

Saying No to Marijuana: Why American Youth Report Quitting or Abstaining*

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ABSTRACT. Objective: This article aims to contribute to the literature by reporting on a nationally representative study of U.S. youths regarding their self-reported reasons for abstaining from or quitting marijuana use and the relationships between such reasons and individual sociodemographic characteristics of gender and race/ethnicity. **Method:** This article uses data from in-school surveys obtained from nationally representative cross-sectional samples of U.S. high school seniors from 1977 to 2005 ($N = 82,106$). **Results:** Results indicate the following: (1) 50% of those reporting past-12-month marijuana use felt they should either stop or reduce their use; (2) among those saying they would not use marijuana in the coming year, the most frequently reported reasons cited were psy-

chological and physical damage and not wanting to get high (reported by more than 60%), whereas the least frequently reported reasons included expense, concerns of having a bad trip, and availability (reported by fewer than 25%); and (3) clear differences existed in reported reasons by gender and race/ethnicity. **Conclusions:** A significant percentage of U.S. high school seniors who are recent marijuana users wish to either reduce or stop their marijuana use and are basing such desires on a wide variety of reasons that show significant gender and racial/ethnic variation. Marijuana prevention and cessation policy and programming could potentially be strengthened by incorporating the findings from these analyses. (*J. Stud. Alcohol Drugs* 69: 796-805, 2008)

MARIJUANA HAS LONG BEEN the subject of intense political debate as to the dangers and benefits of its use (Goode, 1997; Grinspoon, 1971; Kaplan, 1970; Moore et al., 2007). Practitioners and policy makers interested in the subject of marijuana use and its associated harms and/or benefits have access to a large body of research focusing on marijuana-use initiation and continuation, including personality characteristics (e.g., Brook et al., 1980; Penning and Barnes, 1982), personal values (e.g., Carlson and Edwards, 1990), social context (e.g., Bailey and Hubbard, 1990), and sociodemographic characteristics (e.g., Bachman et al., 1998; Brown et al., 2001; Johnston et al., 2007a). What practitioners and policy makers do not have is an abundance of research from the complementary perspective of investigating why individuals might choose *not* to use marijuana or to stop or reduce their current use.

The desire to discontinue marijuana use among users may be high. In one longitudinal study following California continuation high school students, more than half of current marijuana users had attempted to quit and had failed (Weiner et al., 1999). Other research indicates that a significant number of those who ever use marijuana do stop use at some point. Cessation estimates have been found to range from approximately 40% in selected Canadian secondary school

samples (Goodstadt et al., 1984) to 85% of age 45 lifetime users in a U.S. panel study (Johnston et al., 2007b).

Although some studies have found that, in general, the same factors are at play in both noninitiation and discontinuation (Kandel and Raveis, 1989), others indicate that different factors are involved (Goodstadt et al., 1986). And although some data exist on gender differences in discontinuation (Kandel and Raveis, 1989; Sussman and Dent, 2004), there is a dearth of available research examining other discontinuation-related sociodemographic differences.

Early findings indicated that marijuana discontinuation was strongly related to increased fear of legal consequences, perceived disapproval, conformity, and social role change (Goodstadt et al., 1984). A more recent longitudinal study with students in California emphasized that not having friends who used marijuana was associated with discontinuation (Sussman and Dent, 2004). Conflicting findings have emerged relative to both the fear of legal consequences as well as health concerns. Among Ontario students, neither issue was associated with discontinuation (Goodstadt et al., 1984, 1986). However, health concerns and a dislike for the effects of marijuana were cited as the most common reasons to discontinue use among a small U.S. college sample (Martin et al., 1983). A longitudinal study of high school students in California found that current users perceived punitive measures to be among the most effective methods of quitting marijuana use (Weiner et al., 1999).

Two important points thus emerge from the literature: (1) no long-term, nationally representative studies are available investigating the reasons for either abstaining from or quitting marijuana among youths, and (2) there is a need for

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a more thorough investigation of the relationships that sociodemographic characteristics might have with noninitiation and discontinuation. This article attempts to begin to provide such data by addressing the following research questions:

- 1a. What percentage of U.S. high school seniors who report past-12-month marijuana use also report they feel they should stop or reduce their marijuana use?
- 1b. Is there evidence of any change in this rate over time?
- 1c. How do such rates compare with those observed for other substances?
- 1d. Do the odds of feeling the need to stop or reduce one's marijuana use vary by gender and race/ethnicity?
- 2a. What are the most common reasons for abstaining from or quitting marijuana use?
- 2b. Is there evidence of significant changes in reported reasons over time?
- 2c. Do reported reasons correlate with actual use levels over time?
- 2d. Do reasons to abstain from or stop use vary by use level?
- 2e. Do reasons to abstain from or stop use vary by gender and race/ethnicity?

Method

Study setting and participants

Data were obtained from the Monitoring the Future study (Johnston et al., 2007a) and were collected yearly from 1977 to 2005 with sampling representative of all 12th-grade students in the 48 contiguous states. Ethical approval for the study was obtained from the University of Michigan Behavioral Sciences Institutional Review Board (Johnston et al., 2007a), and informed consent was given for survey participation. Surveys were self-completed and group administered within school settings by University of Michigan personnel; data collection protocols remained consistent over time. Student response rates averaged 83% (range: 79%-86%), with nonresponse almost entirely accounted for by absenteeism. The obtained total weighted sample size (summing over the 29 years and including only those students with valid data on at least one outcome measure) was 82,106 12th graders. Cases obtained were taken only from the questionnaire form that included drug-use reason items; this is essentially a random one sixth of the entire sample.

Measures

Outcome measures included the following: (1) perceived need to reduce or stop marijuana use, (2) likelihood of marijuana use in the next 12 months, (3) reasons for abstaining from or quitting use, and (4) marijuana use. Independent measures included gender and race/ethnicity.

Perceived need to abstain from or quit marijuana use. "At any time during the last 12 months have you felt in your own mind that you should reduce or stop your use of marijuana?" (1 = yes, 0 = no).

Future marijuana use. "How likely is it that you will use marijuana in the next 12 months?" (1 = probably/definitely will not use, 0 = definitely/probably will use).

Reasons for abstaining from or quitting use. Seventeen possible reasons for not using marijuana or for stopping use were posed to all students who reported that they probably or definitely would not use in the next 12 months. Respondents were instructed to check all that applied. Full text of all reasons is presented in Table 1. (Other information included in Table 1 will be discussed in following sections.)

Marijuana use. "On how many occasions (if any) have you used marijuana (weed, pot) or hashish (hash, hash oil): a. in your lifetime? b. during the last 12 months?" An any/none dichotomy was created to indicate any past-12-month use prevalence. A three-category marijuana-use continuum variable was created such that 0 = never users, 1 = quitters (defined as used in lifetime but not in past 12 months), and 2 = continuing users (those reporting use within the past 12 months).

Sociodemographic measures. Gender was measured by a 0/1 dichotomy where 1 = male. Race/ethnicity was measured using a trichotomy including black, Hispanic, and white (for these analyses, the 9% of students indicating a different race/ethnicity, including Asian, Native American, and "other," were excluded, because of low sample sizes that became problematic in multivariate models). In 2005, students were allowed to indicate multiple racial/ethnic categories. To maintain data coding consistency, only students who indicated single racial/ethnic membership were included in the analyses. In multivariate models, dummy variables were used for black and Hispanic students; white served as the referent category.

Analyses

SAS Version 9.1.3 (SAS Institute Inc., Cary, NC) was used to obtain weighted descriptive population estimates for marijuana-use prevalence rates and the percentage of U.S. high school seniors who (1) felt they should stop or reduce their marijuana use and (2) reported various reasons for abstaining from or quitting use (as well as gender and racial/ethnic subgroup percentages). SAS was also used in analyses examining correlations between past-12-month marijuana use and reported reasons for abstaining from or quitting marijuana use utilizing a dataset aggregated by year, with Pearson *r* values obtained from PROC CORR.

All other analyses used survey commands in Stata 10.0 (StataCorp, 2007). The complex multistage sample design was accounted for by using sampling weights to adjust for differential selection probabilities and by using Taylor lin-

TABLE 1. Reasons for not using or for stopping marijuana use among high school seniors reporting probably/definitely will *not* use marijuana in the next 12 months, 1977-2005: Overall percentage reporting and correlations with past 12-month marijuana use over 29 years

Question stem: "Here are some reasons people give for not using marijuana, or for stopping use. Please tell us which reasons are true for you. (Mark ALL that apply.)"	%	Pearson <i>r</i>	<i>p</i> ^a
Concerned about possible psychological damage	63.8	-.40	*
Concerned about possible physical damage	63.0	-.26	
Don't feel like getting high	61.8	-.74	‡
My parents would disapprove	58.5	.00	
It might lead to stronger drugs	51.6	-.77	‡
It's against my beliefs	50.9	-.15	
Concerned about possible loss of control of myself	49.6	-.87	‡
Concerned about becoming addicted to marijuana	49.1	-.92	‡
Concerned about getting arrested	45.1	-.21	
I don't like being with the people who use it	42.6	-.75	‡
Concerned about loss of energy or ambition	36.4	-.57	†
My friends don't use it	35.3	-.85	‡
My husband/wife (or boyfriend/girlfriend) would disapprove	32.8	-.81	‡
Not enjoyable, I didn't like it	29.1	.65	‡
Too expensive	24.3	.36	
I might have a bad trip	23.5	-.84	‡
Not available	6.6	-.69	‡

Notes: *n* for percentage student reporting = 51,769; *n* for correlations with annual aggregate measures of past 12-month marijuana use obtained using year-level aggregations of the data = 29. ^aProbability that *r* is not 0.0.

**p* < .05; †*p* < .01; ‡*p* < .001.

earization-based variance estimators to adjust for clustering by sampling strata and cluster, computing robust standard errors. Analyses examining time trends involved two steps. First, data were graphed for analysis (graphs not shown). Models were then run using svy: logit procedure (Long and Freese, 2005; Skinner et al., 1989; StataCorp, 2007) where the year variable was treated as continuous and centered, and a quadratic form of the centered year variable was also included. Models comparing the percentage of past-12-month marijuana users who reported feeling they should stop or reduce use with the percentage of past-12-month users of other substances who felt they should stop or reduce use of those substances were run using the svy: tab command and requesting Pearson's chi square and adjusted Wald statistics.

Finally, models examining variance in outcomes associated with marijuana-use level, gender, and/or race/ethnicity were also conducted using the svy: logit procedure. All models controlled for year using year dummies and simultaneously controlled for both gender and race/ethnicity. Models examining plans not to use marijuana in the next 12 months also controlled for marijuana use; models run on reasons for not using or for stopping use were run to obtain separate results for never users, quitters, and continuing users.

Results

Sample characteristics and outcome measures

The analysis sample from 1977 to 2005 was evenly distributed by gender (49% male). Black students made up

13% of the sample and Hispanics made up 7%, with whites making up the remaining 80%. Half (50%) of the surveyed seniors reported no lifetime marijuana use and were thus categorized as never users. Quitters (reporting lifetime use but no past-year use) made up 12% of the sample, and 38% were continuing users (reporting any past-12-month use). Seventy-five percent of all seniors stated they probably or definitely would not be using marijuana in the next 12 months: 97% of never users, 94% of quitters, and 37% of continuing users.

Research question (RQ) 1a focused on the extent to which U.S. high school seniors who reported past-12-month marijuana use felt they should reduce or stop such use. Results indicated that 50% of such continuing users reported feeling they should reduce or stop their marijuana use. RQ 2a was directed toward examining the reported reasons for abstaining from or not using marijuana. Results showed that among students who stated they either probably or definitely would not be using in the next 12 months, significant variation existed in the percentage who marked each of the listed reasons for not using marijuana or stopping use.

Table 1 shows that more than 60% of students cited concern for possible psychological or physical damage as well as "don't feel like getting high." Concern for parental disapproval was another frequently noted reason (59%). In contrast, less than one quarter of the students stated that concerns about either expense or a bad trip were a factor in their decision to not use marijuana or to reduce use, and only 7% stated that lack of availability was a relevant reason for them.

Time trends in marijuana use and reasons for abstaining from or quitting use

As has been reported elsewhere (Johnston et al., 2007a), marijuana use experienced a strong decrease from the late 1970s through the early 1990s, followed by an upsurge in the mid-1990s and some decrease in the early 2000s. Not surprisingly, trends for intentions not to use in the next 12 months mirrored those for past-12-month prevalence, starting out at around 65% in the late 1970s and reaching their highest point (more than 80%) in the early 1990s before lowering to around 75% in the early 2000s.

RQs 1b and 2b focused on examining the data for time trends in both the percentage of users who felt they should stop or reduce their use as well as the percentages of seniors reporting the various reasons for not using or for stopping marijuana use. The percentage of users feeling they should stop/reduce use increased from about 44% in the late 1970s to above 55% in the late 1980s; however, since the early 1990s, rates have remained relatively stable at just below 50%.

With respect to time trends in reasons for not using/stopping use, results indicated several points of particular interest. First, although the top four reasons noted in Table 1 (concern for psychological damage, concern for physical damage, don't feel like getting high, parental disapproval) have retained their primacy over time, the last 10 years have seen a clear shift in their relative importance. Although concern for both psychological and physical damage had been the top reasons in the early years (nearing almost 70% in the late 1980s), these reasons both decreased sharply and significantly starting in the late 1990s to below 60% for psychological damage and 55% for physical damage as of the early 2000s.

In contrast, "don't feel like getting high" significantly increased to almost 65% in the late 1980s and has remained relatively stable since then. Parental disapproval showed no significant time trends and, as of the early 2000s, was second in importance. Second, concern about arrest has risen significantly and linearly since the early 1980s' low of 40%. This reason is now fifth in relative importance at more than 50% as a reason to not use/stop use. Third, expense showed no indications of significant change, and expense and availability have remained low among the reasons for not using.

Comparison across substances of seniors who felt they should stop/reduce use

Analyses were conducted to compare the percentage of past-12-month marijuana users who reported feeling they should stop or reduce use with the percentage of past-12-month users of other substances who felt they should reduce or stop use of those substances (RQ 1c). Results showed no significant differences between the percentage of marijuana

users who felt they should reduce or stop use (50%) and the percentage of users of hallucinogens or heroin (both at 51%). However, marijuana users were significantly more likely to report feeling they should reduce or stop use than were users of amphetamines (45%), narcotics other than heroin (41%), cocaine (40%), tranquilizers (37%), alcohol (36%), and barbiturates (19%). In contrast, a significantly higher percentage of cigarette smokers thought they should reduce or quit use (64%; $p < .001$) than marijuana users.

Correlation between marijuana-use levels and reported reasons for abstaining from or quitting marijuana use

Table 1 also presents Pearson correlations between annual aggregate past-12-month marijuana use and reasons for not using/stopping use (RQ 2c). The strongest correlation observed was between use and addiction concerns ($r = -.92$; $p < .001$), indicating that, in periods of high use, addiction concerns were less likely to be cited as a reason for not using or for stopping use. Other correlations at an absolute value of .75 or higher (with $p < .001$) included loss of control (-.87), concern that marijuana might lead to stronger drugs (-.77), partner disapproval (-.81), dislike of being with users (-.75), not having friends who use (-.85), and worries about a bad trip (-.84). Readers should note that all of these are negative correlations. Items that did not show significant correlations with trends in past-year use prevalence included concerns about physical damage, concern about getting arrested, conflict with personal beliefs, parental disapproval, and expense.

Marijuana-use level relationships

Figure 1 presents reasons for abstaining from or quitting marijuana use in descending order based on the total percentage of students marking each item (RQ 2d). Results are shown for continuing users (who indicated that they were not likely to use in the future), quitters, and never users. Results showed that, for the majority of reasons, never users cited the reason more often than quitters, who in turn cited the reason more often than continuing users ($n = 50,908$; F ratios significant at $p < .05$ or lower with 2/409 df). However, quitters were more likely than either never users or continuing users to cite reasons of partner disapproval, "not enjoyable," and expense. Indeed, "not enjoyable" was much less likely to be cited by never users (21%) than either continuing users (40%) or quitters (54%; $p < .001$), presumably because of a lack of personal experience with marijuana. Comparisons for expense were not significant between never users and both quitters and continuing users. Further, no significant differences for availability were observed between quitters and continuing users. Finally, comparisons for "don't feel like getting high" showed no significant differences between quitters and never users.

Gender and race/ethnicity relationships

RQ 1d and RQ 2e were addressed via multivariate logistic regression models investigating relationships between gender and race/ethnicity and the following: (1) marijuana-use history ($n = 63,982$), (2) plans to not use marijuana in the next 12 months ($n = 63,982$), (3) belief that they should stop

or reduce marijuana use (current users only) ($n = 22,782$), and (4) reasons for not using/stopping marijuana use (asked only of those who did not plan to use in the next 12 months) (see Tables 2 and 3 for model n information). All models included gender, race/ethnicity, and dummy variables for year; all overall F ratios were significant at $p < .001$. Results regarding use patterns will be presented first (tabular data

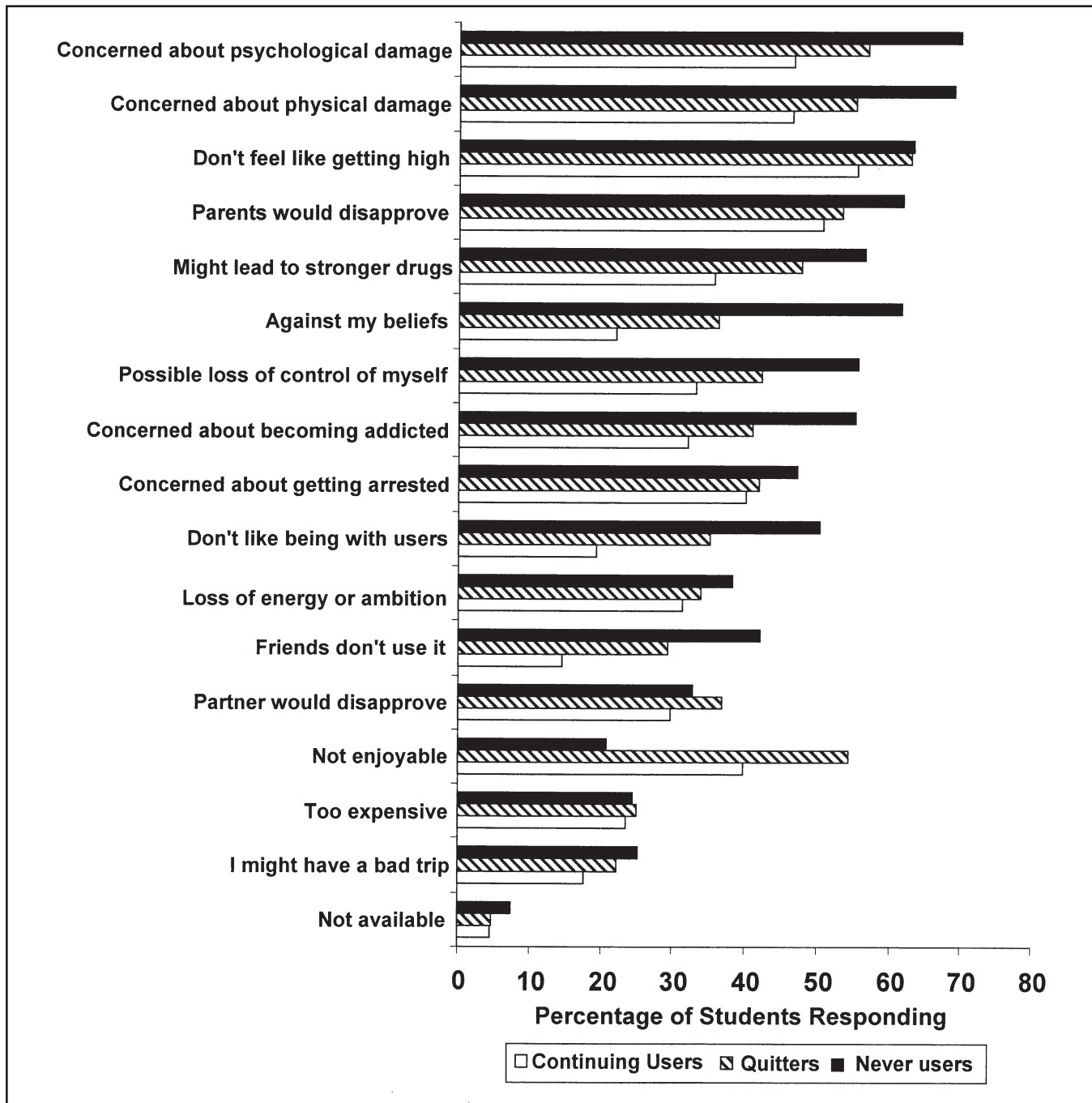


FIGURE 1. Ranked reasons for not using or for stopping marijuana use for continuing users ($n = 8,631$), quitters ($n = 7,657$), and never users ($n = 34,620$) among U.S. high school seniors, 1977-2005. Reasons were elicited only for those students who reported they probably/definitely would not use marijuana in the next 12 months.

not shown), followed by multivariate prediction of reasons for not using/stopping marijuana use.

Gender and race/ethnicity relationships with marijuana use and use plans. Males were more likely than females to have ever used marijuana (51% vs 45%; $p < .001$) and, once having used, were more likely to continue use (47% vs 33%; $p < .001$). No significant gender differences were observed for the odds of being a quitter. Overall, females were more likely than males to report that they probably or definitely would not be using marijuana in the next 12 months (77% vs 73%; $p < .001$). In contrast, more male than female continuing users viewed their use as problematic, with higher odds of reporting they felt they should stop or reduce use (53% vs 46%; $p < .001$).

Black seniors were the most likely to report both having never used marijuana (61%) as well as having quit (13%) and the least likely to be continuing users (26%) when compared with Hispanics (55%, 15%, and 30%, respectively; $p < .05$ or lower) and whites (51%, 12%, and 37%, respectively; $p < .01$ or lower). Hispanic seniors were less likely than whites to be continuing users (30% vs 37%; $p < .05$) and were more likely than white seniors to have quit (15% vs 12%; $p < .001$). Black and Hispanic seniors were more likely than whites to report they would not be using marijuana in the next 12 months (83% and 80% vs 74%; $p < .001$) and were more likely to believe they should stop or reduce their use if they were continuing users (56% and 54% vs 49%; $p < .05$ or lower). Thus, white seniors appear to be a harder-to-reach group for marijuana-use reduction, with a higher percentage

of continued users and a lower percentage seeing such use as problematic.

Gender and race/ethnicity relationships with reasons to abstain from or quit marijuana use. To facilitate discussion of the relationships between gender and race/ethnicity and reasons for not using or for stopping marijuana use, all reasons were examined for evidence of broad categorizations. Exploratory factor analyses yielded three general groups inclusive of all reasons, labeled (1) negative consequences (concern for psychological and physical damage, addiction, or arrest; loss of energy/ambition or control; leading to stronger drugs; having a bad trip; partner or parental disapproval), (2) interest and practicality (not enjoyable or available, not feeling like getting high, expense), and (3) personal beliefs and peer influences (a miscellaneous group including against personal beliefs, do not like being with users, friends don't use). These factors should be viewed as a way of grouping reasons to aid in discussion of results and not as an attempt to identify significant latent constructs.

Multivariate model results for reasons for not using or for stopping marijuana use are presented in Table 2 by gender and Table 3 by race/ethnicity. Separate models were run for each marijuana-use history level (never users, quitters, and continuing users). All models controlled for year using year dummies. Readers are reminded that all reasons were asked only of those seniors who were not planning to use marijuana in the next 12 months.

Negative consequences (10 reasons). Overall, females were more likely than males to cite negative consequence

TABLE 2. Multivariate results for sociodemographic characteristics relating to reasons for not using or for stopping marijuana use among high school seniors who do not plan on using in the next 12 months, 1977-2005, by gender

Reason	Never users				Quitters				Continuing users			
	Female % (ref.)	Male %	OR	<i>p</i>	Female % (ref.)	Male %	OR	<i>p</i>	Female % (ref.)	Male %	OR	<i>p</i>
Negative consequences												
Concerned about psychological damage	71.3	68.1	0.84	‡	59.6	53.9	0.77	‡	49.1	44.3	0.82	†
Concerned about physical damage	70.2	67.6	0.86	‡	56.9	54.2	0.88	*	47.6	45.6	0.93	
Parents would disapprove	63.9	59.8	0.83	‡	55.5	51.6	0.86	†	51.5	50.6	0.96	
Might lead to stronger drugs	57.1	56.3	0.97		49.1	47.0	0.91		36.6	35.2	0.94	
Possible loss of control of myself	58.7	51.3	0.74	‡	46.9	37.6	0.67	‡	37.4	28.7	0.67	‡
Concerned about becoming addicted	55.4	54.5	0.96		43.6	38.0	0.77	‡	33.8	29.9	0.82	‡
Concerned about getting arrested	43.3	52.2	1.42	‡	39.4	45.1	1.27	‡	37.8	43.0	1.25	‡
Loss of energy or ambition	35.7	40.4	1.22	‡	33.0	34.8	1.09		31.0	31.7	1.04	
Partner would disapprove	33.7	32.5	0.94	*	39.7	34.3	0.78	‡	30.3	29.5	0.95	
I might have a bad trip	24.8	25.4	1.03		24.8	19.2	0.71	‡	20.3	14.7	0.67	‡
Lack of interest/impractical												
Don't feel like getting high	64.9	61.7	0.85	‡	66.5	58.4	0.70	‡	61.3	50.0	0.62	‡
Not enjoyable	19.4	21.6	1.18	‡	60.1	48.5	0.62	‡	45.8	34.8	0.63	‡
Too expensive	21.0	29.3	1.52	‡	22.1	28.4	1.40	‡	20.1	27.6	1.54	‡
Not available	6.7	7.9	1.19	‡	4.2	5.3	1.28	*	4.5	4.6	1.03	
Personal beliefs/peer influences												
Against my beliefs	65.3	58.3	0.72	‡	37.6	35.1	0.89	*	23.1	21.1	0.90	*
Don't like being with users	53.0	47.0	0.77	‡	38.2	31.9	0.74	‡	21.2	17.4	0.77	‡
Friends don't use it	45.1	38.9	0.74	‡	32.9	26.0	0.70	‡	16.6	13.1	0.76	†

Notes: Model information: never users ($n = 31,180$); quitters ($n = 6,980$); continuing users ($n = 7,920$). All models simultaneously control for race/ethnicity and individual year dummies. OR = odds ratio.

* $p < .05$; † $p < .01$; ‡ $p < .001$.

reasons, regardless of marijuana-use history. In particular, females were more likely to cite concerns about possible psychological damage and loss of control. Among never users and quitters, females were more likely than males to cite reasons of physical damage as well as parental and partner disapproval. Among quitters and continuing users, females were also more likely to report reasons of addiction and concerns about having a bad trip. In contrast, males were more likely to record concerns of arrest, regardless of marijuana-use history. Among never users, males were also more likely than females to cite loss of energy or ambition. Gender differences tended to be greatest among never users and quitters.

Black and Hispanic students generally were more likely than whites to list concern about becoming addicted as a reason regardless of marijuana-use history (only the Hispanic-white difference among never users failed to reach statistical significance). Minorities categorized as either quitters or continuing users were also more likely to report concerns that marijuana use would result in a bad trip; among continuing users, minority groups were more likely than whites to be concerned that marijuana use would lead to the use of stronger drugs and loss of control. Among students without any marijuana-use experience, whites were more likely than minorities to report concerns for psychological and physical damage, parental disapproval, and arrest. Black students

were less likely than whites to list arrest as a reason to stop or reduce marijuana use regardless of use history level. Among continuing users, minorities were more likely than whites to report concerns related to psychological damage.

Interest and practicality (four reasons). Gender and race/ethnicity findings were mixed for reasons reflecting interest or practicality. Regardless of marijuana-use history, females were more likely than males to report not feeling like getting high, whereas males were more likely than females to report expense. Among never users and quitters, males were more likely than females to report lack of availability, although very few cited this reason. Interestingly, although never-using males were more likely than never-using females to state that marijuana was not enjoyable, males were less likely than females to cite this reason among both quitters and continuing users.

Whites were more likely than minorities to report that expense was a factor for them regardless of past marijuana-use experience. Among never users, minorities were more likely than whites to state that marijuana was not enjoyable; however, this relationship reversed among continuing users. No significant race/ethnicity differences were observed for the reason of availability, which was the least chosen reason in every case.

Personal beliefs and peer influences (three reasons). The likelihood of reporting reasons relating to personal beliefs

TABLE 3. Multivariate results for sociodemographic characteristics relating to reasons for not using or for stopping marijuana use among high school seniors who say they are not likely to use in the next 12 months, 1977-2005, by race/ethnicity

	Never users					Quitters					Continuing users				
	Blacks		Hispanics			Blacks		Hispanics			Blacks		Hispanics		
	Whites % (ref.)	%	OR	%	OR	Whites % (ref.)	%	OR	%	OR	Whites % (ref.)	%	OR	%	OR
Negative consequences: (1) Concerned about psychological damage; (2) concerned about physical damage; (3) parents would disapprove; (4) might lead to stronger drugs; (5) possible loss of control of myself; (6) concerned about becoming addicted; (7) concerned about getting arrested; (8) loss of energy or ambition; (9) partner would disapprove; (10) I might have a bad trip															
1	70.8	65.8	0.77 [‡]	67.2	0.85*	57.0	56.6	1.00	57.0	1.12	45.9	51.4	1.30 [‡]	51.8	1.47 [‡]
2	70.2	65.0	0.77 [‡]	63.4	0.75 [†]	55.4	57.4	1.13	55.4	1.14	46.5	50.5	1.22*	42.9	1.01
3	62.8	58.9	0.84 [‡]	60.4	0.88*	53.9	51.3	0.89	55.4	1.09	50.8	50.9	1.00	55.0	1.23*
4	56.5	58.0	1.05	56.7	0.99	47.5	50.6	1.14	51.1	1.18	34.8	43.3	1.48 [‡]	39.8	1.32*
5	55.6	54.9	0.93*	54.1	0.90	41.4	45.2	1.14	49.7	1.41 [†]	32.6	35.8	1.16*	37.2	1.30*
6	54.4	57.4	1.09*	57.8	1.06	39.0	48.9	1.50 [‡]	48.4	1.40 [‡]	30.5	40.9	1.64 [‡]	38.1	1.35 [‡]
7	48.3	42.7	0.81 [‡]	43.0	0.77 [†]	42.4	37.0	0.79*	45.6	1.10	40.5	35.7	0.81 ^{†a}	44.4	1.14
8	37.4	40.4	1.14 [‡]	37.7	0.98	33.0	36.1	1.14	38.0	1.24*	30.6	36.1	1.30*	34.1	1.21
9	33.4	32.6	0.94	31.2	0.88	37.5	31.4	0.75 ^{†a}	42.2	1.18	29.8	27.4	0.89 ^a	34.9	1.26
10	24.7	27.3	1.13	25.6	1.01	21.4	25.5	1.23*	25.2	1.20*	17.0	20.2	1.26 [†]	21.9	1.38 [†]
Lack of interest/impractical: (1) Don't feel like getting high; (2) not enjoyable; (3) too expensive; (4) not available															
1	64.5	54.9	0.65 ^{‡a}	67.4	1.06	62.7	59.9	0.86 ^a	67.8	1.19*	55.9	51.9	0.84 ^a	60.9	1.23*
2	19.0	26.8	1.62 [‡]	24.3	1.47 [‡]	54.7	56.0	1.04	53.8	1.10	41.7	35.1	0.74 [‡]	32.9	0.77 [†]
3	26.4	18.0	0.63 ^{‡a}	15.3	0.50 [‡]	27.0	19.0	0.65 ^{‡a}	14.8	0.49 [‡]	25.3	16.2	0.57 [‡]	13.9	0.51 [‡]
4	7.1	7.8	1.10	6.6	0.87	4.7	5.2	1.15	3.7	0.77	4.5	4.4	1.02	4.9	1.29
Personal beliefs/peer influences: (1) Against my beliefs; (2) don't like being with users; (3) friends don't use it															
1	64.7	53.6	0.61 [‡]	49.6	0.54 [‡]	38.0	30.6	0.72 [‡]	30.2	0.79*	22.8	20.7	0.89	16.7	0.77
2	50.9	48.1	0.87 [‡]	48.1	0.88 [†]	36.0	31.4	0.81 [†]	33.8	0.91	20.2	14.1	0.64 [‡]	16.3	0.75*
3	44.4	32.3	0.57 ^{‡a}	36.9	0.69 [‡]	31.2	23.0	0.65 [‡]	25.4	0.75*	15.7	10.7	0.64 [‡]	10.7	0.71 [‡]

Notes: Model information: never users ($n = 31,180$); quitters ($n = 6,980$); continuing users ($n = 7,920$). All models simultaneously control for race/ethnicity and individual year dummies. ^aOdds for blacks significantly differ from those of Hispanics ($p \leq .05$). OR = odds ratio.

* $p < .05$; [†] $p < .01$; [‡] $p < .001$.

or peer influence differed by both gender and race/ethnicity. Females and, in general, whites were more likely than males and minorities to report such issues, regardless of past marijuana-use history. However, no racial/ethnic differences were observed among continuing users for marijuana use being against a student's beliefs.

Discussion

This article focused on self-reported reasons for abstaining from or quitting marijuana use among U.S. high school seniors from 1977 to 2005. Before discussing the implications of the findings, it is important to acknowledge the study's limitations. The analyses used self-report data obtained from cross-sectional surveys; therefore, issues of causality cannot be addressed empirically. Also, the student sample excludes school dropouts. This fact might be particularly relevant for racial/ethnic comparisons because of higher dropout rates for Hispanic students compared with the other groups (Johnston et al., 2007a; Laird et al., 2006). These limitations notwithstanding, several important findings should be emphasized.

Recognition of the need for reduction or cessation of use: Research Questions 1a-1d

Since the early 1990s, fully half of all seniors who reported past-12-month marijuana use have consistently reported feeling they should either reduce or cease their marijuana use, with males and minorities especially likely to say so. The high percentage of users desiring to reduce or stop using is consistent with previously cited research among a smaller higher risk population (Weiner et al., 1999) and is especially important given that the current findings focus on a nationally representative sample of youths. The current findings indicate that significantly higher proportions of marijuana users feel they should reduce or stop their use than users of substances such as alcohol, cocaine, and amphetamines. Such findings underscore a serious need for cessation and use-reduction programming in public health efforts in addition to crucial prevention programming.

Reasons for abstaining from or quitting marijuana use within a supply versus demand reduction context: Research Questions 2a-2d

Federal drug-control spending recently has strengthened its emphasis on illicit drug-supply reduction as compared with demand reduction (The White House, 2007). Three reasons included in the study focused specifically on supply reduction issues: availability, expense, and concerns regarding arrest. The reason for not using or stopping marijuana use cited by the fewest seniors over the 29 years of data included in this analysis was availability (less than 10% of seniors). Although there has been a statistically significant

increase over time in the number of students citing this reason (from 5% in the late 1970s to 7% in the early 2000s), the percentage of students who perceive difficulty in obtaining the substance is still extremely low. Since the study began in 1975, between 83% and 90% of every senior class have said that they could get marijuana fairly or very easily (Johnston et al., 2007a). The low percentage of students who reported "not available" as a reason for not using or stopping use indicates that, for the great majority of seniors, availability is not an important behavioral determinant.

Another supply reduction reason examined in the current study was expense. Only one quarter of students cited expense as a factor in their decisions to not use or to stop marijuana use, and no significant changes over time or correlations between time trends with past-12-month marijuana use were observed with expense. Nevertheless, with a quarter of these students citing price as a reason for not using or for stopping use, there is some evidence that price could affect prevalence levels to a modest degree, and there is evidence that price has had some effect on marijuana-use trends during certain periods (Pacula et al., 2001).

The third supply-side reason examined in these analyses was concern about getting arrested, with 45% of students overall reporting this reason. As noted previously, results indicated a striking increase starting in the latter half of the 1980s in reporting concerns regarding arrest. Data from the Uniform Crime Reports (available from 1995 through 2006) indicate that the percentage of total arrests in the United States stemming from drug-law violations have risen from 10% in 1995 to 13% in 2006 and that marijuana possession arrests as a percentage of total arrests have risen from 3% to 5% during the same time period (Federal Bureau of Investigation, 1995-2006). However, we cannot say whether students perceive the likelihood of being arrested if they use marijuana to be increasing or whether they view being arrested as having more negative consequences than in earlier times. In any case, the lack of correlation over time between trends in marijuana use and concern about arrest indicates that the relationship between perceived legal risks and behavior is not straightforward.

In contrast to supply-side reasons, demand-side reasons were frequently cited. Concern for psychological and physical damage as well as not wanting to get high were the most commonly cited reasons for quitting or abstaining from marijuana use; other reasons associated with negative outcomes, such as the risk of addiction, loss of control, and the belief that marijuana would lead to use of stronger drugs, were cited by a somewhat lower percentage of students. Reasons that dealt with peer use of marijuana were cited by a smaller percentage of seniors. Importantly, a significant number of ever users stated that one reason for discontinuing marijuana use was that they did not find it enjoyable. This was the only reason cited more often by ever users compared with never users.

Although demand-side reasons were frequently mentioned, they showed varying degrees of correlation over time with past-12-month marijuana use. Concerns for psychological and physical damage did not show strong evidence of significant correlations over time with past-12-month drug use, perhaps because such consequences were not perceived to be immediate. Further, there has been a general decrease in reporting concerns related to psychological and physical damage over time. However, strong negative correlations with trends in past-12-month marijuana use were seen for most other negative-consequence reasons as well as for peer marijuana use.

Thus, reasons related to demand did not apply uniformly across students, nor did they correlate consistently with past-12-month marijuana use. However, the above results indicate that the following messages may resonate with U.S. seniors: conveying accurate and immediately relevant information on the risks of marijuana use, stressing peer environments that support substance-free interactions, and getting the message out that many youths are neither interested in getting high nor do they find marijuana use particularly enjoyable. In addition, it would likely be useful to convey the information that many users feel they should reduce or stop their use.

The role of gender and race/ethnicity in reasons to abstain from or quit marijuana use: Research Question 2e

Research focusing on reasons that individuals have given for their drug use has repeatedly found that such reasons are drug specific and exhibit significant variation by sociodemographics (for example, see Johnston and O'Malley, 1986; Kuntsche et al., 2005; Segal et al., 1980; Wallace et al., 2003). The current analyses reach similar conclusions with regard to reasons for *not* using or for stopping use. Females focused on moral and behavioral concerns, whereas males were more likely to cite practical reasons, such as risk of arrest, loss of energy/ambition, expense, and availability. Black and Hispanic students were significantly less likely than whites to note concerns related to expense, personal beliefs, or peer selection. However, seniors in both minority groups were more likely than whites to report concerns related to addiction.

Prevention programming might be enhanced with attention to the sociodemographics of the population of interest. If messages are presented to a very diverse group of youths, it might be important to make sure a wide variety of messages and reasons for not using or for quitting marijuana are presented. However, if messages are presented to a specific target group, such as females or minority groups, more careful selection of the reasons presented might increase receptivity. Support for such recommendations can be seen in the work of Palmgreen et al. (2001) who found that matching sensation-seeking stimuli in marijuana-use public service

announcements to the levels of sensation seeking in youths significantly reduced marijuana use.

Conclusions

Much can be learned from examining the reasons individuals give for their own substance-use noninitiation or discontinuation decisions. It is important to emphasize that the reasons examined here focus on marijuana; research indicates that reasons for cessation of use may differ for different substances (Martin et al., 1983), just as different reasons for use pertain across substances (Johnston and O'Malley, 1986). However, the present article clearly indicates that a significant number of U.S. seniors who are recent marijuana users wish to either reduce or stop their marijuana use and are basing such desires on a variety of reasons. These reasons appear to vary over time as well as by individual sociodemographics. Efforts to develop programming to support decisions to never begin using marijuana as well as to help users reduce or stop their use should carefully consider how to build on the information shared by the students surveyed for this article.

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