

Supplemental Material

Firearm ownership and perceived risk of personal firearm injury

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Question text and response options as presented in 2018 California Safety and Wellbeing Survey (CSaWS). CSaWS is a statewide internet survey designed by the University of California, Davis Violence Prevention Research Program and administered between 14 September 2018 and 12 October 2018 by Ipsos Public Affairs, LLC ('Ipsos'; formerly the GfK Group).

Note: Respondent demographic information is collected by Ipsos upon recruitment into the panel and provided with the survey data. This includes information on respondent age, gender, race/ethnicity, county of residence, and presence of children in the home.

*Indicates that the question was asked separately, and worded accordingly, for people who own one gun. Response options were the same as those shown below.

Personal firearm ownership status was defined according to respondents' answers to the following:

Do you or does anyone else you live with currently own any type of gun?

- Yes
- No
- Don't know

Do you personally own a gun?

- Yes
- No

Perceived risk of personal firearm injury was defined according to respondents' answer to the following:

In general, how worried are you about gun violence happening to you?

- Very worried
- Somewhat worried
- Not too worried
- Not at all worried
- Don't know

Firearm storage was defined according to respondents' answers to the following:

*How many of your handguns are usually stored...?

Unloaded and locked up (with a trigger lock, cable lock, in a lock box or safe, or in some other way) [INSERT NUMBER BOX, RANGE 0-100]

Unloaded and not locked up [INSERT NUMBER BOX, RANGE 0-100]

Loaded and locked up [INSERT NUMBER BOX, RANGE 0-100]

Loaded and not locked up [INSERT NUMBER BOX, RANGE 0-100]

*Of these [INSERT NUMBER] long guns, how many are usually stored...?

Unloaded and locked up (with a trigger lock, cable lock, in a lock box or safe, or in some other way) [INSERT NUMBER BOX, RANGE 0-100]

Unloaded and not locked up [INSERT NUMBER BOX, RANGE 0-100]

Loaded and locked up [INSERT NUMBER BOX, RANGE 0-100]

Loaded and not locked up [INSERT NUMBER BOX, RANGE 0-100]

Primary reason for firearm ownership was defined according to respondents' answers to the following:

*Please choose the one most important reason you own handguns.

For protection against people

For protection against animals

For hunting

For sporting use (other than hunting)

For a collection

For the other reason you mentioned

*Please choose the one most important reason you own long guns.

For protection against people

For protection against animals

For hunting

For sporting use (other than hunting)

For a collection

For the other reason you mentioned

Please choose the one most important reason you own this type of rifle. [For those who answered that they own any rifles of the type sometimes called "assault rifles," "modern sporting rifles," or "modern tactical rifles?" Examples include AR rifles, AK rifles, and SKS rifles.]

For protection against people

For protection against animals

For hunting

For sporting use (other than hunting)

For a collection

For the other reason you mentioned

New vs. long-standing firearm ownership was defined according to respondents' answers to the following:

In the last 5 years, was there any time that you lived in a home that did not have any guns?

Yes

No

Don't know

* When did you get this gun? Please choose from the list below. If you're not sure, choose the year that seems closest.

[YEAR DROP DOWN: 1930-2018]

Don't know

*Approximately when did you get this gun?

Within the past 2 years

Between 2 and 5 years ago

More than 5 years ago

Additional Information about Sampling and Weighting, 2018 California Safety and Wellbeing Survey

The Ipsos (formerly Growth For Knowledge, GfK) KnowledgePanel® (KP) is recruited quarterly, without replacement, via address-based sampling with complex stratification from the most recent Delivery Sequence File of the USPS. Approximately 97% of households in the United States are included in the database. Follow-up calls were made to nonresponding households that could be matched to landline telephone numbers.

Sampled households are mailed a series of invitations to join the panel, and follow-up calls are made to nonresponding households that can be matched to landline telephone numbers. Should households need them, Ipsos freely provides a web-enabled device and Internet access. Ipsos uses a pre-stratification (base) weight based on benchmark data from the latest Current Population Survey to account of over- or under-coverage and non-response.

Once recruited, members provide basic sociodemographic information. Then, sampled members are sent invitations for specific surveys using a probability proportional to size sampling scheme. Subsequent emails are used (3, 7, 12, and 19 days later) in the case of nonresponse.

All KP members, except those currently serving in the US Armed Forces, were eligible to participate in CSaWS if they were residents of California and aged 18 years or older. No study-specific incentives were provided for participation in CSaWS, although Ipsos maintains a modest incentive program in the form of raffles and lotteries with cash and other prizes. Respondents could take the survey in English or Spanish. Of the 5232 eligible members who received an invitation to participate, 49% completed the survey (n=2558).

A post-stratification weight was subsequently applied to improve state representativeness. The post-stratification weight used raking ratio adjustments based on categories of age, sex, race/ethnicity, Latinx origin, education, household income, and primary language to account for survey-non-response and over- or under-representation between CSaWS respondents and the adult population of California, as measured by the 2016 American Community Survey (ACS). Weights on the extreme ends of the distribution were trimmed, and ultimately scaled to sum to the number of respondents.

Supplementary Table 1. Characteristics of survey respondents by perceived risk of personal firearm injury, 2018 California Safety and Wellbeing Survey

	Not at all worried		Not too worried		Somewhat worried		Very worried		Total*	
	No.	Row % [95% CI]	No.	Row % [95% CI]	No.	Row % [95% CI]	No.	Row % [95% CI]	No.	%
Characteristics (Column %)										
All respondents (100%)	287	10.0 [8.4-11.8]	916	28.7 [26.2-31.4]	878	35.9 [33.0-38.9]	425	21.8 [19.1-24.8]	2,558	100
Firearm ownership status										
Non-firearm-owners living in homes without firearms (71.0%)	162	7.4 [5.8-9.3]	598	24.8 [21.9-27.8]	639	37.2 [33.7-40.9]	359	26.9 [23.4-30.7]	1,797	100
Non-firearm-owners living in homes with firearms (10.5%)	23	8.9 [4.8-15.9]	98	38.0 [29.2-47.8]	89	43.0 [33.6-52.9]	30	9.3 [5.2-16.1]	242	100
Personal firearm owners (14.4%)	90	23.3 [17.5-30.2]	193	43.1 [36.2-50.2]	126	28.6 [22.4-35.6]	19	4.7 [2.8-7.9]	429	100
Age										
18-29 years (18.2%)	15	10.5 [5.9-17.9]	25	15.8 [10.1-23.9]	74	40.3 [31.5-49.8]	38	24.7 [17.5-33.7]	162	100
30-44 years (27.5%)	32	6.4 [4.0-10.0]	105	21.1 [16.6-26.5]	195	41.1 [35.1-47.4]	130	26.9 [21.3-33.2]	478	100
45-59 years (27.0%)	61	10.6 [7.6-14.4]	229	33.4 [28.4-38.8]	228	30.5 [25.8-35.6]	146	23.9 [18.9-29.8]	679	100
60+ years (27.4%)	179	12.6 [10.5-15.1]	557	40.4 [36.4-44.4]	381	33.1 [29.1-37.2]	111	12.7 [9.5-16.9]	1,239	100
Sex										
Male (47.8%)	174	13.3 [10.6-16.6]	447	31.7 [27.7-36.0]	330	33.2 [28.8-37.9]	119	18.6 [14.6-23.3]	1,089	100
Female (52.2%)	113	6.9 [5.3-9.0]	469	26 [22.9-29.4]	548	38.4 [34.6-42.3]	306	24.7 [21.2-28.7]	1,469	100
Race/ethnicity										
White, Non-Hispanic (42.8%)	212	15.9 [13.1-19.1]	657	41.4 [37.8-45.2]	460	32.6 [29.2-36.2]	97	7.2 [5.7-9.1]	1,446	100
Black, Non-Hispanic (5.5%)	11	11.4 [4.9-24.5]	39	30.4 [20.1-43.1]	54	39.5 [28.2-52.1]	14	17.6 [8.4-33.5]	121	100
Other & 2+ races, Non-Hispanic (18.4%)	14	3.5 [1.7-7.1]	68	23.3 [17.5-30.3]	120	51.3 [43.5-59.1]	39	19 [13.3-26.3]	248	100
Hispanic (33.3%)	50	5.7 [3.7-8.7]	152	15.1 [11.3-19.9]	244	31 [25.5-37.1]	275	42.8 [36.6-49.2]	743	100
Violent crime rates in county of residence [†]										
Below median (46.5%)	153	10.7 [8.4-13.5]	461	29.4 [25.7-33.4]	399	35.4 [31.2-39.9]	178	20.6 [16.8-25.1]	1,212	100

Above median (52.3%)	133	9.5 [7.3-12.2]	452	28.6 [25.1-32.4]	472	36.3 [32.3-40.4]	236	22.2 [18.5-26.3]	1,323	100
Children (under 18 years) in home										
No (70.7%)	252	11.8 [9.7-14.2]	777	31.1 [28.0-34.2]	678	35.4 [32.0-38.9]	273	17.9 [15.0-21.2]	2,015	100
Yes (29.3%)	35	5.5 [3.6-8.3]	139	23.1 [18.6-28.3]	200	37.2 [31.5-43.2]	152	31.3 [25.6-37.6]	543	100
Personal firearm owners (14.4%)										
90	23.3 [17.5-30.2]	193	43.1 [36.2-50.2]	126	28.6 [22.4-35.6]	19	4.7 [2.8-7.9]	429	100	
Age										
18-29 years (6.5%)	3	50.9 [17.6-83.5]	0	0 [NA]	3	40 [11.9-76.6]	1	9.1 [1.2-46.0]	7	100
30-44 years (17.5%)	8	12.4 [5.2-26.7]	19	53.1 [35.4-70.1]	12	25 [12.5-43.6]	6	9.5 [3.8-21.9]	45	100
45-59 years (33.1%)	21	29.2 [17.8-44.0]	45	39.1 [27.1-52.6]	29	27.4 [16.0-42.7]	3	3.1 [0.9-9.9]	99	100
60+ years (42.9%)	58	18.9 [13.8-25.4]	129	48.6 [40.1-57.1]	82	29.2 [22.4-37.1]	9	3.3 [1.6-6.9]	278	100
Sex										
Male (72.9%)	70	26.4 [19.1-35.3]	139	44.7 [36.2-53.6]	81	25.2 [18.2-33.9]	10	3.1 [1.4-6.6]	301	100
Female (27.1%)	20	14.9 [8.7-24.4]	54	38.6 [28.4-49.9]	45	37.5 [26.8-49.7]	9	9 [4.3-17.7]	128	100
Race/ethnicity										
White, Non-Hispanic (64.1%)	74	28.3 [21.0-37.0]	147	44.4 [36.9-52.2]	87	23.6 [18.0-30.4]	9	3 [1.4-6.2]	318	100
Black, Non-Hispanic (4.4%)	1	6.7 [0.8-37.7]	6	26 [8.3-57.7]	8	63.1 [29.8-87.3]	1	4.2 [0.5-26.7]	16	100
Other & 2+ races, Non-Hispanic (11.1%)	5	22.4 [7.3-51.3]	12	36.9 [16.6-63.3]	6	36.2 [16.0-62.8]	1	4.5 [0.6-26.3]	24	100
Hispanic (20.4%)	10	11.5 [5.2-23.7]	28	45.9 [28.4-64.5]	25	32.3 [17.2-52.3]	8	10.3 [4.3-22.5]	71	100
Violent crime rates in county of residence [†]										
Below median (48.5%)	49	27.5 [18.7-38.5]	105	46.9 [36.8-57.2]	56	22.3 [15.6-30.9]	8	3.3 [1.4-7.8]	218	100
Above median (51.2%)	41	19.4 [12.7-28.4]	88	39.7 [30.7-49.5]	69	34.1 [24.7-44.9]	11	6 [3.1-11.4]	210	100
Children (under 18 years) in home										
No (81.8%)	81	25.8 [19.2-33.8]	170	41.2 [33.9-49.0]	114	28.8 [22.2-36.4]	15	4.2 [2.3-7.6]	380	100
Yes (18.2%)	9	11.9 [5.3-24.6]	23	51.4 [33.9-68.5]	12	27.6 [13.7-47.9]	4	6.9 [2.3-18.8]	49	100
Firearm storage [‡]										

Least secure (17.8%)	21	32.7 [17.7-52.4]	32	35.4 [20.4-54.0]	24	29.6 [14.6-50.7]	0	0 [NA]	78	100
Moderately secure (36.8%)	30	17.8 [10.8-27.8]	84	42.3 [32.2-53.2]	54	35.4 [25.2-47.1]	7	4.5 [1.9-10.4]	175	100
Most secure (34.8%)	30	27.3 [17.0-40.9]	55	45.1 [33.1-57.8]	39	21 [13.6-30.8]	8	6.5 [2.9-14.1]	132	100
Primary reason for ownership										
No firearms owned primarily for protection against people (50.1%)	42	24.3 [16.0-35.1]	96	43.8 [33.8-54.2]	59	29.3 [20.7-39.8]	6	2.6 [0.9-7.1]	203	100
Any firearm owned primarily for protection against people (48.7%)	45	22 [14.7-31.6]	92	41.9 [32.5-51.8]	67	28.4 [20.1-38.6]	12	6.8 [3.6-12.5]	217	100
Duration of firearm ownership [§]										
Long-standing (90.3%)	85	23.1 [17.1-30.4]	180	44.5 [37.2-52.1]	116	28.2 [21.7-35.7]	14	3.7 [2.0-6.7]	396	100
New (8.7%)	4	26.2 [10.1-52.9]	10	23.7 [10.5-45.0]	10	35.3 [17.2-59.0]	4	14.8 [4.9-37.2]	28	100

Note. Counts are unweighted, prevalence estimates and 95% confidence intervals are survey-weighted. Results may not sum to total because of missing values. NA = not applicable.

* Those who reported “don’t know” or refused were recoded as missing (n=52).

† Violent crime data were obtained from the Open Justice Data Portal, which publishes publicly-available criminal justice data maintained by the California Department of Justice (<https://openjustice.doj.ca.gov/data>). Violent crimes include homicide, rape, robbery, and aggravated assault. We created a binary variable characterizing low violent crime counties (below the median for the state) and high violent crime counties (at or above the state median).

‡ “Least secure” = Any firearm loaded and not locked up in/around home. “Moderately secure” = No firearms loaded and not locked up, but at least one firearm loaded and locked *or* unloaded and unlocked in/around home. “Most secure” = All firearms locked and unloaded in/around home. Firearm owners who stored any firearm at work or someplace else (8.4%) were categorized separately due to an error in the survey prompt that precluded us from accounting for all of the ways in which firearms were stored in and around the home for these respondents (data not shown).

§ As done in prior research,[1] current firearm owners were classified as “new” if they lived in a home without firearms within the last 5 years (at the time of the survey in 2018) and they acquired their most recent firearm within the last 5 years, and otherwise as “long-standing.”

Supplementary Table 2. Association between firearm ownership status and perceived risk of personal firearm injury (not at all vs. any concern) among all survey respondents (n=2,558), 2018 California Safety and Wellbeing Survey

	uOR	95% CI		aOR	95% CI	
Firearm ownership status						
Non-firearm-owners living in homes with firearms	0.84	0.41	1.71	0.94	0.45	1.98
Personal firearm owner	0.27*	0.17	0.42	0.39*	0.24	0.62
Non-firearm-owners living in homes without firearms	Ref.	--	--	Ref.	--	--
Age (years)	0.87	0.70	1.10	1.15	0.90	1.47
Sex						
Female	2.06*	1.40	3.03	1.65*	1.10	2.48
Male	Ref.	--	--	Ref.	--	--
Race/ethnicity						
Black, Non-Hispanic	1.50	0.58	3.89	1.23	0.45	3.33
Other & 2+ races, Non-Hispanic	5.22*	2.39	11.43	4.76*	2.06	11.03
Hispanic	3.03*	1.82	5.04	2.44*	1.40	4.25
White, Non-Hispanic	Ref.	--	--	Ref.	--	--
Violent crime rates in county of residence						
Above median	1.14	0.78	1.69	1.07	0.72	1.58
Below median	Ref.	--	--	Ref.	--	--
Children (under 18 years) in home						
Yes	2.33*	1.43	3.78	2.12*	1.21	3.73
No	Ref.	--	--	Ref.	--	--

Note. Perceived risk of personal firearm injury was dichotomized: those who felt very, somewhat, or not too worried vs. not at all worried (referent) about gun violence happening to them. uOR = unadjusted (bivariate) odds ratio; aOR = adjusted odds ratio; CI = confidence interval. Ref. = referent. Results are from survey-weighted logistic regression models. Adjusted results are from a model that include all variables listed in the table. Age is standardized. Respondents with missing values were excluded from the analyses.

* p-value < 0.05.

Supplementary Table 3. Association between firearm ownership status and perceived risk of personal firearm injury (not at all vs. any concern) among firearm owners (n=429), 2018 California Safety and Wellbeing Survey

	uOR	95% CI		aOR	95% CI	
Firearm storage						
Moderately secure	2.33	0.85	6.37	2.65	0.98	7.14
Most secure	1.34	0.48	3.73	1.59	0.60	4.21
Least secure	Ref.	--	--	Ref.	--	--
Primary reason for ownership						
Any owned for protection against people	1.12	0.55	2.30	1.32	0.67	2.58
None owned for protection against people	Ref.	--	--	Ref.	--	--
Duration of firearm ownership						
New	0.85	0.25	2.86	0.74	0.22	2.51
Long-standing	Ref.	--	--	Ref.	--	--

Note. Perceived risk of personal firearm injury was dichotomized: those who felt very, somewhat, or not too worried vs. not at all worried (referent) about gun violence happening to them. uOR = unadjusted (bivariate) odds ratio; aOR = adjusted odds ratio; CI = confidence interval. Ref. = referent. Results are from survey-weighted logistic regression models. Adjusted results are from a model that include all variables listed in the table. Respondents with missing values were excluded from the analyses. Firearm owners who stored any firearm at work or someplace else (8.4%) were categorized separately due to an error in the survey prompt; estimates not shown.

* p-value < 0.05.

References

1. Wertz J, Azrael D, Hemenway D, et al. Differences Between New and Long-Standing US Gun Owners: Results From a National Survey. *Am J Public Health*. 2018;108:871-877. doi:10.2105/AJPH.2018.304412