

SMOKING IN MINNESOTA - 1977

SMOKING IN MINNESOTA - 1977INTRODUCTION

Smoking habits are significant factors in a number of diseases. For example, smoking is related to approximately 90 percent of lung cancer, 30 percent of arteriosclerosis, 75 percent of bronchitis, and 80 percent of emphysema cases (National Cancer Institute 1977). In addition, one-fourth of deaths from coronary heart disease and one-fifth of all cancers (the two leading causes of death in the United States) are directly attributable to cigarette smoking (National Cancer Institute 1977). Air pollutants cause many of the same diseases as smoking, and, in some cases, smoking and air pollution interact synergistically to cause very high rates of diseases. While smokers have ten times the risk of lung cancer compared to non-smokers, asbestos workers who smoke have over 90 times the risk of developing lung cancer compared to non-smoking asbestos workers (National Cancer Institute 1977).

In order to assess impacts on human health from copper-nickel development, information on the smoking habits of the population is useful. This paper discusses such information for the State of Minnesota and the seven-county region of northeast Minnesota.

METHODS

Questions about smoking habits (Appendix 1) were included at the end of the Minnesota Labor Force Survey conducted by the State Planning Agency. The questionnaire was pretested twice prior to administration by personal interviewers in April, 1977. A quality control check was obtained by re-interviewing six percent of all interviews. The response rate for this survey exceeded 96 percent.

The Minnesota state sample was designed to produce estimates for a broad spectrum of demographic and socioeconomic characteristics of Minnesota's household population. The sample design was modeled after the proven multi-stage area probability designs which have long been used by the U. S. Bureau of the Census and Survey Research Center for survey research at the national level.

The selection process was performed in two stages and assigned every year-round housing unit in Minnesota an equal probability of being selected for interview. In the first stage of selection, sample counties were chosen with probability proportional to number of year-round housing units. Groups of year-round housing units referred to as clusters were then selected from each sample county.

The resulting sample is termed "complex" and is not "random" in the true sense of the term. Nonetheless, the sample met the statistically more important criterion of assigning to each element of the population an equal probability of selection. In selecting the year-round housing unit with equal probability, all items uniquely associated with the selected unit are also chosen with equal probability (children, telephones, microwave ovens, etc.).

From the household members aged 16 and over, one person was objectively designated as the respondent for an in-depth interview in each household (by the method of Kish 1949). Responses were weighted according to household size. The number of weighted cases was approximately 6,500. Missing responses accounted for approximately 0.1 percent of the weighted cases.

In addition to the statewide survey, a special survey was also conducted in northeast Minnesota (Aitkin, Carlton, Cook, Itasca, Koochiching, Lake, and St. Louis counties). There were close to 2,000 weighted responses for this region.

Persons living in institutions or group quarters were excluded from the data-collection process. Sampling error may be calculated, but is not presented in this paper.

## RESULTS

The proportion of weighted cases with a "yes" answer to the question, "Do you smoke cigarettes?," is presented by age and sex in Table 1. Mean numbers of cigarettes smoked per day were 20.6 for males and 17.0 for females in the state; and 20.9 for males and 16.8 for females in northeast Minnesota. Mean numbers of years smoked were 20.2 for males and 15.5 for females in the state; and 21.2 for males and 17.4 for females in northeast Minnesota. Additional data about amount smoked and years smoking are presented in Tables 2 and 3.

Prevalence of cigar and pipe smoking is shown in Table 4.

Prevalence of cigarette smoking, as determined in this study, is compared to data for the United States in 1975 (Table 5) and a recent survey of Minnesotans conducted for the Minneapolis Tribune (1977) at the same time as this study (Table 6). Statistical tests of significance were not calculated for these or any other comparisons.

## DISCUSSION

Minnesota: Smoking patterns for males show no clear trends for those aged 16-64, with the prevalence of smoking ranging from 32.9 to 43.6

percent of the population in each age group (Table 5). Males 65 and over have a much lower incidence of smoking than younger adult males. Prevalence of smoking among females is relatively constant for the ages 16-44 before dropping off for the older age groupings. The proportion of smokers among males and females appear to be the same for the ages 16-54; in the older age groups, smoking is more common among men. These data confirm the beliefs of many researchers that smoking among women is increasing and is beginning to reach the same level as among men.

Northeast Minnesota. Smoking among males appears to be relatively constant for those aged 21-54, dropping off on either side of this age group. Among females, smoking prevalence is relatively constant for those aged 16-64, falling off quite a bit for those 65 and over. Smoking among both sexes, especially females, appears to be more common in northeast Minnesota than for the state as a whole. This increase in northeast Minnesota proportionally amounts to about 10 percent more males and 20 percent more females. The proportion of smokers among males and females in northeast Minnesota are very similar over all age groups. Higher prevalence rates of smoking may account, in part, for the higher mortality rates due to heart disease, cancer, and chronic respiratory disease in northeast Minnesota, as compared to the state (Minnesota Department of Health 1977). Residents of northeast Minnesota may also be more susceptible to diseases related to air pollution, because of the many known interactions between smoking and air pollutants, than residents elsewhere in the state.

Comparison with other studies: Minnesota males, in general, have a lower prevalence of smoking than the average for U. S. males measured

in 1975 (Table 5). Minnesota females, however, have a higher prevalence than U. S. females. A possible explanation for this observation among females is that smoking may be less socially acceptable in other parts of the country than in Minnesota.

In 1975, U. S. males smoked an average of 23 cigarettes per day, more than the average of 21 for both Minnesota and northeast Minnesota males. U. S. females smoked an average of 19 cigarettes per day, also more than the average of 17 for both Minnesota and northeast Minnesota females. Average number of years smoked was 24 years for U.S. males, compared to 20 for Minnesota and 21 for northeast Minnesota males; U.S. female smokers have smoked for an average of 21 years, compared to 16 for Minnesota and 17 for northeast Minnesota females.

Smoking prevalence in Minnesota was studied in a survey commissioned by the Minneapolis Tribune and conducted in March and May of 1977, by means of a telephone survey. Because this study was conducted at the same time (April, 1977), the two studies should have similar results. As illustrated in Table 6, the results do correspond closely except for the age group 18-25. Because the Minneapolis Tribune study used a smaller sample and contacted only households with telephones, it is believed that the study reported here is more accurate. Other differences can probably be attributed to sampling error.

#### SUMMARY AND CONCLUSIONS

Minnesota males are less likely to smoke than their U.S. counterparts; and those who do smoke, smoke fewer cigarettes per day and have smoked for a shorter period of time. Minnesota females who smoke also smoke fewer cigarettes per day and have smoked for fewer years than their U.S. counterparts; however, Minnesota females are more likely to smoke than

those in the U.S. Males and females within the state are equally likely to be smokers in the age group 16-54. Among those aged 55 and over, males are more likely to smoke.

Residents of northeast Minnesota have higher rates of smoking than those for the entire state. Smoking rates are increased over state rates by 10 percent for males and 20 percent for females in northeast Minnesota. Among those who smoke, northeast Minnesota residents have smoked for a longer time period than their statewide counterparts and smoke about the same number of cigarettes per day.

Cigars and pipes are smoked by 7.4 and 9.4 percent, respectively, of Minnesota males, and 0.1 percent in both cases of females.

Higher rates of smoking in northeast Minnesota may account, in part, for the higher mortality rates due to heart disease, cancer, and chronic respiratory disease, compared to statewide averages. Because of the many known interactions between air pollutants and smoking, the residents of northeast Minnesota may have an increased risk of disease due to copper-nickel development than residents elsewhere in the state.

TABLE 1. PROPORTION OF WEIGHTED CASES WHO SMOKE CIGARETTES - 1977

	<u>Minnesota</u>	<u>Northeast Minnesota</u>
<u>Males</u>		
16-20	135/385*	35/130
21-24	134/318	44/91
25-34	250/654	61/148
35-44	206/473	59/125
45-54	152/462	58/125
55-64	161/394	45/148
65+	72/429	26/146
<u>Females</u>		
16-20	165/443	57/131
21-24	115/287	44/98
25-34	293/725	84/178
35-44	180/450	50/122
45-54	157/485	68/155
55-64	124/417	65/171
65+	71/607	37/220

\* 135 smokers out of 385 cases.

TABLE 2. NUMBER OF CIGARETTES SMOKED PER DAY.

	<u>&lt;19</u>	<u>19-21</u>	<u>24 or more</u>
<u>Minnesota</u>			
Males	377	417	305
Females	509	415	167
<u>Northeast Minnesota</u>			
Males	93	151	82
Females	180	172	53

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TABLE 3. NUMBER OF YEARS AS A SMOKER.

	<u>0-9</u>	<u>10-19</u>	<u>20-29</u>	<u>30 or more</u>
<u>Minnesota</u>				
Males	332	258	189	328
Females	420	281	213	183
<u>Northeast Minnesota</u>				
Males	89	66	56	116
Females	78	51	36	47

TABLE 4. PREVALENCE OF CIGAR AND PIPE SMOKING.

	<u>Percent who smoke cigars</u>	<u>Percent who smoke pipes</u>
<u>Minnesota</u>		
Males	7.4	9.4
Females	0.0	0.1
<u>Northeast Minnesota</u>		
Males	7.2	7.4
Females	0.4	0

TABLE 5. PERCENTAGE OF POPULATION WHICH CURRENTLY SMOKES CIGARETTES.

<u>Age</u>	<u>Minnesota</u>	<u>Northeast Minnesota</u>	<u>U. S.*</u>
	<u>1977</u>	<u>1977</u>	<u>1975</u>
<b>Males</b>			
16-20	35.1	26.9	N.A.
21-24	42.1	48.4	41.3
25-34	38.2	41.2	43.9
35-44	43.6	47.2	47.1
45-54	32.9	46.4	41.1
55-64	40.9	30.4	33.7
65+	16.8	17.8	24.2
<b>Females</b>			
16-20	37.2	43.5	N.A.
21-24	40.1	44.9	34.0
25-34	40.4	47.2	35.4
35-44	40.0	41.0	36.4
45-54	32.4	43.9	32.8
55-64	29.7	38.0	25.9
65+	11.7	16.8	10.2

N.A. = Not available.

\* U.S. Department of Health, Education and Welfare 1976.

TABLE 6. PERCENTAGE OF MINNESOTANS WHO CURRENTLY SMOKE CIGARETTES.

<u>Age</u>	<u>Minneapolis Tribune*</u> <u>March &amp; May, 1977</u>	<u>This Study</u> <u>April, 1977</u>
18-25	30	43.3
26-34	38	39.4
35-49	39	39.1
50-64	30	33.8
65+	14	13.8
All	31	34.6

\* Minneapolis Tribune 1977.

REFERENCES

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## APPENDIX

## SECTION K

The Minnesota Department of Health is conducting a study of smoking habits in Minnesota. The following questions relate to that study.

196. Do you smoke cigarettes?

(49)

	Yes	1
SKIP TO Q.199	No	2

197. How many years have you smoked cigarettes?

(Do not include when starting to smoke or when trying to stop)

\_\_\_\_\_  
# OF YEARS  
(50-51)

MARK "0" IF LESS THAN 1 YEAR

198. How many cigarettes do you smoke per day?

(Do not include when starting to smoke or when trying to stop)

\_\_\_\_\_  
# PER DAY  
(52-53)

199. Do you smoke cigars?

(54)

	Yes	1
SKIP TO Q.202	No	2

200. How many years have you smoked cigars?

(Do not include when starting to smoke or when trying to stop)

\_\_\_\_\_  
# OF YEARS  
(55-56)

MARK "0" IF LESS THAN 1 YEAR

201. How many cigars do you smoke per day?

\_\_\_\_\_  
# PER DAY  
(57-58)

202. Do you smoke a pipe?

(59)

	Yes	1
END QUESTIONS	No	2

203. How many years have you smoked a pipe?  
 (Do not include when starting to smoke or when trying to stop)

\_\_\_\_\_  
 # OF YEARS  
 (60-61)

MARK "0" IF LESS THAN 1 YEAR

204. How many pipefuls do you smoke per day?

\_\_\_\_\_  
 # PER DAY  
 (62-63)

END QUESTIONS