)	4	8.7 (2.4, 28.1)	42	4.0 (2.6, 6.2)

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Table 1. Characteristics of Gun Owners in the U.S. 2015 National Firearms Survey by Household Gun Safety Perceptions (*continued*)

Characteristics	Total (n=2,001)		Guns in the home make it safer		Guns in the home make it more dangerous		It depends if guns in the home make a home safer or more dangerous	
	n	Weighted % (95% CI)	n	Weighted % (95% CI)	n	Weighted % (95% CI)	n	Weighted % (95% CI)
Children aged <18 years in the household								
Yes	450	26.1 (23.8, 28.4)	262	26.9 (23.9, 30.1)	13	30.2 (17.6, 46.6)	175	24.6 (21.2, 28.3)
No	1,551	73.9 (71.6, 76.2)	869	73.1 (69.9, 76.1)	42	69.8 (53.4, 82.4)	640	75.4 (71.7, 78.8)
Education								
Less than high school	107	5.7 (4.6, 7.1)	67	6.4 (4.9, 8.3)	1	3.4 (0.5, 20.3)	39	5 (3.5, 7.2)
High school	536	30.8 (28.4, 33.4)	331	33.2 (29.9, 36.6)	6	14.9 (6.2, 31.6)	199	28.5 (24.9, 32.4)
Some college	685	34.2 (31.8, 36.7)	402	35.3 (32.1, 38.6)	18	23.5 (14.0, 36.6)	265	33.3 (29.6, 37.3)
Bachelor's degree or above	673	29.2 (27.0, 31.4)	331	25.2 (22.5, 28.1)	30	58.2 (42.8, 72.2)	312	33.2 (29.7, 36.8)
Annual household income, US\$								
<30,000	301	14.6 (12.8, 16.7)	166	14.5 (12.1, 17.1)	5	6.7 (2.5, 16.7)	130	15.4 (12.6, 18.7)
30,000–74,999	765	36.6 (34.1, 39.1)	461	38.4 (35.2, 41.8)	14	24.6 (13.3, 40.9)	290	34.6 (30.9, 38.5)
75,000–124,999	600	32.3 (29.9, 34.8)	339	32.0 (28.9, 35.3)	17	32.2 (19.7, 47.8)	244	32.7 (29.1, 36.6)
≥125,000	335	16.5 (14.8, 18.4)	165	15.1 (12.9, 17.7)	19	36.5 (23.1, 52.3)	151	17.2 (14.6, 20.2)
Region								
Eastern	659	33.1 (30.7, 35.5)	382	33.8 (30.6, 37.1)	14	24.8 (14.6, 39.0)	263	32.5 (28.9, 36.3)
Central	927	46.3 (43.8, 48.9)	531	47.4 (44.0, 50.8)	32	55.7 (40.3, 70.2)	364	44.2 (40.3, 48.2)
Mountain	165	8.5 (7.2, 10.1)	90	8.1 (6.4, 10.2)	4	10.2 (3.1, 29.1)	71	9.0 (6.9, 11.6)
Pacific	250	12.1 (10.6, 13.9)	128	10.7 (8.8, 13.0)	5	9.3 (3.6, 21.8)	117	14.3 (11.7, 17.4)

Note: Cross-tabulations using survey weights were used to generate nationally representative estimates. Totals within some row categories do not sum to 2,001 because of skipped responses. All results are presented as column percentages. Totals within some columns do not sum perfectly to 100 because of rounding.

^aGun owners who own "other guns" only were excluded from analysis (n=39).

CCW, concealed carry weapon.

Table 2. Gun Owner Storage Practices by Household Gun Safety Perceptions, U.S. 2015 National Firearms Survey

Gun safety perceptions Having a gun in the home makes it . . .	Firearm storage practices		
	Any gun loaded and unlocked, % (95% CI)	All guns unloaded and locked up, % (95% CI)	Everything else, ^a % (95% CI)
All gun owners			
Safer	39.2 (35.9, 42.6)	18.3 (15.8, 21.0)	42.5 (39.1, 46.0)
More dangerous	3.7 (1.3, 10.1)	30.9 (18.2, 47.2)	65.5 (49.5, 78.6)
It depends	17.5 (14.7, 20.7)	33.3 (29.6, 37.2)	49.1 (45.1, 53.1)
Owens ≥1 handgun			
Safer	44.6 (40.9, 48.4)	16.3 (13.7, 19.3)	39.0 (35.4, 42.8)
More dangerous	9.5 (3.2, 25.2)	36.3 (15.5, 63.8)	54.2 (30.2, 76.4)
It depends	21.9 (18.4, 25.9)	32.8 (28.4, 37.5)	45.3 (40.5, 50.1)
Owens only long guns			
Safer	14.4 (9.4, 21.5)	26.2 (19.8, 33.9)	59.3 (50.9, 67.2)
More dangerous	0 (0, 0)	29.1 (14.9, 49.1)	70.9 (50.9, 85.1)
It depends	6.9 (3.5, 13.4)	34.7 (27.7, 42.3)	58.4 (50.6, 65.8)
Owens gun primarily for protection			
Safer	45.6 (41.8, 49.4)	12.8 (10.5, 15.6)	41.6 (37.8, 45.5)
More dangerous	8.5 (2.4, 26.2)	22.8 (6.6, 55.3)	68.7 (38.9, 88.4)
It depends	28.1 (23.3, 33.5)	26.0 (21.0, 31.7)	45.8 (40.0, 51.8)
Owens guns for reason other than protection			
Safer	11.6 (7.6, 17.3)	40.2 (32.8, 48.2)	48.2 (40.3, 56.2)
More dangerous	1.9 (0.3, 12.4)	33.9 (18.9, 53.0)	64.2 (45.4, 79.5)
It depends	8.0 (5.3, 12.0)	39.9 (34.6, 45.6)	52.1 (46.4, 57.6)
Children aged <18 years in the household			
Safer	28.0 (22.3, 34.4)	24.0 (18.9, 30.1)	48.0 (41.2, 54.9)
More dangerous	0 (0, 0)	43.6 (19.0, 71.9)	56.4 (28.1, 81.0)
It depends	12.5 (8.1, 19.0)	34.6 (27.3, 42.7)	52.9 (44.6, 61.0)
No children aged <18 years in the household			
Safer	43.3 (39.5, 47.3)	16.2 (13.5, 19.3)	40.5 (36.6, 44.5)
More dangerous	5.3 (1.8, 14.3)	25.3 (12.1, 45.6)	69.4 (50.2, 83.6)
It depends	19.2 (15.9, 22.9)	32.9 (28.7, 37.4)	47.9 (43.4, 52.5)
Political ideology			
Liberal			
Safer	38.6 (28.5, 49.8)	12.5 (7.2, 21.1)	48.9 (37.9, 59.9)
More dangerous	4.5 (1.0, 18.0)	26.7 (10.9, 52.0)	68.8 (44.3, 86.0)
It depends	12.1 (7.5, 19.2)	29.0 (21.1, 38.4)	58.9 (49.3, 67.8)
Moderate			
Safer	39.8 (34.3, 45.5)	18.6 (14.5, 23.6)	41.6 (36.0, 47.4)
More dangerous	2.9 (0.4, 18.3)	35.5 (16.4, 60.8)	61.6 (37.1, 81.3)
It depends	15.7 (12.1, 20.0)	35.1 (29.8, 40.8)	49.3 (43.6, 55.0)
Conservative			
Safer	39.2 (34.8, 43.8)	19.0 (15.7, 22.9)	41.8 (37.2, 46.5)
More dangerous	0 (0, 0)	31.7 (8.0, 71.1)	68.3 (28.9, 92.0)
It depends	19.8 (14.7, 26.0)	34.5 (28.2, 41.6)	45.7 (38.9, 52.7)

Note: Cross-tabulations using survey weights were used to generate nationally representative estimates. All results are presented as row percentages. Totals within some row categories do not sum perfectly to 100 because of rounding.

^aEverything else includes gun owners with any firearms stored either loaded and locked, and/or unloaded and unlocked.

CONCLUSIONS

In this large nationally representative survey, gun owners who believe firearms make homes safer are more likely than are gun owners who believe otherwise to store at least 1 household firearm both loaded and unlocked. This finding suggests that future public health interventions aimed at increasing safe storage practices may benefit from addressing gun owners' perceptions of the risk posed by household guns.

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DA and MM conceptualized the survey and wrote the key survey questions. AIM and JAW analyzed the data and wrote the first draft of the article. All the authors contributed to the interpretation of the findings, revised the article, and approved the final article as submitted.

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