Drinking Levels, Knowledge, and Associated Characteristics, 1985 NHIS Findings

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Synopsis

Several questions in the 1985 Health Promotion and Disease Prevention Questionnaire, which was part of the 1985 National Health Interview Survey, addressed respondents' consumption of alcohol. Sociodemographic characteristics, knowledge of health risks related to heavy drinking, health practices, and the prevalence of certain health conditions were examined in relation to drinking levels. Although cause-effect relationships should not be inferred from the associations, the findings suggest some provocative areas for prevention and research.

Heavier drinkers were more commonly found among men than women. Level of drinking was associated positively with years of education and family income, but was inversely related to age. Compared with light drinkers, heavier drinkers were much more likely to drive after they had had too much to drink. While more than 90 percent of the population knew that heavier drinking increases the risk of liver cirrhosis, less than half knew about the increased risk of throat cancer and cancer of the mouth.

Most respondents aged 18–44 years (80 percent or more) knew that heavy drinking increases the chance of adverse pregnancy outcomes, and more women than men (62 versus 49 percent) had heard of fetal alcohol syndrome (FAS). However, 70 percent or more of those who had heard of FAS described the syndrome as a newborn addicted to alcohol rather than a child born with certain birth defects.

Heavier drinkers of both sexes were less likely than others to be nonsmokers, and moderate drinkers were more likely than others to exercise or play sports regularly. Moderate drinkers also tended to have lower lifetime prevalence rates than others for hypertension and heart trouble.

THE RESPONSES OF A PROBABILITY sample of the U.S. civilian noninstitutionalized population surveyed in 1985 form the basis of this paper. Its purpose is to examine the association between respondents' levels of average daily ethanol consumption (abstainer, light, moderate, and heavier) and a variety of sociodemographic characteristics, knowledge of specific health risks from heavy drinking, selected health practices, and certain health conditions. This analysis focuses on heavier drinking and the implications of the findings for the 1990 national prevention objectives of reducing the effects of alcohol abuse (*1–3*). Although cause-effect relationships should not be inferred, the results suggest some provocative areas for prevention policy and further research.

Background

It has been estimated that up to 150,000 Americans die each year from alcohol-related causes (*4*). Chronic liver disease, motor vehicle accidents, suicides, and homicides account for much of this mortality, but there are also many deaths from alcohol-related falls, drownings, and fires (*5, 6*). In addition, alcohol has been linked to gastrointestinal disease, pancreatic conditions, diseases of the nervous system, various affective disorders (*7*), spontaneous abortions, neonatal disabilities, sex crimes, child abuse, and domestic violence (*5*). The total annual cost of alcohol abuse to society in 1983—including direct costs (treatment and support) and indirect costs (productivity loss, property

Table 1. Distribution of drinking levels by sex, respondents in the 1985 Health Promotion and Disease Prevention Survey

Drinking levels[1]	Men		Women	
	Number	Percent	Number	Percent
Abstainer (less than 12 drinks in any year or no drink in past year)	18,677,000	23.9	39,016,000	44.5
None (no drink in 2-week reporting period)	10,671,000	13.7	12,679,000	14.5
Light drinker (.01–.21 oz. ethanol daily)	18,362,000	23.5	21,731,000	24.8
Moderate drinker (.22–.99 oz. ethanol daily)	20,229,000	25.9	11,648,000	13.3
Heavier drinker (1 oz. or more ethanol daily)	10,202,000	13.0	2,575,000	2.9
Total	78,142,000	100.0	87,649,000	100.0

[1]A light drinker consumes up to 3 drinks per week, a moderate drinker consumes from 4 to 13 drinks per week, and a heavier drinker consumes 2 or more drinks per day.

NOTE: Weighted data. Excludes 3 percent of the population for whom drinking status was unknown, or data on alcohol consumption items were missing.
SOURCE: 1985 NHIS Survey.

Prevention will not eliminate all alcohol-related mortality and morbidity. However, annual mortality in the United States might be reduced by 50,000—if alcohol were not misused. By inference, therefore, parallel reductions in alcohol-related morbidity and social problems seem even more extensive.

damage, and the like)—has been estimated at $116.7 billion (*8*).

Even with such data, developing prevention strategies to reduce the social and economic costs of alcohol abuse is very complex. People's values on drinking practices differ markedly. Also, recent research suggests that moderate drinking reduces the risk of myocardial infarction, improves the quality of life for the elderly, helps to release stress, and contributes to nutrition (*9*). Olson and Gerstein (*4*) wisely point out that prevention will not eliminate all alcohol-related mortality and morbidity. However, they do state that, if alcohol were not misused, annual mortality in the United States might be reduced by 50,000. By inference, therefore, possible reductions in alcohol-related morbidity and social problems seem even more extensive.

In this paper, estimates of 1985 drinking levels in the U.S. population are presented for persons aged 18 and older, along with information on associated characteristics that may be useful to planners and managers of prevention programs. Results of the analyses are highlighted only, since space limitations prohibit an extensive discussion of the tabular presentations.

Data Source and Methods

Data source. Data for this study are derived from the 1985 Health Promotion and Disease Prevention Questionnaire (HPDPQ) of the 1985 National Health Interview Survey (NHIS). Separate analyses are presented for men and women, since previous research (*10–14*) indicates large sex differences both in drinking habits and total alcohol consumption.

Average daily ethanol consumption (ADC). ADC measures were derived from two items in the HPDPQ. The number of days that a respondent drank alcohol during the 2-week reporting period was multiplied by the number of drinks on those days to derive a quantity-frequency (QF) measure. Midpoints were used, where appropriate, for interval reponses on the items. The QF estimates were multiplied by .5 ounce of ethanol, the assumed ethanol content of a typical drink. The resulting product was then divided by 14 to produce an ADC measure for each respondent who was classified as a drinker and had consumed some alcohol in the 2-week reporting period.

Constructed drinking levels. The constructed drinking levels used in this investigation are based upon the ADC measures. These drinking classifications, presented in table 1, have been described elsewhere (*12–14*). There is one difference, however, between the constructed drinking levels used in this paper and in those cited. In this study, the drinking category "none" refers to respondents who are drinkers but did not have a drink in the 2-week

Table 2. Percentage distribution of the drinking levels by sex and selected demographic characteristics, respondents in the 1985 Health Promotion and Disease Prevention Survey

Characteristic	Men's drinking levels					Women's drinking levels				
	Abstain	None	Light	Moderate	Heavier	Abstain	None	Light	Moderate	Heavier
Total	24	14	24	26	13	45	15	25	13	3
Age										
18–29 years	19	12	24	32	13	35	16	29	18	3
30–44 years	17	14	27	28	14	38	16	30	15	2
45–64 years	28	15	23	21	13	48	14	23	11	4
65 years and older	42	14	17	16	11	66	11	13	7	3
Race										
White	22	14	24	27	14	42	15	26	14	3
Black	33	13	24	21	10	59	12	19	8	2
Other	40	16	19	16	10	66	12	15	5	2
Hispanic origin[1]	30	10	22	27	11	58	12	18	10	2
Education										
Under 12 years	39	14	18	17	12	65	11	14	7	2
12 years	23	15	23	26	14	43	17	25	13	3
More than 12 years	16	13	27	31	13	32	14	32	19	4
Family income										
Less than $20,000	32	14	20	22	12	54	13	19	11	2
$20,000–24,999	23	16	25	24	12	42	17	24	14	3
$25,000–34,999	21	14	25	27	13	39	16	28	14	3
$35,000–49,999	16	13	26	31	14	31	16	33	16	4
$50,000 and over	13	11	27	33	17	24	14	35	22	5
Currently employed	20	13	25	28	13	36	15	30	16	3
Region										
Northeast	20	14	26	26	14	38	15	29	15	3
Midwest	20	14	25	28	13	39	16	28	13	3
South	31	14	22	22	11	56	13	19	10	2
West	21	13	22	29	15	39	15	26	17	4

[1]Not mutually exclusive from race categories.
NOTE: Weighted data. Row percentages may not sum to 100 percent because of rounding. See table 1 for definitions of drinking levels.
SOURCE: 1985 NHIS Survey.

reporting period. Since these respondents were not asked the QF items, their drinking levels could not be determined. Unpublished data from the 1983 NHIS Alcohol and Health Practices Questionnaire suggest that the majority of these respondents would be light drinkers, but some moderate and heavier drinkers would be included (for example, binge drinkers currently "on the wagon," and those who did not drink in the reporting period because of health or other reasons).

Research Findings

Drinking level distributions. Table 1 presents the distribution of the drinking levels for men and women. Men were much more likely to be drinkers and to be heavier drinkers than women. While only about a quarter of the men were abstainers, 45 percent of the women abstained from alcohol; that is, they had never consumed more than 11 drinks in any 1 year or they were former drinkers who had not had a drink in the past year. Men were more than four times more likely to be heavier drinkers than women.

Sociodemographic characteristics. Table 2 presents associations of the drinking levels with selected sociodemographic characteristics of the respondents. Regardless of sex, older respondents, that is, those aged 65 and older, were less likely to be drinkers or to be heavier drinkers than respondents in the other age groups. Whites, both men and women, were more likely to be drinkers and to be heavier drinkers than any other racial group. In general, those in the higher income and educational categories had the fewest abstainers and the largest percentages of heavier drinkers. Men and women in the South were least likely to be drinkers compared with men and women in other geographic regions. Generally, these sociodemographic findings are consistent with previous research from surveys on the drinking practices of the general population (*10–14*).

Table 3. Those who drank and drove and knowledge of health risks from heavy drinking, by sex and drinking levels, respondents in the 1985 Health Promotion and Disease Prevention Survey (percentages)

Health risk	Men's drinking levels						Women's drinking levels					
	All	Abstain	None	Light	Moderate	Heavier	All	Abstain	None	Light	Moderate	Heavier
Drove 1 or more times in past year when had too much to drink	23	...	9	10	32	41	10	...	3	7	20	24
Age 18 and older[1]												
Cirrhosis of liver	94	91	95	96	96	95	95	92	96	97	98	96
Throat cancer	38	48	41	38	32	31	42	48	39	38	34	35
Cancer of the mouth	30	40	30	29	24	23	36	41	32	32	29	27
Ages 18–44 only[1]												
Miscarriage	84	82	83	85	85	81	88	87	89	90	89	84
Mental retardation	81	81	79	82	81	80	88	87	88	89	89	83
Low birth weight	80	79	80	82	81	76	89	88	89	91	89	85
Birth defects	82	82	81	83	81	79	89	87	90	90	90	83
Heard of fetal alcohol syndrome (FAS)	49	41	51	52	50	47	62	54	64	68	69	63
FAS description[2]												
Drunk	3	4	4	3	3	2	3	4	3	3	3	5
Addicted to alcohol	73	71	74	72	73	75	72	72	73	71	71	75
With certain birth defects.	24	26	23	25	24	22	25	24	24	27	27	21

[1]Percentages represent agreement to increased risk from heavy drinking.
[2]Excludes those respondents who have never heard of FAS.

NOTE: Weighted data. See table 1 for definitions of drinking levels.
SOURCE: 1985 NHIS Survey.

Risks of heavy drinking. Table 3 presents data on drinking and driving and knowledge of the risks associated with heavy drinking. One focus of alcohol prevention is to educate the population regarding the risks of alcohol abuse; one of the greatest risks is that of drinking and driving, especially among young people (*15*).

The HPDPQ asked drinking respondents the number of times in the past year that they had driven when they had perhaps had too much to drink. Analysis of responses to this item indicated that men were roughly twice as likely as women to drive when they had too much to drink. Also, compared with light drinkers, heavier drinking men and women who drive were up to four times more likely to drive after having had too much to drink.

Women appeared more knowledgeable about the health risks of heavy drinking than men. It is important to note, however, that "heavy alcohol drinking" was not defined for the survey respondents. On risks of throat cancer and cancer of the mouth, less than half of either the men or the women knew that heavy drinking increased one's chances of developing these cancers. However, more than 90 percent of the men and women knew of the increased risk of liver cirrhosis from heavy drinking.

Less than half of the men and only 62 percent of the women between the ages of 18 and 44 years had heard of fetal alcohol syndrome (FAS). There were no significant differences by the constructed drinking levels on respondents' best description of FAS. A little more than 70 percent of the respondents described the syndrome as a newborn addicted to alcohol rather than a child born with certain birth defects.

Health practices. Table 4 presents data on selected health practices associated with the drinking levels. One of the variables most strongly related to drinking is smoking status, an association that often makes it difficult to assess the separate effects of drinking and smoking on health. Heavier drinkers of both sexes were much less likely to be nonsmokers than were others. Other data from the HPDPQ (not shown) also indicated that heavier drinkers tended to be the heavier smokers.

In terms of other health practices, heavier drinkers of both sexes were less likely than others of their sex to eat breakfast almost daily and to get 7 to 8 hours of sleep a night. On the other hand, heavier drinkers were less likely to snack between meals. Moderate drinkers were more likely than those in the other drinking level categories to exercise or play sports regularly and to weigh within acceptable limits specified in the 1983 Metropolitan height and weight tables (*16*). However, since the desirable weights from the Metropolitan tables were applied without regard to body

Table 4. Percentage distributions of current health practices by sex and drinking levels, respondents in the 1985 Health Promotion and Disease Prevention Survey

Health practice	Men's drinking levels						Women's drinking levels					
	All	Abstain	None	Light	Moderate	Heavier	All	Abstain	None	Light	Moderate	Heavier
Eat breakfast												
Almost daily	54	66	56	56	48	40	57	65	54	52	47	41
Sometimes	21	16	20	21	24	23	20	18	21	22	22	23
Rarely or never	25	18	24	23	28	37	23	18	26	26	32	36
Snack												
Almost daily	40	40	43	42	38	36	36	36	39	38	35	32
Sometimes	30	29	31	31	32	26	35	35	34	35	35	29
Rarely or never	30	31	26	27	31	38	29	30	26	27	31	39
Sleep												
Less than 7 hours	23	21	24	23	24	27	22	23	22	21	21	23
7 to 8 hours	66	63	66	68	68	61	65	61	65	69	69	61
9 or more hours	11	16	11	9	8	12	13	15	13	10	11	15
Weight within Metropolitan Life standards[1]	53	49	49	53	58	56	59	53	59	65	69	62
Never smoked	37	46	36	41	32	22	54	68	46	48	35	21
Exercise or play sports regularly	43	34	38	47	52	42	38	30	38	46	48	41

[1]1983 Metropolitan Life Insurance Company height and weight tables. Extrapolated weight range for men and women who were shorter or taller than heights presented in tables.

NOTE: Weighted data. Column percentages may not sum to 100 percent because of rounding. See table 1 for definitions of drinking levels.
SOURCE: 1985 NHIS Survey.

Table 5. Lifetime prevalence of selected health conditions, by sex and drinking levels, respondents in the 1985 Health Promotion and Disease Prevention Survey (percentages)

Health condition	Men's drinking levels						Women's drinking levels					
	All	Abstain	None	Light	Moderate	Heavier	All	Abstain	None	Light	Moderate	Heavier
Hypertension[1]	22.7	27.0	25.2	19.7	18.8	25.0	25.1	31.6	22.5	18.7	17.2	27.2
Heart condition or trouble	8.3	13.1	9.3	7.0	5.1	6.8	9.6	12.6	8.3	6.9	6.1	9.8
Stroke	1.7	3.3	1.9	1.3	0.7	1.2	1.7	2.5	1.7	0.8	0.8	1.3
Diabetes	3.5	7.4	4.5	2.0	1.3	2.2	3.8	6.3	3.4	1.6	0.9	0.8

[1]Told by doctor or other health professional that they have hypertension; excludes women reporting hypertension only during pregnancy.

NOTE: Weighted data. See table 1 for definitions of drinking levels.
SOURCE: 1985 NHIS Survey.

frame types, acceptable weight limits presented in this analysis are quite liberal.

Health conditions. Four lifetime health conditions were included in the HPDPQ: hypertension, heart condition or trouble, stroke, and diabetes. Table 5 presents prevalence estimates for each health condition according to the drinking levels. Except for women who reported having had a stroke or diabetes, moderate drinkers had the lowest prevalence rates for all four health conditions. Abstainers, the "none" category, and heavier drinkers tended to have the highest prevalence rates. However, abstainers are older, and each of these conditions is related to age. Therefore, further analysis is needed to determine the effect of age on those findings. The observation of low rates for moderate drinkers, which is similar to a finding from the 1983 NHIS (*14*), tends to support the hypothesis that moderate drinking has certain health benefits. Nevertheless, the fact may be that healthier people tend to drink moderately, not that drinking moderately makes them healthier.

Discussion

The various associations of drinking levels, knowledge, and sociodemographic characteristics reported in this paper are presented to help planners of prevention programs develop potential strategies and identify target groups for the 1990 objectives. For example, the fact that only 62

percent of the women of childbearing age had heard of FAS suggests that more effective educational strategies need to be developed for this special population group. The 1990 objectives state that more than 90 percent of such women should be aware of FAS (*2*).

The 1990 objectives also state that more than 75 percent of the adult population should be aware of the risks of head and neck cancer from excessive drinking (*2*). The data presented here suggest that increased education efforts need to be directed toward developing the public's awareness of the increased risks of throat cancer and cancer of the mouth from heavy drinking.

Overall, prevention efforts probably should be extended to all high-risk disease and injury areas, but more scientific evidence is needed to establish the specific alcohol dose-response relationships for many different types of disease and injury. Moreover, more research is needed to determine the normative values that the public uses to define "heavy drinking."

Finally, if the recent annual decreases in alcohol-related traffic accident fatalities (*15*) are valid indications, current prevention strategies to reduce drinking and driving appear to be working. Directing the "don't drink and drive" message to those who are most likely to drive after having too much to drink (moderate and heavier drinkers), however, is somewhat problematic. Individual perceptions of what constitutes "too much to drink" are likely to vary considerably among those who drink. However, public messages on drinking and driving should, perhaps, focus more on levels of alcohol consumption that impair driving, not on the levels of legal intoxication currently established in traffic codes.

NOTE: The design of the survey is described in detail in "The 1985 Health Promotion and Disease Prevention Survey" by Owen T. Thornberry, Ronald W. Wilson, and Patricia M. Golden, *Public Health Reports* 101: 566–570, November-December 1986.

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