

12 months prior to interview. In this analysis, "success" in quitting was arbitrarily defined as persons who had recently been regular smokers who had attempted to quit within 12 months and who had not smoked for at least 6 months prior to interview. Persons who smoked regularly within 1 year prior to the interview and who had attempted to quit during the last year but had been off cigarettes less than 6 months are excluded from consideration in this analysis. Unsuccessful quitters were defined as regular smokers at the time of interview who reported having attempted seriously to quit at least once within the 12 months prior to interview date. Interpretation of these data is complicated by the fact that the primary brand reported for successful quitters represents the brand smoked prior to a quit attempt, while unsuccessful quitters' brands are those smoked after a quit attempt. Thus, clear distinction cannot be made between the possible explanations. The data show that higher proportions of smokers who use the two lowest "tar" or nicotine cigarette products are found among the unsuccessful quitters than among successful quitters. The proportion of recent regular smokers who use cigarettes yielding <5 mg of "tar" is lowest for persons who did not attempt to quit (3.8 percent), intermediate among those who succeeded in quitting (4.6 percent), and highest among those who failed at an attempt to quit (4.9 percent).

Grouping these smokers into larger categories by "tar" level (e.g., the percent smoking cigarettes yielding <10 mg or those smoking cigarettes yielding <15 mg "tar") shows that a lower proportion of recent smokers who successfully quit used lower "tar" products than do recent smokers who did not attempt to quit, while smokers who failed in an attempt to quit reported smoking lower "tar" products in the highest proportions. Conversely, a lower proportion of unsuccessful attempters currently smoke higher "tar" products (65.3 percent) than is found among either nonattempters (69.0 percent) or successful quitters (72.2 percent). A similar relationship was observed by nicotine yield: the proportion of persons choosing the lower yield products (<1.0 mg) was highest for unsuccessful quitters, intermediate for nonattempters, and lowest among successful quitters.

Thus, these data are consistent with the postulated tendency of smokers to switch to lower "tar" and nicotine cigarettes following an unsuccessful attempt to quit smoking.

The relationship between number of serious attempts to quit smoking and the "tar" or nicotine yield of the primary cigarette smoked is shown in Table 11. Note should be taken that the table includes only current regular smokers who have tried at least once to quit. For the lowest categories of "tar" and nicotine yields, there is a suggestion of a shift in the population toward a greater number of cessation attempts. No significant difference is observed in the frequency distributions of smokers of other "tar" and nicotine products.

TABLE 10.—Estimated percentage distribution of recent smokers by status of recent attempt to quit, by “tar” or nicotine yield of primary brand, July 1978 through December 1979*

Status of recent attempt to quit smoking	“Tar” yield of primary brand					Total	
	<5 mg % (n)	5-9 mg % (n)	10-14 mg % (n)	15-19 mg % (n)	≥20 mg % (n)	%	(n)
Successful	4.6 (13)	5.6 (16)	17.6 (50)	63.4 (180)	8.8 (25)	2.3	284
Unsuccessful	4.9 (152)	9.2 (286)	20.5 (636)	59.7 (1849)	5.6 (175)	25.6	3096
No attempt	3.8 (355)	8.8 (721)	19.0 (1655)	58.1 (5070)	10.9 (950)	72.1	8731
Total	4.1 (500)	8.4 (1023)	19.3 (2341)	58.6 (7099)	9.5 (1150)	100.0	12113

	Nicotine yield of primary brand					Total	
	<0.5 mg % (n)	0.5-0.9 mg % (n)	1.0-1.2 mg % (n)	1.3-1.6 mg % (n)	≥1.7 mg % (n)	%	(n)
Successful	4.6 (13)	26.8 (76)	43.0 (122)	25.0 (71)	0.7 (2)	2.3	284
Unsuccessful	5.0 (155)	32.2 (999)	39.7 (1229)	22.3 (692)	0.7 (23)	25.6	3096
No attempt	4.0 (351)	29.2 (2553)	38.3 (3340)	27.1 (2368)	1.4 (119)	72.1	8731
Total	4.3 (519)	30.0 (3628)	38.7 (4691)	25.8 (3131)	1.2 (144)	100.0	12113

*Unweighted data.

SOURCE: Based on data from the 1979 Smoking Supplement of the National Health Interview Survey.

TABLE 11.—Estimated percentage distribution of current regular smokers by number of serious attempts to quit smoking, by “tar” or nicotine level, U.S., 1979

“Tar” level (mg)	Number of serious attempts to quit				
	1	2	3	4	≥5
<5	27.3	29.1	10.6	6.0	27.1
5-9	35.7	28.9	15.8	4.4	15.2
10-14	36.9	29.1	14.6	5.5	13.9
15-19	38.6	26.3	14.7	5.3	15.0
≥20	37.6	23.7	14.9	5.4	18.5
Total	37.3	27.1	14.6	5.3	15.7

Nicotine level (mg)	Number of serious attempts to quit				
	1	2	3	4	≥5
<0.5	26.8	29.4	10.2	5.7	27.8
0.5-0.9	37.4	28.6	14.9	5.1	14.1
1.0-1.2	39.5	26.7	14.1	5.0	14.7
1.3-1.6	35.9	25.2	15.7	6.2	17.0
≥1.7	38.6	25.1	21.1	2.3	12.9
Total	37.3	27.1	14.6	5.3	15.7

SOURCE: Based on data from the 1979 Smoking Supplement of the National Health Interview Survey.

The relationship of cigarette choice to the duration of the most recent unsuccessful quit attempt is shown in Table 12 for current regular smokers. Although there are large variations in the individual durations within each “tar” or nicotine grouping, the mean durations

TABLE 12.—Mean duration of most recent attempt to quit, by “tar” or nicotine yield of current primary brand, current regular smokers, 1979*

	<u>Mean number of days</u>	
<u>“Tar” yield</u>		<u>(n)</u>
<5 mg	3.4	(132)
5-9 mg	3.1	(247)
10-14 mg	3.8	(566)
15-19 mg	3.5	(1647)
≥20 mg	4.7	(144)
Total	3.6	(2736)
<u>Nicotine yield</u>		
<0.5 mg	3.4	(133)
0.5-0.9 mg	3.7	(885)
1.0-1.2 mg	3.3	(1080)
1.3-1.6 mg	3.9	(622)
≥1.7 mg	6.8	(16)
Total	3.6	(2736)

*Unweighted data.

SOURCE: Based on data from the 1979 Smoking Supplement of the National Health Interview Survey.

do not exhibit a relationship to either “tar” or nicotine yield. The higher mean duration of quit attempt among the smokers of highest yield products must be interpreted in light of the small numbers of individuals within those yield groupings.

Summary

1. Public awareness of the dangers of smoking has steadily increased since 1965. In 1978, more than 90 percent of all Americans believed cigarette smoking to be hazardous to health.
2. Cigarette product choice has shifted dramatically since the 1950s. In 1979, 91.7 percent of U.S. smokers used filter-tipped cigarettes, compared with 1.4 percent in the early 1950s.
3. Lower “tar” cigarettes conventionally have been defined as yielding 15 mg of “tar” or less per cigarette. The proportion of all cigarettes consumed in the United States that are lower “tar” has increased from 3.6 percent in 1970 to almost 50 percent in 1979. In 1979, 58.5 percent of all cigarette brands marketed in the United States yielded 15 or fewer mg of “tar.”
4. Since 1968, the “tar” content of the “average cigarette” in the United States has declined by 32.2 percent, and nicotine content has fallen by 25.6 percent. These declines may be partially accounted for by lower tobacco weight per cigarette—down 23.8 percent from 1968 to 1978—and by the greater length of the filter and overwrap of the average cigarette, which could result in a declining number of machine puffs per cigarette.

5. The prevalence of smoking in the U.S. adult and adolescent populations has continued to decline. In 1979, 32.5 percent of the adult population smoked cigarettes (36.1 percent of men and 29.4 percent of women). However, evidence suggests that the average daily number of cigarettes consumed by those adults who continue to smoke has increased over several decades. The availability and use of lower "tar" cigarettes have increased over recent years.
6. In 1979, 33.3 percent of adult regular smokers used cigarettes yielding 15 mg "tar" or less. Studies show that women smokers are more likely to use lower yield cigarettes than men are, and white smokers use lower yield cigarettes in greater proportions than do blacks. Smokers of higher income and education also select lower yield cigarettes in a higher percent of cases.
7. A large national survey found that smokers in older aged cohorts choose both the lowest and highest yield cigarettes in higher proportions than do younger cohorts.
8. Although black smokers choose cigarettes of higher "tar" and nicotine in greater proportions than do whites, the lower daily number of cigarettes smoked by blacks suggests that their average daily intake of "tar" and nicotine may be lower than that of white smokers.
9. In 1979, 33.5 percent of adolescent smokers (age 12 to 18) used lower "tar" cigarettes, compared with 6.7 percent in 1974. Boys and girls smoke cigarettes of about the same level of "tar" content.
10. Adult smokers started smoking regularly at the average age of 18 years. One survey showed that the higher the "tar" level of the cigarette currently smoked, the younger the reported age of beginning smoking.
11. Evidence from a large national survey does not support a correlation between a greater mean number of cigarettes smoked per day by users of lower "tar" and nicotine cigarettes than by higher "tar" users.
12. In a national survey, smokers of lower "tar" and nicotine cigarettes more frequently reported having attempted to quit at least once, and among these smokers, a higher proportion report having attempted unsuccessfully to quit multiple times. The applicability of these data to defining of the role of "tar" or nicotine yields of cigarettes in quitting behavior is not clear in the absence of more detailed longitudinal data.
13. Although a greater proportion of unsuccessful quitters reported smoking the lowest "tar" and nicotine products than did recent successful quitters in one large survey, interpretation of these data is made difficult by the noncomparability of brand reported

(i.e., unsuccessful quitters reported the brand smoked after an attempt, successful quitters reported the brand smoked prior to the attempt).

14. In a large national survey, the mean duration of the latest unsuccessful attempt to quit shows no clear relationship to "tar" or nicotine yields.

Addendum: Comparison of "Tar" and Nicotine Yields of Cigarettes in 1978 and 1979

The Federal Trade Commission (FTC) has conducted tests of commercially available cigarettes in the United States since 1968. The FTC measures "tar" and nicotine yields of approximately 99.5 percent of the brands available in the United States and issues annual reports on these measurements.

This discussion examines the changes in cigarette yields from 1978 to 1979 as published by the FTC. The following should be helpful in estimating to what extent the coding of NHIS brand data for 1979 by the "tar" yields measured in 1978 might influence the results presented above in this section.

Yields of "Tar" and Nicotine

The cigarettes tested in 1978 (sample collected in 1977) had a mean "tar" yield of 15.4 mg and in 1979 (sample collected in 1979) the mean "tar" yield was 13.6. The corresponding mean yields of nicotine were 1.02 and 0.97 mg in the 1978 and 1979 FTC reports (Table 13). These reductions in yields occurred regardless of the different parameters of cigarette type (length, menthol/plain, package type, and filter/nonfilter). If only filter-tipped cigarettes are considered, the mean nicotine yield declined from 0.95 to 0.90 mg. For all 1979 varieties, there was a significant difference in "tar" yield between filter and nonfilter cigarettes, and between menthol and nonmenthol varieties of cigarettes. Examining filtered cigarettes only, the length of cigarette was the only parameter that showed a significant difference in mean "tar" level.

Correlation of Varieties Reported in 1978 and 1979

There were 144 varieties of cigarettes marketed in both years (1978 and 1979) that were unchanged, as defined by exact variety name, length, menthol and filter status, and package type. Despite the identity of all five parameters, the mean "tar" level of varieties declined over the period mentioned (Table 14). The mean "tar" level declined from 15.3 mg in 1978 to 14.8 in 1979; for filter-tipped cigarettes only, the mean "tar" level declined from 13.8 to 13.3 mg. These decreases, although slight in absolute terms, are statistically significant. The change in nicotine yields for these same brands of cigarettes over the same period is negligible.

TABLE 13.—Mean yield of "tar" and nicotine of cigarettes, by type of modifier, all and filtertip varieties, U.S., 1978 and 1979

Type of modifier	All varieties						Filtertip varieties					
	"Tar" (mg)		Nicotine (mg)		No. of varieties		"Tar" (mg)		Nicotine (mg)		No. of varieties	
	1978	1979	1978	1979	1978	1979	1978	1979	1978	1979	1978	1979
Soft	15.9	13.4	1.03	0.96	138	149	14.0	12.2	0.97	0.90	119	134
Hard	15.1	14.7	1.00	1.04	29	27	13.4	13.3	0.88	0.91	26	24
Filter	13.9	12.4**	0.95	0.90**	145	158	-	-	-	-	-	-
Nonfilter	25.1	24.7	1.48	1.58	22	18	-	-	-	-	-	-
<100 mm	15.4	13.4	0.99	0.93	99	100	12.6	10.9**	0.85	0.80**	77	82
≥100 mm	15.3	14.0	1.06	1.01	68	76	15.3	14.0	1.06	1.01	68	76
Menthol	14.0	12.2*	0.97	0.90	58	64	13.8	12.2	0.96	0.90	57	64
Regular	16.1	14.4	1.05	1.01	109	112	13.9	12.5	0.96	0.90	88	94
Total	15.4	13.6	1.02	0.97	167	176	13.9	12.4	0.95	0.90	145	158

**P < .001.

*P < .05.

SOURCE: Federal Trade Commission (4, 5).

TABLE 14.—Mean yield of "tar" and nicotine of the varieties of cigarette marketed in both 1978 and 1979, by type of modifier, all and filtertip varieties, U.S.

Type of modifier	All varieties					Filtertip varieties				
	"Tar" (mg)		Nicotine (mg)		No. of varieties	"Tar" (mg)		Nicotine (mg)		No. of varieties
	1978	1979	1978	1979		1978	1979	1978	1979	
Soft	15.2	14.7**	1.03	1.03	119	13.9	13.3**	0.96	0.97	104
Hard	15.5	15.0	1.03	1.05	25	13.5	13.4	0.89	0.92	22
Filter	13.8	13.3**	0.95	0.96	126	-	-	-	-	-
Nonfilter	25.6	24.7	1.58	1.58	18	-	-	-	-	-
<100 mm	15.3	14.8*	1.01	1.02	83	12.5	12.1*	0.85	0.86	65
≥100 mm	15.2	14.7*	1.05	1.06	61	15.2	14.7*	1.05	1.06	61
Menthol	14.0	13.4*	0.97	0.97	54	13.9	13.3*	0.97	0.96	53
Regular	16.0	15.6*	1.06	1.08	90	13.8	13.4*	0.94	0.95	73
Total	15.3	14.8**	1.03	1.03	144	13.8	13.3**	0.95	0.96	126

**P < .001.

*P < .05.

SOURCE: Federal Trade Commission (4, 5)

TABLE 15.—Comparison of “tar” and nicotine yield on the varieties of cigarette marketed in both 1978 and 1979, U.S.

“Tar” yield in year	Mean “tar” difference (mg)	Mean nicotine difference (mg)	No. of varieties
1978 = 1979	-	-0.0157	7
1978 < 1979	-0.6945	-0.0829	55
1978 > 1979	1.3366	0.0478	82
Total	0.4958	-0.0052	144

SOURCE: Federal Trade Commission (4, 5).

Further examination of the changes in the “tar” and nicotine yield occurring in the same varieties of cigarettes over this period is presented in Table 15. Of the 144 brands reported on in both periods, only 7 showed no difference in mean “tar” level. Fifty-five brands showed a slight increase, with the mean difference being less than 1 mg. Eighty-two brands, however, showed a decline from the 1978 reported yields to the 1979 yield. Once again, however, the mean decrease was small, only 1.3 mg.

“Tar” and Nicotine Yields of New Brands in 1979

There were 32 varieties of cigarettes defined as new in the 1979 FTC report (Tables 16 and 17). A “new” variety was defined as a different name (such as a varietal name change by addition of the word “lights”), or by a change in one of the other four varietal parameters of filter, length, package type, or menthol status (e.g., a nonfiltered cigarette changing to filtered). The average “tar” and nicotine yields for these 32 new brands in 1979 were 8.5 and 0.67 mg, respectively. Except for a single new variety, the new varieties yielded less than 15 mg of “tar,” with two-thirds of them yielding less than 10 mg “tar.” A similar examination of new 1979 varieties by nicotine yield showed a similar trend toward lower yields, with 81 percent of them yielding less than 0.9 mg of nicotine.

Applications to the Discussion

As noted in the body of this Report, all NHIS variety data on the Smoking Supplement collected in interviews during 1978 and 1979 were coded to the FTC 1978 “tar” and nicotine yields. Since the cigarettes reported on in 1978 were collected in 1977, and since the updated measures of yield for 1979 were not available in time for their use in coding the 1979 smoking data, the described distribution of smokers by “tar” and nicotine yields of their cigarettes is conservative and underestimates to some extent the proportion of smokers who use lower yield products.

TABLE 16.—Mean yield of “tar” and nicotine of the new varieties of cigarette marketed in 1979, by type of modifier, U.S.

Type of modifier	“Tar” (mg)	Nicotine (mg)	No. of varieties
Soft	8.3	0.66	30
Hard	11.7	0.82	2
Filter	8.5	0.67	32
Nonfilter	-	-	-
<100 mm	6.5	0.54	17
≥100 mm	10.8	0.82	15
Menthol	7.0	0.57	11
Regular	9.4	0.72	21
Total	8.5	0.67	32

SOURCE: Federal Trade Commission (4, 5).

TABLE 17.—Distribution of “tar” and nicotine yield of the new varieties of cigarette marketed in 1979, U.S.

	“Tar” yield (mg)				Total	
	≤5	5-9.9	10.0-14.9	15.0-19.9		
N	7	14	10	1	32	
%	21.9	43.8	31.3	3.1	100.0	
	Nicotine yield (mg)				Total	
	<0.49	0.50-0.69	0.70-0.89	0.90-1.09		1.10-1.29
N	9	4	13	4	2	32
%	28.1	12.5	40.6	12.5	6.3	100.0

SOURCE: Federal Trade Commission (4, 5).

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