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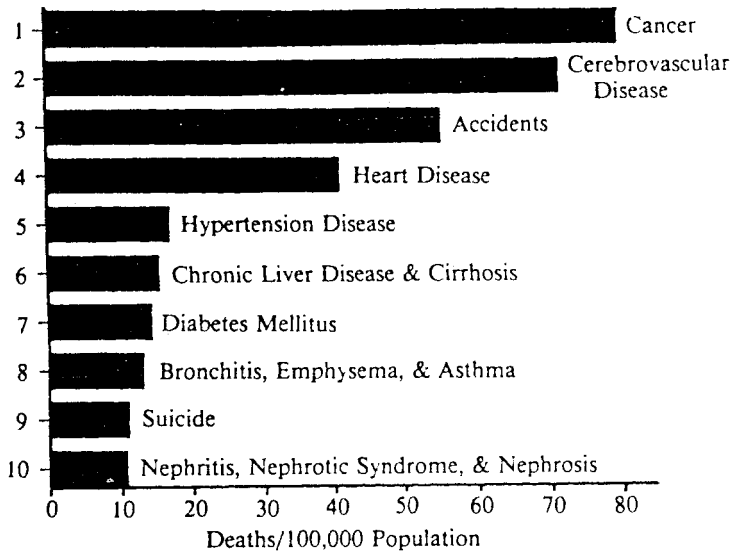
The Prevalence of Behavioral Risk Factors in Taipei City Residents

In the past 30 years, Taiwan's economic development has led to major improvements in the standard of living. Health care has also improved, and has substantially altered the leading causes of mortality. Today, the leading causes of death in Taiwan are similar to those of other industrialized nations; cancer, cerebrovascular disease, accidents, and heart disease are high on the list (Figure 1). Many of these diseases are related to behaviors which adversely affect health. Some examples include cigarette smoking, alcohol abuse, overeating, lack of exercise, failure to control hypertension, and seatbelt/motorcycle helmet non-use. Despite their public health importance, the prevalence of behavioral risk factors in Taiwan's population is unknown. These data are vital to establish priorities for risk factor reduction and to evaluate the impact of intervention programs.

In May-June, 1986, we conducted a telephone survey of Taipei City residents to determine the prevalence of selected behavioral risk factors in the adult population. A sample size of 2,500 was chosen to provide accurate estimates for the prevalence of most risk factors, taking into account that future surveys would be conducted to determine whether significant changes in prevalence had occurred. Individuals were selected using a random-digit dialing technique that ensured a representative sample of the Taipei City population would be included[1,2]. A strict protocol was followed to select household members for interview and to determine when and how many call-backs were made. All Taipei City residents ≥15 years old in households with telephones (83% according to telephone company records) were eligible to be included. Interviewers used a standardized questionnaire adapted from the behavior risk factor surveillance system in the United States[2]. To make the questionnaire relevant for Taiwan, the definitions of several risk factors were modified (Table 1).

Interviews were completed for 2,514 persons. The age and sex distribution of the survey group did not differ significantly from the 1985 Taipei City census. The prevalence of behavioral risk factors by sex are shown in Table 2. Sedentary lifestyle was the most

Figure 1. 10 Leading Causes of Death, Taiwan Area, 1985*



*Source: Department of Health

Table 1. Definitions used for behavior risk-factor survey, Taipei City, 1986

Overweight	≥115% ideal body weight (IBW). For men IBW=(Height in cm-170)×0 6+62 For women IBW=(Height in cm-158)×0 5 +52
*Sedentary lifestyle**	Person with a sedentary occupation who spends less than 20 minutes on leisure time physical activity at least three times per week.
*Uncontrolled hypertension**	Person who has been told by a medical professional that he/she is hypertensive and still has high blood pressure
*Current cigarette smoker**	Person who has smoked at least 5 packs in his/her life and currently smokes
Current betel nut use	Person who has used at least 50 betel nuts in his/her life and currently uses
*Binge drinking**	Person who drank five or more alcoholic drinks(≥90 cc of ethanol, or ≥1 bottle of Chinese Shaoshing wine) on an occasion one or more times in the past month
*Chronic heavy drinking**	Person whose average total alcoholic beverage intake exceeded 60 drinks (1,080 cc of ethanol, or about 12 bottles of Chinese Shaoshing wine) in the past month
*Drinking and driving**	Person who answered once or more to the question "During the past month, how many times did you drive when you felt drunk?"
Seatbelt non-use	Person who stated he/she seldom or never uses a seatbelt when riding in or driving a private car (taxicabs and other public transportation vehicles do not have seatbelts) excluding freeway driving (there is a strictly enforced mandatory seatbelt law for freeway driving).
Motorcycle helmet non-use	Person who stated he/she seldom or never uses a helmet when riding a motorcycle

*Identical definitions used in US behavioral risk-factor surveys See reference 2

Table 2. Prevalence* of behavioral risk factors among men and women, Taipei City, 1986

Risk factor	Male N=1,232	Female N=1,282	Total N=2,514	95% confidence interval±
Sedentary lifestyle	71 8	75.1	73.5	71.8-75.2
Overweight	19 9	14.7	17.2	15.7-18 7
Uncontrolled hypertension (see below)[1]	2 6 (45.5)	1.8 (58.0)	2.2 (52.8)	1.7-2.7 (39.4-66.2)
Current smoker	48 4	5.1	26.3	24.6-28 0
Current betel nut use	5.7	0 0	2 8	2.1-3.5
Binge drinking	14 6	0.9	7.6	6.6-8.6
Chronic heavy drinking	9.7	1 0	5.3	4.4-6.2
Drinking and driving	3 3	0.1	1.7	1.2-2.2
Seatbelt non-use (see below)[2]	69.1 (89.7)	66.3 (89 0)	67.7 (89.3)	65.9-69.5 (87.9-90.7)
Motorcycle helmet non-use (see below)[3]	34 0 (62.7)	28 8 (72.0)	31.3 (66.8)	29.5-33.1 (64.1-69.5)

*Percentages
+95% confidence intervals on total sample
[1]Percentage of those who knew they had hypertension (N: male=31, female=22, total=53)
[2]Percentage of those who said they ride in private cars (N: male=947, female=892, total=1,839)
[3]Percentage of those who said they ride motorcycles (N: male=668, female=508, total=1,176)

prevalent risk factor for both sexes (70%); however, fewer than 20% of men and women were overweight. One of the most striking differences between men and women was the pattern of smoking behavior; nearly half (48%) of men were current smokers compared to only 5% of women. Men also used betel nut and abused alcoholic beverages about 2 to 3 times more often than women. About two-thirds (68%) of both sexes said they did not use seatbelts, and about one-third (31%) said they did not use helmets when riding a motorcycle. These rates for non-use of seatbelts and motorcycle helmets did not accurately reflect the prevalence of these behaviors, however, since they were calculated assuming the entire survey population was at risk. When re-analyzed for only those persons who rode in private cars or on motorcycles, the rates were much higher: 90% for seatbelt and 70% for helmet non-use, respectively. Similarly, the prevalence of uncontrolled hypertension was only 2% in the general population; however, half of those who knew they had hypertension were not taking medication.

Only 4% of persons had no risk factors, while 22%, 35% and 42% had 1, 2, or ≥3 risk factors, respectively. Compared with persons who had no risk factors (N=137), those with ≥5 risk factors (N=149) were younger (median age=32 versus 43 years; $p<10^{-4}$, Wilcoxon rank sum test) and more often male (98% versus 40%, $p<10^{-3}$, chi-square).

Reported by Field Epidemiology Training Program, Bureau of Disease Control, Department of Health, Executive Yuan

Editorial note: The results of this survey show that a significant proportion of Taipei City residents have behavioral risk factors which adversely affect health:

(continued on p.42)