Ethnic differences in adolescent smoking prevalence in California: are multi-ethnic youth at higher risk?

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Abstract

Objective—Although ethnic differences in adolescent smoking have been well documented, smoking among multi-ethnic adolescents has received little research attention. This study examined smoking prevalence and tobacco related psychosocial risk factors among multi-ethnic adolescents in California, as compared with white, African American, Asian American, and Hispanic adolescents.

Design—This study used a cross sectional design. Data were obtained from the independent evaluation of the California Tobacco Control, Prevention, and Education Program.

Setting—Students completed a paper-and-pencil survey in their classrooms.

Subjects—Data were collected from a stratified random sample of 5072 eighth grade students (age 13–14 years) in California during the 1996–97 school year. The data were weighted by school enrollment in analyses to make the estimates representative of the population of California students attending public schools.

Main outcome measures—Outcome variables included self reported smoking prevalence, susceptibility to smoking, access to tobacco, and related attitudes, beliefs, and behaviours. Ethnicity was assessed with a self reported, “check all that apply” question.

Results—Results indicated that multi-ethnic adolescents were at higher risk than single-ethnic adolescents on several variables, including 30 day cigarette smoking prevalence, lifetime smokeless tobacco use, buying cigarettes, receiving cigarette offers, and expected friends’ reaction if the respondent smoked. For several other variables (lifetime cigarette smoking prevalence, susceptibility to smoking, and number of friends who smoked), Hispanic adolescents were at higher risk than all other ethnic groups including multi-ethnic adolescents. Although susceptibility to smoking was highest among Hispanics, multi-ethnic adolescents scored significantly higher on susceptibility than the three other single-ethnic groups.

Conclusions—Multi-ethnic adolescents may be at increased risk for smoking and may have easier access to cigarettes. Culturally targeted smoking prevention interventions for adolescents should address the unique social challenges faced by multi-ethnic adolescents that may increase their risk for smoking.

(Tobacco Control 2000;9(Suppl II):ii9-ii14)

Keywords: multi-ethnic adolescents; risk for smoking

Cigarette smoking is the leading preventable cause of premature morbidity and mortality in the USA.¹ Because most smoking behaviour begins in adolescence,² it is important to understand the epidemiology and etiology of adolescent smoking and to design effective interventions to prevent adolescent smoking. If specific groups of adolescents at high risk for smoking can be identified, it may be possible to tailor prevention programs to their unique characteristics and needs.

Ethnic and racial differences in adolescent smoking prevalence have been noted in many population based studies in the US.^{3–7} In general, whites and Hispanics have a higher smoking prevalence than do African Americans and Asian Americans. Little is known, however, about smoking prevalence among multi-ethnic adolescents—those adolescents who identify with two or more ethnic groups.

The number of multi-ethnic adolescents in the USA is unknown. Recent increases in immigration and inter-ethnic marriage throughout the country indicate that the number of multi-ethnic residents will continue to increase.⁸ According to US census data, the number of children in interracial families grew from less than half a million in 1970 to about two million in 1990, indicating a growing group of children and adolescents who may not choose to identify with a single race or ethnic group.⁹ Therefore, it is important to gain a more complete understanding of the health issues affecting the growing multi-ethnic population. Unfortunately, multi-ethnic adolescents usually are not identified as a separate group in population based health behaviour surveys, because most of these surveys require respondents to choose only one ethnic or racial group. In recognition of the growing multi-ethnic population in the USA, the federal government will count multi-ethnic individuals for the first time in the 2000 census, using a “check all that apply” question.¹⁰

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Research on the psychological and physical health of multi-ethnic individuals suggests that multi-ethnic status may have either negative or positive consequences for health and health behaviours. On one hand, multi-ethnic adolescents may suffer negative psychological and health consequences as a result of their “marginal” status. Multi-ethnic adolescents may suffer from ambiguity, identity confusion, and “normlessness” because they do not fit into a defined ethnic category. This may increase their feelings of alienation and isolation, which may increase their perceived stress, anxiety, and risk for social problems such as school failure or substance abuse.¹¹ These psychological and social problems could be risk factors for smoking. Multi-ethnic adolescents also may be especially motivated to conform to peer norms because they perceive themselves to be different from their peers and may wish to be more similar to them. Because adolescents typically overestimate the prevalence of smoking among their peers,¹² this increased motivation to conform may lead to increased smoking behaviour.

Conversely, other evidence suggests that multi-ethnic adolescents may be more resilient to problem behaviours.¹¹ Multi-ethnic adolescents may contemplate identity issues earlier in life in an attempt to develop a sense of self, so they may enter adolescence with greater ego strength and sense of self-sufficiency. These qualities may make them more resilient to social pressures to smoke. Multi-ethnic adolescents may be able to use coping strategies derived from two or more cultures, so they may have a larger repertoire of adaptive coping skills to handle stressors. In addition, because multi-ethnic adolescents may perceive themselves as different from their peers, they may not engage in the process of social comparison with similar others that often leads adolescents to smoke in an attempt to conform to peer norms.¹³

Unfortunately, the smoking prevalence and smoking related attitudes of multi-ethnic adolescents are not known. This study examined smoking prevalence, susceptibility to smoking, and tobacco related psychosocial variables among multi-ethnic eighth grade adolescents (age 13–14 years) in California, as compared with single-ethnic adolescents.

Methods

DATA SOURCE

This study used data from a representative sample of eighth grade California youth ($n = 5870$). The data were collected in 68 schools in 18 California counties during the 1996–97 school year as part of the independent evaluation of the California Tobacco Control, Prevention, and Education Program.¹⁴ The 18 California counties were randomly selected within four sampling strata (based on population density), school districts were randomly selected within the 18 counties, schools were randomly selected within districts, and classrooms of students were randomly selected within schools. Based on school enrollment data from the California Board of

Education, each student received a weight representing their school’s relative share of the eighth grade population of California public school students. The weights were constructed as one over the product of the sampling probabilities for each student, school, district, and county. The weights were then normalised such that the sum of the weights of all respondents equals the sample size. In the analyses reported below, each student’s data are weighted by this relative weight, so that the results are reflective of the entire population of eighth grade students attending California public schools.

Because the survey was anonymous and did not ask about “family life”, the institutional review board approved an implied consent procedure (students were assumed to have parental consent if their parents did not return a signed form declining their children permission to participate). Even if their parents did not decline participation, students were free to decline participation. Consent forms were distributed to students in their classrooms several weeks before survey administration. Students were instructed to bring the consent forms home to their parents. A letter accompanying the consent forms instructed parents to sign and return the form only if they would *not* allow the student to participate. At the time of survey administration, the students also were given the opportunity to decline participation. Two per cent of the parents and 2% of the students refused participation, resulting in a 96% participation rate among the students invited to take part. During a single class period (45–50 minutes), students completed a paper-and-pencil questionnaire about their tobacco related attitudes and behaviours.

MEASURES

Ethnicity was assessed with a “check all that apply” question. Respondents were provided with a list of racial and ethnic groups and instructed to check all the groups which described them. The respondents were then categorised into one of five categories, designed to be consistent with the categories used by the Centers for Disease Control and Prevention (CDC) in their most recent report on smoking and ethnicity.⁶ The four single ethnic categories were African American, Asian American (including Pacific Islanders), Hispanic, and white. Although Hispanic is an ethnicity and the other three categories are races, these four categories were used to achieve consistency with the CDC definitions. Because the number of Native American/Alaska Natives was too small to produce meaningful estimates of smoking prevalence, these respondents were excluded from the analysis. All respondents who identified with two or more of the four CDC categories were classified as multi-ethnic. Respondents who identified with two or more nationalities within an ethnic category (for example, Chinese and Japanese) were not considered to be multi-ethnic. This decision was made because the present analysis focused on the adolescents who are most likely to *appear* multi-ethnic—

those who identify with two or more of the major racial/ethnic groups. Because we acknowledge that this is not the only way to define the multi-ethnic group, we ran additional analyses (not reported here) in which every respondent who reported multiple nationalities was classified as multi-ethnic, even if they reported nationalities from within the same ethnic category. This resulted in 69 of the Asian respondents being recategorised as multi-ethnic. These 69 respondents did not differ significantly from the other Asian respondents on any of the outcome variables or demographic characteristics. This recategorisation did not change the significance levels of any of the statistics reported in this article.

Tobacco use prevalence was assessed with three items: lifetime cigarette use (including puffs); past 30 day cigarette use; and lifetime use of smokeless tobacco. These three items were dichotomous (yes/no).

Susceptibility to smoking, or the absence of a firm commitment not to smoke,^{15,16} was assessed with two questions: "If one of your best friends were to offer you a cigarette, would you smoke it?" and "At any time during the next year, do you think you will smoke a cigarette?" Respondents who answered "definitely not" to both questions were classified as non-susceptible. Respondents who gave any answer other than "definitely not" to either question were classified as susceptible. The other response options included "definitely yes", "probably yes," and "probably not".

Access to cigarettes was assessed with three questions: "Do you think it would be easy or hard for you to get cigarettes if you wanted some?" (rated on a four point scale from "very easy" to "very hard"); "Have you ever bought a pack of cigarettes?" (dichotomous); and "During the last month, how many times have you been offered a cigarette?" (recoded to none versus one or more times).

Peer smoking was assessed with two questions: "How many of your best friends smoke cigarettes?" (rated on a four point scale from "none" to "a lot"); and "How would your best friends act toward you if you smoked cigarettes?" (rated on a four point scale from "very friendly" to "very unfriendly").

DATA ANALYSIS

Logistic and linear regression models were used to evaluate the ethnic differences in the outcome variables. The four single-ethnic groups (African American, Asian, Hispanic, and white) were compared with the multi-ethnic group, by creating a dummy variable for each single-ethnic group and using multi-ethnic as the reference group. All analyses were controlled for the fixed effects of age, sex, and language spoken at home (an indicator of acculturation), because these variables have been found to be associated with adolescent smoking in other studies.^{4,5} Language spoken at home was represented as a fixed effect rather than as a random effect because it was coded on a scale ranging from "Only another language" to "Only English"; therefore, the scale covers the entire range of possible responses. In addition, to control for differences in socioeconomic status and possible intraclass correlation caused by the sampling design, school was included as a random effect covariate, using the PROC MIXED and the GLIMMIX macro in SAS.¹⁷ These models tested whether each single-ethnic group was different from the multi-ethnic group on each outcome variable, controlling for the covariates.

To compare smoking prevalence rates among the different subgroups of multi-ethnic youth, similar models were run among the five largest multi-ethnic subgroups (Hispanic/white, Asian/white, African American/white, Asian/Hispanic, and African American/Hispanic). The same covariates were included as described above.

Results

DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Of the 5870 respondents in the sample, 437 (7.4%) were excluded from the analysis because they did not provide complete data on all the variables of interest, 361 (6.1%) were excluded from the analysis because they indicated only "other" as their ethnic self-identification and therefore could not be classified into one of the ethnic groups, and 5072 (86.4%) had complete data. These 5072 respondents comprise the analytic sample. The demographic characteristics of the respondents are shown in table 1. The mean (SD) age of the respondents was 13.2 (06) years. The sample

Table 1 Demographic characteristics of respondents

	Multi-ethnic (n (%))	Asian American (n (%))	African American (n (%))	Hispanic (n (%))	White (n (%))	χ^2
Age (years)						
11–12	21 (5)	45 (5)	13 (3)	83 (6)	87 (4)	61.32*
13	284 (68)	653 (75)	324 (68)	879 (68)	1457 (72)	
14	106 (25)	160 (18)	136 (29)	312 (24)	470 (23)	
15–16	5 (1)	7 (1)	4 (1)	16 (1)	10 (0)	
Sex						
Male	187 (45)	460 (53)	230 (48)	632 (49)	1037 (51)	10.02*
Female	229 (55)	405 (47)	247 (52)	658 (51)	987 (49)	
Language spoken at home						
Only another language	3 (1)	27 (3)	4 (1)	55 (4)	1 (0)	2799.62*
Mostly another language	5 (1)	91 (11)	3 (1)	120 (9)	2 (0)	
Half English, half another language	46 (11)	432 (50)	11 (2)	707 (55)	41 (2)	
Mostly English	93 (22)	170 (20)	23 (5)	182 (14)	175 (9)	
Only English	269 (65)	145 (17)	436 (91)	226 (18)	1805 (89)	

* $p < 0.05$

Table 2 Description of the multi-ethnic respondents (n = 416)

Ethnic combination	n (%)
Hispanic and white	141 (34)
Asian and white	80 (19)
African American and white	42 (10)
Asian and Hispanic	38 (9)
African American and Hispanic	28 (7)
Asian, Hispanic, and white	17 (4)
African American, Asian, and white	10 (2)
African American, Hispanic, and white	9 (2)
African American, Asian, Hispanic, and white	8 (2)
African American and Asian	7 (2)

was approximately half male (50.2%) and half female (49.8%). Of the 5072 respondents, 40% were white, 25% were Hispanic, 17% were Asian American, 9% were African American, and 8% were classified as multi-ethnic because they chose two or more ethnic groups.

Further details about the ethnic composition of the multi-ethnic group are presented in table 2. The most common ethnic combination was Hispanic/white (34%), followed by Asian/white (19%), African American/white (10%), and Asian/Hispanic (9%). In addition, 10% of the respondents chose three ethnic groups, as shown in table 2.

COMPARISONS BETWEEN MULTI-ETHNIC AND SINGLE-ETHNIC ADOLESCENTS

Table 3 shows the prevalence of smoking and other tobacco related attitudes and behaviours by ethnic group. The asterisks in the table indicate the groups that were significantly different ($p < 0.05$) from the multi-ethnic group. The patterns of results are described below.

Outcome variables that showed a higher risk for multi-ethnic adolescents

For several of the outcome variables, multi-ethnic adolescents appeared to be at higher risk than did single-ethnicity adolescents. These included 30 day cigarette smoking prevalence, lifetime smokeless tobacco use, buying cigarettes, receiving cigarette offers, and expected friends' reaction if the respondent smoked. For these variables, multi-ethnic adolescents were at significantly higher risk than were adolescents of most or all of the other ethnic groups. Susceptibility to smoking showed a similar pattern. Although susceptibility to smoking was highest among Hispanics, multi-ethnic adolescents scored significantly higher on susceptibility than did the other three of the four single-ethnic groups.

Table 3 Tobacco use and susceptibility among multi-ethnic and single-ethnic youth

	Multi-ethnic (%)	Asian American (%)	African American (%)	Hispanic (%)	White (%)
Cigarette smoking prevalence (lifetime)	46	42	36*	53*	46
Cigarette smoking prevalence (30 day)	25	14*	10*	20	19*
Smokeless tobacco use prevalence (lifetime)	9	4*	4*	7	8
Susceptibility to smoking	65	58*	56*	71	59*
Ever bought cigarettes	28	16*	21*	19*	16*
Perceived access to cigarettes ("very easy" or "sort of easy")	73	63*	73	69	70
Received cigarette offer in past month	47	29*	33*	43	39*
Number of friends who smoke ("some" or "a lot")	29	26	17*	31	25
Friends' reaction if respondent smoked ("very friendly" or "friendly")	48	38*	36*	46	40*

*Significantly different from multi-ethnic, $p < 0.05$.

All analyses are controlled for school (random effect) age, sex, and language spoken at home (fixed effects).

Table 4 Smoking prevalence among subgroups of multi-ethnic adolescents

Ethnic combination	n	30 day smoking prevalence (%)	95% CI
Hispanic and white	141	22	(16 to 29)
Asian and white	80	17	(8 to 26)
African American and white	42	17	(5 to 29)
Asian and Hispanic	38	33	(20 to 45)
African American and Hispanic	28	15	(0 to 29)

No between group differences were significant at $p < 0.05$.

Outcome variables that did not show a higher risk for multi-ethnic adolescents

For other outcome variables, multi-ethnic adolescents did not appear to be at higher risk as compared with single-ethnicity adolescents. These variables included lifetime cigarette smoking prevalence and number of friends who smoked. For these variables, Hispanic/Latinos were at higher risk than were multi-ethnic adolescents, although this difference was significant only for lifetime cigarette smoking prevalence.

30 DAY SMOKING PREVALENCE AMONG SUBGROUPS OF MULTI-ETHNIC ADOLESCENTS

Because the multi-ethnic group contained adolescents with different combinations of ethnic backgrounds, we examined 30 day smoking prevalence among these subgroups. Table 4 shows the 30 day smoking prevalence for the five largest subgroups (those that contained 20 or more respondents). Although there appeared to be some variation among the groups, with the Asian/Hispanics showing the highest smoking prevalence and the African American/Hispanics showing the lowest prevalence, these differences were not significant.

Discussion

In a statewide sample of eighth grade California adolescents, multi-ethnic adolescents showed higher rates of 30 day cigarette smoking prevalence, lifetime smokeless tobacco use, buying cigarettes, receiving cigarette offers, and expected friends' reaction if the respondent smoked. These results indicate that multi-ethnic adolescents may be at especially high risk of becoming addicted to tobacco and suffering the harmful health effects of tobacco related disease later in life. Multi-ethnic adolescents appeared to have especially high access to cigarettes. They were more likely than single-ethnic adolescents to have bought cigarettes and to have received cigarette offers. There are several possible explanations for multi-ethnic adolescents'

higher access to cigarettes. Perhaps merchants have difficulty estimating the age of multi-ethnic adolescents, so they may be less likely to ask them for identification when they attempt to purchase cigarettes. Previous research has shown that the strongest predictor of successful cigarette purchases by adolescents was racial discordance between the merchant and the adolescent.¹⁸ Multi-ethnic adolescents are especially likely to be racially discordant with store merchants. Because multi-ethnic adolescents do not fit neatly into a familiar ethnic category, merchants may find it especially difficult to estimate their age from cues such as their height or facial features. Other studies¹⁹ have found that ethnic minority adolescents are more successful than white adolescents at purchasing cigarettes from stores that are prohibited from selling cigarettes to minors. While it is not clear whether this is a result of racial discrimination or economic pressure to increase sales revenue, it may indicate that multi-ethnic adolescents will be able to purchase cigarettes from stores with little difficulty.

In addition, because multi-ethnic adolescents may affiliate with several different peer groups, they may be more likely to have smokers in their social networks, which may make them more likely to receive cigarette offers. Although the results of this study suggest that multi-ethnic adolescents are not necessarily more likely to have *best* friends who are smokers, they may have more casual acquaintances who smoke. Although these acquaintances may not exert social pressure as strongly as best friends might, they may serve as sources of cigarettes and as a conduit for smoking to diffuse through a social network. Further research is needed to understand the social networks of multi-cultural adolescents and the influences of these social networks on their access to cigarettes.

Other factors also may account for the higher risk of smoking among multi-ethnic adolescents. Perhaps multi-ethnic adolescents are affected more strongly by pro-tobacco media. Recent studies of tobacco industry marketing¹⁴ have shown that a disproportionately large number of models in tobacco advertisements are of “indeterminate” ethnicity (that is, coders disagree about whether the models are African American, Asian, Hispanic, or white). These models may in fact be multi-ethnic, and their prevalence in tobacco advertising may convey the message that smoking is an attractive or normative behaviour for multi-ethnic adolescents. Such media messages may be especially influential for multi-ethnic adolescents, who may perceive a lack of culturally similar role models in the media. Further research is needed to understand the effects of pro-tobacco marketing on multi-ethnic adolescents.

Although the subgroups of multi-ethnic adolescents did not differ significantly in their smoking prevalence (probably because of a lack of statistical power), the subgroups that were part African American appeared to have slightly lower smoking prevalence than did the

other subgroups (except for the Asian/whites). This is consistent with previous research showing that African American cultural values are protective against adolescent smoking.³⁻⁷ Further research is needed to determine how the African American culture buffers its adolescents from smoking, even in the presence of other cultural influences, and how these protective factors might be incorporated into smoking prevention programs for adolescents of all ethnic combinations.

LIMITATIONS

There are several limitations to this research. First, these results are based on adolescents' self-reported ethnic identification. Various factors may influence a multi-ethnic adolescent's decision to self-identify as a member of one ethnic group or as a member of two or more ethnic groups. People who are multi-ethnic may identify with only one of their cultures (assimilation or separation), with both cultures simultaneously (acculturation), or with neither culture (marginalisation).¹¹ Negative stereotypes against one of the adolescent's cultures of origin, or against being multi-ethnic in general, may cause multi-ethnic adolescents to self-identify with only one of their cultures of origin. In addition, an adolescent's socioeconomic status, place of residence, or parents' acculturation status may determine the extent to which the adolescent becomes integrated into one or more cultural groups.

These results also are based on adolescents' self-reports of their smoking behaviour and tobacco related attitudes. Although every effort was made to assure the students that their responses would be confidential, the possibility remains that some students may have underreported their smoking to avoid punishment or overreported their smoking to self-present a rebellious image. Financial and time constraints made it impossible to conduct biochemical validations of the students' self-reports.

Because of sample size limitations, we divided this sample into five main ethnic categories: African American, Asian American, Hispanic, white, and multi-ethnic. Respondents in some of the single-ethnic groups also may have had multi-ethnic backgrounds, although they were not multiracial. For example, an adolescent with one Chinese parent and one Japanese parent could be considered multi-ethnic, as could an adolescent with one Russian parent and one Irish parent. Sample size considerations prevented us from examining each of these combinations separately. Indeed, if country of origin is considered, most US residents could be considered multi-ethnic. In this study, we chose to focus on those adolescents who were most likely to appear multi-ethnic—those who identified with two or more of the major racial/ethnic groups. When respondents who reported multiple nationalities within a single ethnic category were recategorised as multi-ethnic rather than single-ethnic, the statistical conclusions did not change. Nevertheless, other, less visible differences

between parents, including country of origin, religion, and socioeconomic status, also could cause family discord or identity confusion in children. Further research is needed to determine the effects of these less visible forms of cultural diversity on health risk behaviours.

IMPLICATIONS

Despite these limitations, these results have implications for smoking prevention among multi-ethnic adolescents. They indicate that multi-ethnic adolescents may be at especially high risk for smoking and may have especially high access to cigarettes. Smoking prevention programs for adolescents in multicultural urban settings should address the unique social challenges faced by multi-ethnic adolescents. Perhaps smoking prevention programs could acknowledge that some multi-ethnic adolescents experience difficulties in establishing an identity and fitting in with peers. Although they may be tempted to use smoking as a way to establish an identity or make friends, perhaps prevention programs could teach them other strategies for achieving these objectives. In addition, multi-ethnic adolescents may benefit from social support or stress reduction interventions to help them cope with family discord and feelings of "differentness".

Further research with multi-ethnic adolescents is needed to understand the complex issues of ethnic identity that may place them at higher risk of health risk behaviours such as smoking. In-depth interviews and focus groups with multi-ethnic adolescents may be an effective way to identify relevant issues such as why and how these adolescents have greater access to tobacco, why they choose to experiment with it, and what social and physical reinforcement they derive from doing so. This information could be very helpful for the development of more culturally relevant smoking prevention programs for multi-ethnic adolescents. If appropriate smoking prevention interventions can be developed for multi-ethnic adolescents, it may be possible to prevent tobacco related morbidity and mortality in this growing segment of the US population.

Data were collected as part of the independent evaluation of the California Tobacco Control, Prevention, and Education Program. Data collection for this project was made possible by funds received from the Tobacco Tax Health Protection Act of 1988-Proposition 99, under Grant 95-22998 with the California Department of Health Services, Tobacco Control Section. Data analysis was supported by the University of California Tobacco-Related Disease Research Program (Grants 7KT-0006 and 7PT-7004). The Independent Evaluation Consortium consists of a team of researchers from the Gallup Organization, the University of Southern California, and Stanford University. The analyses, interpretations, and conclusions

reached in this paper are those of the authors, not the California Department of Health Services.

- Centers for Disease Control and Prevention. Smoking-attributable mortality and years of potential life lost: United States, 1984. *MMWR Morbid Mortal Wkly Rep* 1997;46:444-50.
- Lee LL, Gilpin EA, Pierce JP. Changes in the patterns of initiation of cigarette smoking in the United States: 1950, 1965, and 1980. *Cancer Epidemiology, Biomarkers and Prevention* 1993;2:593-7.
- Chen X, Unger JB. Hazards of smoking initiation among Asian American and non-Asian adolescents in California: a survival model analysis. *Prev Med* 1999;28:589-99.
- Chen X, Unger JB, Cruz TB, Johnson CA. Smoking patterns of Asian-American youth in California and their relationships with acculturation. *J Adolesc Health* 1999;24:321-8.
- US Department of Health and Human Services. *Preventing tobacco use among young people. A report of the Surgeon General, 1994*. Atlanta, Georgia: Public Health Service, Centers for Disease Control and Prevention, Office on Smoking and Health, 1994. (US Government Printing Office Publication No S/N 017-001-00491-0.)
- US Department of Health and Human Services. *Tobacco use among US racial/ethnic minority groups: African Americans, American Indians and Alaska Natives, Asian Americans and Pacific Islanders, Hispanics. A report of the Surgeon General, 1998*. Atlanta, Georgia: Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 1998. (US Government Printing Office Publication No S/N 017-001-00527-4.)
- Johnston LD, O'Malley PM, Bachman JG. *National survey results on drug use from the Monitoring the Future study, 1975-1997*. Volume I: Secondary school students. (NIH Publication No. 98-4345) and Volume II: College students and young adults. (NIH Publication No. 98-4346). Rockville, Maryland: National Institute on Drug Abuse, 1998.
- US Bureau of the Census. *How we're changing: Demographic state of the nation, 1997*. Current Population Report P23-193, 1997.
- McKenney NR, Bennett GE. Issues regarding data on race and ethnicity: the Census Bureau experience. *Public Health Reports* 1994;109:16-25.
- US Bureau of the Census. *Race, Hispanic origin, and ancestry*. Bureau of the Census fact sheet D-3249, 1998.
- LaFromboise T, Coleman HLK, Gerton J. Psychological impact of biculturalism: evidence and theory. In: Organista PB, Chun KM, Marin G, eds. *Readings in ethnic psychology*. New York: Routledge, 1998:123-56.
- Sussman S, Dent CW, Mestel-Rauch J, Johnson CA. Adolescent nonsmokers, triers, and regular smokers' estimates of cigarette smoking prevalence: when do overestimations occur and by whom? *J Applied Soc Psychol* 1988;18:537-51.
- Palmonari A, Pombeni ML, Kirchler E. Adolescents and their peer groups: a study on the significance of peers, social categorization processes and coping with developmental tasks. *Social Behaviour* 1990;5:33-48.
- Independent Evaluation Consortium. *Final report of the independent evaluation of the California Tobacco Control Prevention and Education Program: Wave 1 Data, 1996-1997*. Rockville, Maryland: The Gallup Organization, 1998.
- Pierce JP, Choi WS, Gilpin EA, Farkas AJ, Merritt RK. Validation of susceptibility as a predictor of which adolescents take up smoking in the United States. *Health Psychol* 1996;15:355-61.
- Unger JB, Johnson CA, Stoddard JL, Nezami E, Chou C. Identification of adolescents at risk for smoking initiation: validation of a measure of susceptibility. *Addict Behav* 1997;22:81-91.
- SAS Institute. *GLIMMIX macro*. Cary, North Carolina: SAS Institute, 1998.
- Voorhees CC, Swank RT, Stillman FA, Harris DX, Watson HW, Becker DM. Cigarette sales to African American and white minors in low-income areas of Baltimore. *Am J Public Health* 1997;87:652-4.
- Landrine H, Klonoff EA, Alcaraz R. Racial discrimination in minor's access to tobacco. *J Black Psychol* 1997;23:135-47.