May 2004

Adolescents and Firearms: A California Statewide Survey

Susan B. Sorenson
University of Pennsylvania, sorenson@sp2.upenn.edu

Katherine A. Vittes
University of Pennsylvania, kavittes@sp2.upenn.edu

Reprinted from *American Journal of Public Health*, Volume 94, Issue 5, May 2004, pages 852-858.

NOTE: At the time of publication, authors Susan B. Sorenson and Katherine A. Vittes were affiliated with the University of California. Currently (August 2007), they are faculty members in the School of Social Policy and Practice at the University of Pennsylvania.

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Abstract

Objectives. We assessed the prevalence and correlates of adolescents reports regarding firearms in their homes, of their own, of close friends, and of same-aged peers.

Methods. Random-digit-dialed interviews were conducted with 5801 adolescents as part of the California Health Interview Survey.

Results. One fifth (19.6%) of California adolescents reported having a firearm in their homes; few (3.0%) reported having their own gun. Characteristics associated with having one's own gun and with perceptions regarding others' guns generally were consistent with characteristics associated with having a firearm in the home. The 2 exceptions were related to socioeconomic status and to ethnicity.

Conclusions. The source from which adolescents obtain guns, especially adolescents from less wealthy households, merits further investigation. Further research is needed to ascertain the accuracy of Black and Latino adolescents' perceptions regarding handguns among their peers.

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Susan B. Sorenson, PhD, and Katherine A. Vittes, MPH

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Firearms figure prominently in the lives and deaths of US adolescents. About 6% of high school students and 10.3% of male students across the United States reported that they carried a firearm at least once during the past 30 days,[1] and nearly half said, that if they wanted to, they could get a gun.[2] About one fourth reported having easy access to a gun in the home.[3] Crude odds ratios indicate that having a gun in the home is associated with demographic characteristics such as gender, ethnicity, and welfare status.

In 2000, 3913 US youths aged 10 to 19 years died from an intentional gunshot wound[4]; intentional firearm injury is second only to all unintentional injuries as a cause of death for this age group.[5] Although it is illegal, with a few exceptions, for persons under 18 years old to possess a firearm,[6] they are more likely than persons older than 18 years to use a firearm to kill themselves or someone else.[7] For every gun death among 15- to 19-year-old youths, there are nearly 4.5 nonfatal hospital-treated gunshot injuries.[8]

We examined the patterns and correlates of knowledge about and possession of firearms in a community-based sample of adolescents. (Research on adolescents and firearms typically uses more specialized samples such as high school students[3,9–20] or incarcerated youths[21–24] from a single, often urban, locale.[9–12,24,25]) Our first objective was to examine adolescents' reports of having a firearm in their immediate environment (i.e., in the household or of one's own) and the demographic correlates of these reports. The second objective was to compare correlates of having a firearm in one's immediate environment with correlates of perceptions regarding the firearms of other adolescents (close friends and same-aged peers). In addition to firearms in general, we asked specifically about handguns, given that handguns are relatively easy to conceal and are the most common type of weapon used in homicides and suicides.[26–29]

METHODS

The California Health Interview Survey (CHIS), the largest statewide health survey in the nation, collects data on multiple public health issues, including health status, behaviors, and access to care. CHIS 2001 is a random-digit-dialed telephone survey of adults, adolescents, and children. Detailed methodological information is available elsewhere.[30]

All California households with a telephone comprised the sampling frame. Each computer-generated telephone number was screened to determine eligibility (e.g., language fluency); 1 adult per household was randomly selected to be interviewed. If the interviewed adult was the parent or guardian of an adolescent residing in the household, the adult was asked to give verbal consent for the adolescent to be interviewed. If the adult agreed, consent was requested from the adolescent. If more than 1 adolescent resided in a given household, 1 was selected at random. About 1 in 6 sampled adults had an eligible adolescent, and 63.5% allowed an adolescent to be interviewed. Of these adolescents, most (84.5%) agreed to be interviewed. Data were collected from 55 428 households; 5801 adolescents were interviewed between November 2000 and October 2001.

Interviews were conducted in English, Spanish, Chinese (Mandarin and Cantonese dialects), Vietnamese, Korean, and Khmer. These languages were selected to include the largest possible number of non–English speaking California residents. About 9% of the adolescents were interviewed in a language other than English.

Measures

Adolescents were asked seven questions about firearms in general, and handguns in particular. Respondents were asked whether there was a gun in their home, whether they personally had a gun, whether there was a gun in the homes of their 2 closest friends, and whether 1 or both of these friends personally owned a gun. These questions also were asked about handguns; in addition, respondents were asked whether they knew someone about their own age who had a handgun (see Table 1 for a list of the questions). The question about whether the adolescent had a firearm specified "either at home or somewhere else." (The terms "house" and "household" are used interchangeably.)

Demographic information was gathered from each adolescent and adult.

Statistical Analyses

Sample weights, person-level weights, and population weights were employed. These weights accounted for, among other variables, nonresponse, multiple telephone lines, and

TABLE 1—Survey Questions About Firearms

Now I'd like to talk with you about firearms. When I say firearms or guns in all of these next questions, I mean rifles, shotguns, pistols, revolvers, or other firearms. I do NOT want you to include BB guns, air guns, or toy guns.

Does any member of your household happen to keep a firearm at home? It could be kept in your home, garage, outdoor storage area, car, truck, or other motor vehicle.

If yes: How many are handguns?

Do you yourself have a gun, either at home or somewhere else?

If yes: How many guns do you have? Is this a handgun?/Are any of these handguns?

Think of the two friends you spend the most time with.

Are there guns in either of their homes?

If yes: Are any of those guns handguns?

Do one or both of these friends own a gun themselves?

If yes: Is this a handgun?/Are any of these handguns?

Do you know any people around your age who have a handgun?

within-household probability of selection and adjusted for gender, age, race, ethnicity, urbanization, number of children, and number of adolescents in the household. Thus, our findings can be considered a reasonable approximation of firearm prevalence among adolescents in California.

Frequencies were calculated and were followed by bivariate tabulations and χ^2 tests of significance. Standard diagnostics were performed before further analysis; the bivariate linear correlations were acceptable. Multivariate logistic regressions were conducted to identify demographic correlates of reporting having a firearm (vs having no firearm) in the household or of one's own and of reporting that a close friend had a firearm in the home or of his or her own. We conducted the same analyses for handgun versus no handgun. The final set of analyses focused on whether the respondent believed that a same-aged peer had a handgun.

RESULTS

A substantial minority of California adolescents reported having a firearm in their immediate environment. Nearly 1 in 5 (19.6%) reported living in a home in which there was a firearm, and 3.0% reported having their own gun. When asked about their 2 closest friends, 13.3% said that there was a firearm in at least 1 of those friends' homes, and 4.7% said that at least 1 of those friends had his or her own gun.

Long guns were the most common type of firearm in the adolescent's immediate environment (Figure 1). About 1 in 10 (9.9%) reported living in a home in which there was a handgun, and less than 1% (0.86%) reported that they had their own handgun. About half (44.2%) of the adolescents who had a handgun reported that it was a gift from their parents. When asked about their 2 closest friends, 6.7% said that there was a handgun in at least 1 of their friends' homes, and 1.9% reported that at least 1 of these 2 friends owned his or her own handgun. Nearly one fifth (18.5%) of California adolescents believed that they knew someone about their own age who had a handgun.

Bivariate analyses indicate that some population subgroups were more likely to have firearms than others (Table 2); with few exceptions, nearly all tabulations were statistically significant at $P<.05$. Greater proportions of boys, older adolescents, Whites, citizens, and employed adolescents reported that there was a gun in each of the identified locales than did girls, younger adolescents, non-Whites, noncitizens, and unemployed adolescents. Parent/guardian characteristics positively associated with guns were having a higher income, being a US citizen, and having a marital status of other (i.e., widowed, divorced, separated, or living together). A greater proportion of rural (vs urban) adolescents responded affirmatively to the gun questions.

Household composition (i.e., number of children, adolescents, adults, total number of residents) was generally unrelated to answers to the gun questions (data not shown). Moreover, preliminary multivariate analyses indicated that school attendance, the adolescent's plans for the future, and parental marital status were generally unrelated to answers to the gun questions. These variables, therefore, were not included in the final models. Percentage of federal poverty level was used to estimate socioeconomic status in the multivariate analyses, because the federal poverty level accounts for household income and number of persons residing in the household and is adjusted each year for inflation.[31]

When all other variables listed in the table were taken into account, each of the measured demographic characteristics was associated with the likelihood of adolescents'

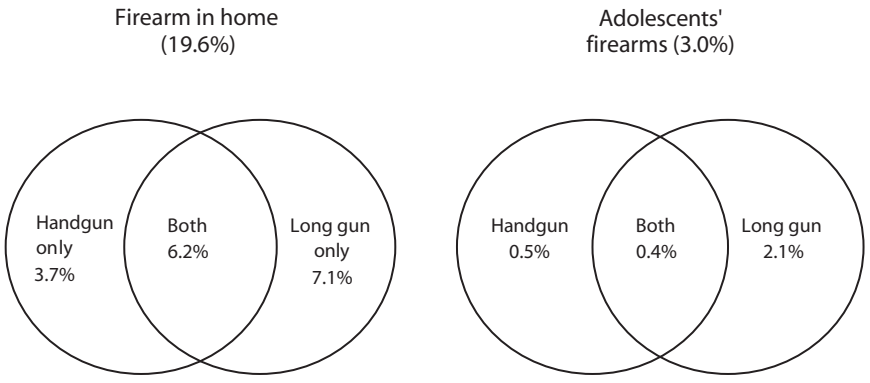

FIGURE 1—Adolescents' reports of having a firearm in the home and of having their own firearm.

TABLE 2—Prevalence of Firearms or Handguns, (%), by Demographic Characteristics: California Adolescents

Characteristic (%)	Firearm				Handgun				
	In Home	Adolescent Has	In Friend's Home	Friend Owns	In Home	Adolescent Has	In Friend's Home	Friend Owns	Peer Has
Overall weighted estimates	19.6	3.0	13.3	4.7	9.9	0.9	6.7	1.9	18.5
Adolescents (individual-level variables)									
Gender									
Male (51.4)	21.1	5.1	17.9	7.2	11.9	1.5	9.2	2.6	22.5
Female (48.6)	18.0	0.7	8.6	2.0	7.8	0.7	4.1	1.1	14.2
Age, y									
12 (16.4)	14.1	1.9	7.8	1.9	6.6	1.0	3.2	0.6	7.8
13 (17.7)	17.8	2.0	10.0	4.3	8.3	0.2	4.0	1.5	8.6
14 (16.5)	18.5	2.6	11.3	3.4	10.6	0.5	4.7	1.2	15.9
15 (16.7)	18.8	3.9	14.0	5.8	10.1	1.1	6.7	2.2	24.6
16 (16.0)	25.4	4.0	18.6	5.9	12.0	1.9	10.5	2.3	27.8
17 (16.0)	23.5	3.4	18.7	6.8	11.8	0.8	11.6	3.5	26.8
Ethnicity									
White (46.4)	29.5	5.5	18.6	5.7	14.9	1.3	8.7	1.5	18.1
Black (6.7)	14.7	2.5	12.5	6.8	6.5	2.1	8.1	2.0	26.5
Latino (35.8)	10.5	0.5	8.7	3.5	5.4	0.4	5.0	2.3	17.4
Asian (8.5)	9.7	1.1	5.6	2.7	5.0	0.7	3.3	1.7	15.6
Multiethnic, other (4.7)	20.4	1.8	14.6	4.7	10.4	0.3	6.3	2.6	23.3
Citizenship									
Noncitizen (7.3)	2.2	0.2	5.0	3.2	0.9	0.2	4.0	1.8	12.1
Citizen (92.7)	21.7	3.3	14.3	4.8	10.9	1.0	7.1	1.9	19.2
Attends school									
No (2.0)	18.4	1.8	24.3	7.1	5.9	1.5	6.4	5.5	23.3
Yes (98.0)	19.5	3.0	13.1	4.6	10.0	0.9	6.7	1.8	18.4
Works for pay									
No (58.1)	15.7	1.6	9.4	2.7	7.4	0.5	4.7	1.1	15.0
Yes (41.9)	25.2	4.8	18.8	7.4	13.4	1.5	9.6	3.0	23.3
Future plans									
College/university (70.1)	18.5	2.3	11.9	3.8	9.1	0.6	5.9	1.5	17.0
Junior college/tech (11.6)	28.0	4.8	17.7	7.0	14.8	1.4	9.4	2.1	21.4
Get a job (4.2)	18.2	3.1	13.4	6.8	9.3	0.5	8.3	3.4	18.1
Military (3.6)	17.5	8.4	18.9	11.4	9.3	1.4	10.8	5.1	31.0
Other/get married (3.7)	21.3	4.8	17.3	6.8	12.5	4.2	9.5	3.1	21.1
Parents (household-level variables)									
Education									
Less than high school (15.6)	7.5	0.8	7.2	3.5	3.5	0.5	4.1	2.5	16.7
Grade 12/high school graduate (9.4)	10.7	2.0	13.2	2.8	4.3	1.3	7.9	1.8	15.5
Some college (25.5)	26.3	3.8	16.2	5.5	12.8	1.0	8.0	2.0	20.7
BA or BS degree (16.1)	20.9	2.8	13.9	3.9	10.6	0.3	5.9	1.0	17.6
Graduate school (10.4)	23.3	2.1	14.5	4.8	10.3	0.5	6.3	0.9	16.9
Marital status									
Never married (8.3)	14.7	2.7	12.3	3.8	5.9	1.2	5.7	1.8	22.6
Married (65.3)	19.9	2.5	12.3	4.3	10.0	0.7	6.4	1.7	17.0
Other (26.1)	20.7	4.2	16.3	5.9	11.0	1.3	8.0	2.3	20.9

Continued

reporting a firearm in their home or that they had their own gun (Table 3). Males (vs females) and adolescents of high school age (14–17 years old) (vs those of junior high school age, 12 and 13 years old) had greater odds of having firearms in their immediate environment. By contrast, the adjusted odds of having a gun in the home were lower for Blacks, Latinos, and Asian Americans compared with Whites. Latino adolescents and those who self-identified as multiethnic or "other" had substantially lower odds of having their own gun. All else being equal, adolescents who were or whose parents were US citizens had substantially higher odds of having a firearm in the home; the latter group also had higher odds of having their own gun. Although employment status was not associated with having a firearm in the home, employed adolescents were more likely than unemployed adolescents to report having their own gun. The association between financial status of a household and whether that household contained a firearm is nearly linear. (Note that adjusted odds ratios in Table 3 are generally consistent with the bivariate socioeconomic status data in Table 2.) Adolescents from rural areas had higher odds of having a firearm in their immediate environment than did their urban peers.

The demographic correlates of perceptions regarding the firearms of other adolescents were generally consistent with the correlates of having a firearm in one's immediate environment (i.e. in the home or of one's own). In addition, the odds of having 1 or 2 close friends who had a gun in their home was lower for Latino and Asian American adolescents (95% CI=0.43, 0.86; and 95% CI=0.25, 0.75, respectively). However, citizenship status and household financial status were not related to reports of firearms associated with adolescents' 1 or 2 closest friends.

Although there were a few exceptions, the substantive patterns observed for any gun or guns held for handguns (see right-hand columns of Table 3).

In sum, male adolescents and adolescents who were of high school age, who were employed, or who lived in rural areas had higher odds of reporting that there are firearms, including handguns, in their environment. Adolescents who were US citizens had higher

TABLE 2—*Continued*

Citizenship									
Noncitizen (24.5)	6.0	0.3	6.8	2.5	3.1	0.1	4.2	1.8	13.6
Citizen (75.5)	24.0	3.8	15.5	5.4	12.1	1.2	7.6	1.9	20.0
Household income, $									
Less than 30,000 (36.1)	9.3	2.4	10.3	3.9	4.6	1.4	6.1	2.4	17.5
30,001–70,000 (31.4)	23.7	3.3	14.2	5.4	12.3	0.9	6.6	1.7	19.3
More than 70,000 (32.4)	27.1	3.3	15.8	4.8	13.4	0.3	7.6	1.5	18.6
% of federal poverty level									
0–99 (21.5)	6.7	1.3	9.9	3.0	2.5	1.1	5.7	2.1	16.7
100–199 (21.0)	14.9	3.0	10.5	4.4	7.7	1.4	5.8	2.0	18.7
200–299 (14.7)	21.7	3.6	15.6	7.0	11.9	0.9	7.6	2.4	18.5
300 and higher (42.8)	27.7	3.5	15.6	4.8	13.9	0.6	7.4	1.5	19.2
Locale									
Rural (14.1)	32.8	6.8	25.9	9.9	15.6	1.4	13.5	2.7	22.7
Urban (85.9)	17.5	2.3	11.3	3.8	9.0	0.8	5.6	1.7	17.7

Note. Refusal to answer a question was uncommon; the highest frequency of refusal, 0.12%, was for whether a same-aged peer had a handgun. "Don't know" responses also were uncommon—typically less than 2%; the single exception was the 8.3% who said that they did not know whether there was a firearm in the home of either of their 2 closest friends. Prevalence estimates were based on affirmative responses vs total responses. Weighted percentages are shown. Nearly all χ^2 tests showed statistical significance.

TABLE 3—Predictors of Firearms or Handguns: Adjusted Odds Ratios, California Adolescents

	Firearm				Handgun				
	In Home	Adolescent Has	In Friend's Home	Friend Owns	In Home	Adolescent Has	In Friend's Home	Friend Owns	Peer Has
Gender male (vs female)	1.22*	8.24***	2.37***	3.75***	1.61***	7.21***	2.36***	2.24**	1.73***
Age 14–17 y (vs 12–13 y)	1.42***	1.70*	1.80***	1.57*	1.49**	1.57	2.27***	1.89	3.45***
Ethnicity (vs White)									
Black	0.61*	0.42	0.76	1.61	0.57*	0.93	1.15	1.51	1.92**
Latino	0.62***	0.13**	0.61**	0.93	0.70*	0.33	0.73	2.23	1.40*
Asian	0.45***	0.40	0.44**	0.88	0.54*	0.96	0.57	2.17	1.23
Multiethnic, Other	0.77	0.35**	0.90	1.04	0.82	0.23*	0.85	2.25	1.66
Citizen									
Adolescent yes (vs no)	4.55***	1.22	1.68	0.66	5.13***	0.61	1.12	0.98	1.38
Adult yes (vs no)	1.69**	3.25**	1.41	1.81	1.52	13.62**	1.30	1.48	1.49*
Employed, yes (vs no)	1.16	1.79**	1.58***	2.27***	1.29*	2.76*	1.59**	2.95**	1.47***
% of federal poverty level									
<100 (vs >300)	0.36***	1.41	1.07	0.87	0.29***	6.41**	1.12	1.39	0.96
100–199	0.67**	1.95*	0.90	1.11	0.75	5.31**	0.99	1.25	1.06
200–299	0.82	1.41	1.14	1.57	0.94	2.09	1.13	1.43	0.97
Rural locale (vs urban)	2.10***	2.34***	2.47***	2.56***	1.64***	1.23	2.40***	1.49	1.37**

*P < .05; **P < .01; ***P < .001.

odds of having a gun in the home; likewise, if the parent was a US citizen, odds were greater that the adolescent had his or her own gun.

Household poverty level was associated with whether adolescents reported a firearm in their homes or having their own guns, including handguns: less wealthy households had lower odds of having a firearm, but adolescents from these households had higher odds of having their own handgun. Black and Latino adolescents had lower odds of reporting the presence of a firearm or handgun in the home, but higher odds of reporting that a same-aged peer had a handgun.

DISCUSSION

A significant minority of California adolescents reported the presence of firearms in their immediate environment. Nearly one fifth (19.6%) live in a home with a firearm, and 3.0% have their own gun. Consistent with research on adults,[32,33] adolescents who are male or from rural areas were substantially more likely than adolescents who are female or from urban areas to report that there is a firearm in the home and that they have their own gun.

Older adolescents (compared with younger ones) had a higher adjusted odds ratio of reporting that there is a gun or handgun in their households and in the households of their 2 closest friends. This finding may indicate that as they age, adolescents become more aware of certain features of their environments. Expanding peer groups also may play a part in older adolescents' exposure to and perceptions about firearms: although age was unrelated to whether an adolescent reported having his or her own gun or handgun, the odds ratio of knowing a same-aged peer who had a gun was higher for older adolescents.

The odds of having a gun in the home were comparable for employed and unemployed adolescents; however, employed adolescents had a higher adjusted odds ratio of believing that their close friends and same-aged peers have firearms as well as higher odds of having their own gun and their own handgun. This finding is independent of household socioeconomic status. It may be that adolescents with jobs have the resources to obtain their own guns; they may have the money with which to purchase a gun and, by fact of their employment, a larger social network that may include persons willing to supply a firearm.

There is some evidence that adolescents who are not in school are more likely to en-

gage in risky behaviors,[34] but the hypothesis has not been adequately tested because most studies of adolescents are school based. In this community-based sample, school enrollment was not statistically significantly associated with any of the gun variables. Only 2.0% of the sample was not enrolled in school, however, which limits the power to detect differences between the groups.

Although previous research has documented an association between having a firearm in the home and risk of suicide and of homicide victimization and perpetration,[35–39] the risk of a fatal gunshot wound does not necessarily correspond to adolescents' reports of firearms in their immediate and proximal environments. Black and Latino adolescents in California have substantially lower odds of reporting that there is a firearm at home. In addition, compared with White adolescents, Latino adolescents have lower adjusted odds of having their own gun. However, the rate of fatal firearm injury for Latino and Black adolescents aged 10 to 19 years is 1.6 and 4.4 times, respectively, the rate for Whites of the same age.[4]

Adolescents who are US citizens or who have parents who are US citizens are significantly more likely than noncitizens to live in a home with a gun or handgun. Little research has focused on immigrants and firearms. There is evidence that, compared with US-born persons, young immigrants are less likely to commit suicide[40] but experience a disproportionate share of homicide victimization.[41] Immigrants and nonimmigrants appear to be equally likely to use a firearm or to be victimized with a firearm.[42]

Although less than 1% of California adolescents have a handgun of their own, nearly 1 in 5 (18.5%) believe that they know someone around their age who has a handgun. This discrepancy is especially marked for Black and Latino adolescents: although they did not differ from White adolescents regarding having their own handgun, Black and Latino adolescents had significantly higher odds of reporting that they knew someone their age who had a handgun. This finding may reflect reality in at least 2 ways. First, perhaps Black and Latino adolescents have a misperception about the risk posed by their peers, a misperception that may be shaped by social and media images of youths of color. This possibility is referred to as *pluralistic ignorance*—that is, belief that one's own behavior (in this case not having a handgun) is in the minority, when in fact one is in the majority. Pluralistic ignorance is exhibited among adolescents about other health behaviors, including smoking,[43] drinking and drug use,[44–46] and sexual activity.[47] Evidence of pluralistic ignorance can be used in interventions emphasizing social norms. For example, in a study following a social marketing campaign, student perceptions of binge drinking norms became more aligned with actual norms, binge drinking declined, and alcohol-related injuries dropped.[48–50] If these findings are confirmed by subsequent research, interventions designed to change perceptions and expectations among Black and Latino adolescents about handguns among their peers could be a focus of prevention. Such intervention may be useful because belief in false norms can create imaginary peer pressure that consequently influences behavior. Second, Black and Latino adolescents, in contrast to White adolescents, may have social networks that are more likely to include persons unlike themselves. Street gangs, not uncommon among California youths, typically are comprised of traditionally underrepresented minority adolescents and young adults. As reported elsewhere,[51] "despite the absence of reliable data, there is broad agreement that the number and firepower of weapons available to gang members has increased."[51(p45)] Thus, minority adolescents' higher odds of reporting that a same-aged peer has a handgun may be correct if they interact with or know peers who may be affiliated with a gang. Moreover, the primary reason that adolescents choose to have a handgun is the same as the reasons reported by adults—for self-protection. If self-protection is perceived as crucial in certain locales or situations, adolescents may seek to present themselves as powerful and impenetrable by conveying the impression, regardless of its accuracy, that they have a weapon.

Socioeconomic status emerged as a key consideration in these data. Although there is some evidence to support the belief that guns used in suicide and unintentional injuries among adolescents typically come from the victim's home or that of a friend or relative[25] (we were unable to locate research on the source of guns used by adolescents to commit homicide), our findings indicate that access to household guns may not be the primary issue. Whereas less wealthy homes are less likely to contain a firearm, adolescents from these homes are more likely to own their own handgun. Given that the United States is among the few industrialized nations that do not report mortality or other health data by social class, we cannot assess the relationship between our findings and national mortality patterns. Moreover, it will be important from policy and intervention perspectives to determine where adolescents from poor homes get their handguns.

Study Strengths and Limitations

CHIS is a state-of-the-art, community-based telephone survey designed to capture the diversity of California's population by oversampling particular ethnic groups, language groups, and geographic locales. Cultural review and adaptation of each survey question occurs when necessary, advance letters are sent in 5 languages to two thirds of the potential sample, financial incentives are employed, interviewers skilled in refusal conversions recontact each potential respondent who initially refuses to participate, and so forth. Nonetheless, the overall response rate for 2001, 37.7% for adult respondents (59.7% of potential respondents completed the screening questions and 64.7% of these people completed the interview itself), was not optimal. Participation rates in telephone surveys have dropped substantially in the past few decades,[52] and the decrease appears to have accelerated in recent years. For example, response rates in the Behavior Risk Factor Surveillance System dropped from a median of 68.4% in 1995 to a median of 55.2% in 1999; 18 states had participation rates below 50% in 1999.[53] Although research on response rates has focused primarily on respondent refusal, the inaccessibility of potential respondents is a growing concern. There has been only a slight increase in disconnected and business numbers in random-digit-dialed samples but a significant increase in the number of "no answer" and "busy" dispositions, even after multiple attempts.[54] As noted elsewhere,[55] the proliferation of telephone numbers dedicated exclusively to fax machines or computers, of nondedicated

phone lines to connect to the Internet, and the use of call screening devices (e.g., caller ID and call blocking, the latter of which prevents a call from ringing through) present major obstacles to reaching a potential respondent. Telephone response rates are generally believed to be lower in California, whose consumer privacy legislation has been a model for legislation elsewhere.

In addition, the required double layer of permission to participate reduces response rates in studies of adolescents. In the current study, 63.5% of the adult parents or guardians gave permission for their adolescent to be interviewed, and 84.5% of the permitted adolescents agreed to be interviewed, resulting in a response rate of 53.7%, which is in line with recent Behavior Risk Factor Surveillance System response rates. If, however, one takes into account the overall adult response rate, the adolescent response rate drops further. The assumption that the participating and nonparticipating adults were equally likely to have an adolescent in the home cannot be tested; therefore, the true response rate cannot be ascertained. Despite these problems, the unweighted data for the sample are roughly comparable to US Census data on key variables (e.g., age, gender, income). In addition, sample and population weights were used, which theoretically can correct for potential weaknesses in a sample.

The data share the limitations of all self-report data, and responses were not externally corroborated. For some sense of response validity, we reviewed other surveys of California adolescents. The California Student Survey, a legislatively mandated survey of seventh-, ninth-, and 11th-grade students from a representative sample of public and private secondary schools in California, provides perhaps the best comparison data.[56] In general, a lower proportion of CHIS respondents than of California Student Survey respondents reported smoking cigarettes, drinking alcohol, or using drugs.

If responses to questions about firearms are consistent with responses to questions about other risk-related behaviors, these data may be biased toward conservative estimates. Moreover, the active permission processes used in this study (i.e., parents must consent for their children to participate) typically results in a more law-abiding sample of adolescents.[57–59] The patterns in the data probably are more robust than the point estimates.

CONCLUSIONS

Findings indicate that gun-related risk often attributed to ethnicity may more correctly be attributed to socioeconomic status. The handguns of poor adolescents and, in particular, the source of these guns, given that these adolescents' households are less likely to contain a gun, merit attention, especially as the proportion of the US population living in poverty is increasing.[60] Further research is needed to assess the accuracy of minority adolescents' beliefs about their peers and handguns. ■

About the Authors

The authors are with the University of California, Los Angeles, School of Public Health, Los Angeles.

Requests for reprints should be sent to Susan B. Sorenson, PhD, UCLA School of Public Health, Box 951772, Los Angeles, CA 90095-1772 (e-mail: sorenson@ucla.edu).

This article was accepted June 30, 2003.

Contributors

S.B. Sorenson conceived the study, secured funding, helped develop the questions, supervised data analysis, and wrote the article. K.A. Vittes conducted data analysis and helped write and edit the article.

Acknowledgments

We are grateful to the Joyce Foundation and the David and Lucile Packard Foundation for funding this work.

We extend our appreciation to E. Richard Brown and staff of the California Health Interview Survey for allowing us to collect data as a supplement to their statewide survey. Thanks to Philip J. Cook and David Hemenway for their participation in questionnaire development and for their comments on a previous draft of the article. Finally, thanks to the thousands of California adolescents who completed the survey and to their parents who gave permission for us to speak with them.

Human Participant Protection

The University of California Los Angeles Human Subjects Protection Committee reviewed and approved this study.

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