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Youth is generally described as the age at which health and stamina are at their highest, destined to erode only gradually as the years progress. However, there is accumulating evidence that the major mental disorders begin in late adolescence and that psychiatric disorders and substance abuse are most common among young adults between ages 18 and 35 (1,2). Evidence also shows that psychiatric disorders, illicit drug use, alcohol abuse, and suicide are increasing among this population (3-5). The current generation of young adults is confronted by health problems that most youths in previous generations did not have to face.

To investigate these important health issues, we undertook a large-scale, epidemiologic study of young adults in the Detroit area. In January 1989, we randomly selected 1,200 members of the Health Alliance Plan (HAP) from the 21- to 30-year-old age group who had been enrolled on or before January 1, 1988. A total of 1,007 (84%) interviews were completed between March and October of 1989. Interviews were conducted in the respondents' homes by Survey Research Associates (Baltimore, MD) and lasted approximately 1 1/2 hours.

A structured interview schedule was used to gather information on physical and mental health, utilization of medical services, family background, childhood experiences at school and home, current employment, living and working conditions, and recent life events. The National Institute of Mental Health revised Diagnostic Interview Schedule (6), a component of the structured interview used in the study, provided information on psychiatric symptoms. Respondents' replies were used to develop psychiatric diagnoses according to the Diagnostic and Statistical Manual, third edition, revised (DSM-III-R) (7) by applying computerized algorithms that operationalize diagnostic criteria.

The sample we studied (Table 1) is predominantly white (77%) with females (62%) outnumbering males (38%). Almost half (45%) were married and nearly all were employed (92%). More than two-thirds (45.9%) continued their education beyond high school, and more than one-fourth (29%) completed college. Only a small minority (3.7%) did not finish high school.

Physical Health

Respondents rated their health in the past year as excellent (41%), good (46%), fair (11%), or poor (2%). During the year before their interview, 11% of the respondents had been hospitalized overnight (44% male, 14.3% female) (P = 0.002). At the time of the interview, 30% of the women reported having a gynecologic problem at some point in their life and 16% reported that such problems were current. Aside from gynecologic problems, the leading chronic diseases affecting respondents were arthritis (6.1%), asthma (5.0%), and bronchitis (2.9%). Although 6.3% reported having hypertension at some time, only 2.7% still had this condition at the time of the interview. Heart disease, thyroid problems, and stomach ulcers each affected approximately 2% of the sample.

A sequence of questions addressed severe headaches, their duration, and associated symptoms which constitute a diagnosis of migraine as specified by the 1988 Ad Hoc Committee of the International Headache Society (8). The lifetime prevalence of migraine in the sample was 12.8% (7.0% male, 16.3% female) (P = 0.01). A total of 5.7% of respondents reported having a migraine headache within the last month (0.8% male, 8.7% female). The average age of migraine onset was 16.8 years (13.7 years for males, 17.6 years for females).

Of those who were employed, 18.7% reported that they had missed time from work in the month before the interview because of illness or injury (14% male, 24% female) (P = 0.01). Of the total sample, 9% missed one day, 4% missed two days, 2% missed three days, and 4% missed four to 30 days.

Tobacco, Alcohol, and Drug Use

Of the total sample, 41% reported ever having smoked cigarettes daily for a month or more (38% male, 43% female) (P = not significant). Of all smokers, 58% smoked 20 or more cigarettes daily during the period when they were smoking the most. Of those who ever smoked, 28% reported that they had not smoked during the last year. Current prevalence of cigarette smoking, defined as the percentage of the sample that smoked in the month before the interview, was 30% (28% male, 31% female) (P = NS).

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Table 1
Sample Characteristics
(N = 1,007)

	Number	Percent
Sex		
Male	386	38.3
Female	621	61.7
Race		
Non-black	813	80.7
Black	194	19.3
Education		
< High school	37	3.7
High school	212	21.1
> High school	462	45.9
College	296	29.3
Marital Status		
Married	451	44.8
Separated/divorced	54	5.3
Never married	502	49.9

Table 2
Indicators of Drinking Problems
(N = 1,007)

	Number	Percent
Tolerant to alcohol	159	15.8
Objections from family	152	15.1
Blackouts	150	14.9
Gotten into fights	112	11.1
Accidents or injuries	88	8.7
Stopped by police/arrested	71	7.1
Gotten into trouble driving	63	6.3

Table 3
Lifetime Prevalence of Psychiatric Disorders
(Rates Per 100)

	Males	Females
Alcohol abuse or dependence	33.2%	14.2%
Major depression	9.6%	15.8%
Panic disorder	1.8%	3.7%
Generalized anxiety disorder	1.0%	4.2%
Post-traumatic stress disorder	6.0%	11.3%

Alcohol consumption of at least one drink a month was common; only 19.9% of the sample reported that they had not drunk alcohol in the last year. Drinking problems, such as family objections, tolerance development, blackouts, or alcohol-related altercations affected 6.3% to 15.8% of the sample (Table 2).

There is evidence that the more severe medical and social consequences of alcohol abuse have not yet taken their toll in this young population. Despite the higher rates of reported drinking problems, only 1.2% of the sample reported experiencing a period when they used alcohol as a means to help them function, and only 2.2% reported objections about their drinking from employers or others at work. Males had more drinking problems than females and were twice as likely to report objections from family, alcohol tolerance, or blackouts. Moreover, alcohol-related problems involving aggressive or illegal behavior (fights, accidents, arrest for drunk driving) were reported three to four times more often by men.

Of the total sample, 21.5% met criteria for the DSM-III-R diagnosis of alcohol abuse or dependence: 3.3% for abuse, 4.6% for mild dependence, and 13.6% for moderate dependence. None met criteria for severe alcohol dependence. Among those with a history of dependence, the median age at which symptoms of alcoholism first appeared was 17 years. Men were more likely than women to have a history of alcohol abuse and dependence (32.9% versus 14.2%) ($P < 0.001$). The prevalence was significantly higher in whites (24.2%) than in blacks (9.8%) ($P < 0.001$) and also in those with no college education (23.1%) versus college graduates (17.6%) ($P = 0.05$).

The majority of the sample (61%) had used drugs at least once to get high, to relax, or to experience other psychologic action. Nearly half the sample (42.6%) had used drugs more than five times. For those who had used drugs at least once, the difference between the sexes was negligible. However, for those who had used drugs more than five times, the proportion of males was significantly higher (50% versus 38%) ($P < 0.001$).

Marijuana was the most commonly used drug in this population. A total of 42.6% of the sample reported having smoked marijuana more than five times (59% male, 38% female) (P = NS). Cocaine was the second most commonly used drug, with 12% of the sample reporting having used it more than five times. Barbiturates, amphetamines, and narcotics (i.e., codeine, Demerol™, morphine, Percodan®) were used by 5.9%, 5.9%, and 4.5% of the sample, respectively. The difference between the sexes for cocaine use was not significant (15.8% male, 9.3% female) and none was noted in the use of amphetamines, barbiturates, or narcotics.

Depression and Anxiety Disorders

The lifetime prevalence of DSM-III-R major depression was 13.4% (9.6% male, 15.8% female) ($P = 0.005$). Prevalence rates for panic disorder (1.8% male, 3.7% female) and generalized anxiety disorder (1.0% male, 4.2% female) were each 3% (Table 3). The relatively low prevalence of generalized anxiety disorder in this study reflects the DSM-III-R definition change in this diagnosis. DSM-III-R requires a minimum of six months of excessive or unrealistic worry as opposed to the one-month criterion in DSM-III.

Post-traumatic stress disorder (PTSD), a diagnosis that has been the focus of growing interest in recent years, is classified in DSM-III-R among the anxiety disorders. The definition requires that a distinct cluster of symptoms follow a special class of traumatic events, defined as "outside the range of usual human experience" (7). This includes a "serious threat to one's life or physical integrity; serious threat or harm to one's children, spouse, or other close relatives and friends; sudden destruction of one's home or community; or seeing another person who has recently been, or is being, seriously injured or killed as the result

of an accident or physical violence" (7). The text of DSM-III-R specifically excludes potentially traumatic experiences such as divorce, death of a spouse, or serious illness because such events are *not* outside the range of usual human experience. The interview schedule followed the DSM-III-R rules requiring that a reported traumatic event be qualified before inquiring about PTSD symptoms.

In this sample of young adults, 40% reported experiences that fall within the class of traumatic events as defined in DSM-III-R. The most common categories of events include serious accidents or injuries, physical assault and rape, seeing others killed or seriously injured, or news about others being killed or seriously injured. Nearly one-fourth of the respondents who reported such experiences met criteria for PTSD, yielding a prevalence estimate of 9.2% in the total sample (6.0% male, 11.3% female). Women were just as likely as men to report traumatic experiences but were more likely to have PTSD following these events. Their greater risk for PTSD after exposure to trauma is partly accounted for by the nature of the trauma they reported. Almost 80% of the women who met criteria for PTSD were rape victims. However, even when rape victims are excluded from the analysis, women are still more likely than men to be affected by PTSD after exposure to traumatic events. Of all respondents with a history of PTSD, more than 80% met criteria for other psychiatric disorders.

Family History of Alcohol Problems, Drug Problems, and Depression

Respondents were questioned about the presence of a variety of problems and psychiatric disorders in first-degree relatives, specifically parents and full siblings older than age 15. A history of alcohol problems in first-degree relatives was reported by 30% of the sample. In the majority of these cases the affected relatives were parents. A family history of drug problems was reported by 14.8% of the sample and referred mostly to siblings. A total of 25% of the respondents reported a history of depression in their family, affecting parents or siblings. Nearly 10% reported a family history of a suicide attempt.

Respondents with a family history of depression, anxiety, or alcohol-related problems were more likely to have the same disorders compared to respondents whose relatives were unaffected, which reflects the familial pattern of these psychiatric disorders as reported in previous studies (9,10). For example, there was a 29.3% prevalence rate of alcohol dependence in respondents whose relatives had drinking problems, whereas the rate was 18.1% in respondents whose relatives did not have such problems.

Discussion

The findings summarized in this report confirm the previously observed sex differences in physical and mental health. Women were more likely than men to miss time from work because of illness or injury and to suffer from migraine headaches, depression, and anxiety disorders. However, they were less likely than men to use drugs, have alcohol-related problems, or be alcohol dependent. The sex gap in drug use and alcoholism in this sample is relatively narrow, reflecting a higher increase of substance abuse among young women than young men.

An important concern of this study is whether our sample of HAP members represents the area population of similar age and sex composition. Data on the geographic distribution of HAP membership, including industries employing subscribers and their dependents, do not address whether or not individuals at high risk for morbidity are overrepresented in the HAP population. To answer this critical question, we compared our findings with those from recent epidemiologic surveys. The comparison is somewhat limited by methodologic differences across studies, such as diverse measurement instruments and operational definitions for various diseases.

Despite these limitations, the distribution of health self-assessment and the prevalence of tobacco, alcohol, and drug use in our study are similar to those reported in recent national surveys (11-13). Additionally, rates of depression, anxiety disorders, and migraine in our study population are close to those reported recently in large-scale, epidemiologic studies (1,14-16). These similarities suggest that the HAP members in our study are not unlike the rest of the population regarding health status and behaviors that affect future health needs.

These findings underscore the need for concentrated efforts designed to modify health-damaging behavior among the young. While the prevalence of cigarette smoking has declined in the United States, the national picture, reflected closely in our findings, shows that cigarette smoking remains the most important preventable cause of death and disease in our society (17). Interventions may have to target women specifically. Their annual rate of decline in smoking has been far lower than that of men (18). Alcohol and drug abuse increase not only the risk of death and disease but also the incidence of traumatic accidents, psychologic distress, and depression.

Data gathered in surveys such as this provide valuable information on the risk factors for various conditions and can help to guide the planning of future health care. Furthermore, such data can serve as the baseline for the assessment of interventions designed to reduce self-damaging behavior and to promote better health and productivity.

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