

Predicting Onset and Chronicity of Women's Problem Drinking: A Five-Year Longitudinal Analysis

ABSTRACT

Background. Longitudinal studies of adult drinking have typically excluded or sampled only small numbers of problem drinking women, and have measured a limited range of influences on women's drinking behavior.

Methods. To study the development of women's problem drinking over time, five-year follow-up interviews were conducted with two groups of respondents from a 1981 national survey of women's drinking: 143 problem drinkers and 157 nonproblem drinkers. Regression analyses examined effects of 1981 predictors on six measures of 1986 problem drinking, for problem drinkers and nonproblem drinkers separately.

Results. Among 1981 nonproblem drinkers, predictors of onset of problem drinking indicators by 1986 included younger age, cohabiting, and lifetime use of drugs other than alcohol. The most consistent predictor of persistent (chronic) problem drinking was sexual dysfunction; other predictors included being employed part-time or never married, and experiencing recent depression. Divorce or separation predicted lower levels of subsequent alcohol dependence among problem drinkers.

Conclusions. Findings suggest that different personal and social factors predict the onset of problem drinking as compared with its continuation, and point to nontraditional life-style, sexual dysfunction, and role deprivation as potentially important variables. (*Am J Public Health* 1991;81:305-318)

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Introduction

Longitudinal research on general population samples is essential for predicting the onset and chronicity of problem drinking, but has not been adequately applied to the study of women drinkers. A majority of the longitudinal studies in a recent comprehensive review¹ totally excluded female respondents. Of 12 longitudinal studies of adult drinking included in an international collaborative effort,^{*} four have exclusively male samples, while only one focuses primarily on females.

Those longitudinal studies that do sample women frequently have insufficient numbers of heavy drinking and problem drinking women for multivariate analysis, due to the lower rates of heavy drinking and drinking-related problems among women than among men. Even a relatively large national probability sample of 2,000 respondents (half female) yields only 30 to 60 women who drink as heavily as 14 drinks per week.² One frequently cited longitudinal study³ had only three women in its problem drinker sample. In addition, most longitudinal studies that include women have focused on immediate contexts and correlates of drinking behavior, with relatively little attention to other or longer term influences on women's drinking.

The five-year longitudinal study reported here gathered information about di-

verse antecedents and consequences of drinking and drinking problems in women. This paper addresses two major questions: 1) What factors predict the incidence (onset) of problem drinking among women over a five-year period? 2) What factors predict the chronicity—continuation or worsening—of women's problem drinking over five years? Because drinking may be reciprocally related to a number of personal and social-environmental conditions, we analyze drinking as both a predictor and an outcome of these conditions.

Methods

Sampling

The data are from a national survey of women's drinking conducted in the fall and winter of 1981 and from a follow-up survey in the fall and winter of 1986. Sampling and fieldwork for both surveys were conducted by the National Opinion Research Center (NORC).

The 1981 survey interviewed a stratified probability sample of the noninstitutionalized US population age 21 and over, obtained from initial screening of 4,032 households. After 10-minute screening interviews to determine women's drinking levels, NORC interviewers requested interviews from every moderate-to-heavy drinking woman (four or more drinks per

*Fillmore KM, Hartka E, Johnstone BM, Leino V, Motoyoshi M, Temple MT: Life course variations in drinking: Preliminary results from the Collaborative Alcohol-Related Longitudinal Project. Paper presented at the 15th Annual Alcohol Epidemiology Symposium, Kettil Bruun Society for Social and Epidemiological Research on Alcohol, Maastricht, The Netherlands, June 11-16, 1989.

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week), from every woman reporting a history of drinking-related problems, and from one of every four lighter drinking or abstaining women. Interviews were completed with 500 moderate-to-heavy drinking women and 39 women who were self-reported former problem drinkers (89 percent completion rate), and with 378 lighter drinking and abstaining women (83 percent completion rate). A probability sample of 396 men (66 percent completion rate) was also interviewed as a comparison group. Detailed information about sample design, statistical weighting, and comparisons with other national data are provided elsewhere.^{2,4}

The 1986 follow-up survey compared two subsamples of female respondents. Problem Drinkers (PDs) were women who in 1981 had reported at least two of the following: 1) average consumption of one or more ounces of ethanol per day; 2) one or more drinking-related problems in the past 12 months; and 3) one or more alcohol dependence symptoms in the past 12 months. These problem drinking criteria are similar to those used in other studies,⁵⁻⁷ and the proportion of women thus identified—10.1 percent of the total weighted female sample—falls in the middle of the range of estimates of problem drinking rates among women in US surveys during the 1960s and 1970s (1 percent to 21 percent).⁶ Nonproblem Drinkers (NPDs) were women who in 1981 drank more than one drink per month but reported none of the three problem drinking indicators.

Application of these criteria produced samples of 178 PDs and 199 NPDs. Of these, 157 PDs (88.2 percent) and 185 NPDs (93.0 percent) were successfully located by NORC staff. Six percent of the total follow-up sample (five PDs and 16 NPDs) were deceased, too ill or senile to be interviewed, or out of the country. Of the remaining respondents potentially available for interviews, interviews were completed with 143 PDs (94.1 percent) and 157 NPDs (92.9 percent). The final sample thus represents 80.3 percent (143 of 178) of all PD cases in the 1981 sample and 78.9 percent (157 of 199) of all 1981 NPDs. (Not included in the follow-up sample were 290 women who abstained at least 30 days before the 1981 survey, 110 infrequent drinkers who drank one drink per month or less in the 12 months preceding the survey, and 140 women who drank more than one drink per month and who reported only one of the three problem drinking indicators.)

In order to assess possible selection bias due to attrition, nonresponse rates

(combining refusals and locating failures) were examined for respondent categories based on all major drinking variables, seven major demographic variables, and two sexuality variables (nontraditional sexual behavior and sexual dysfunction), within PD and NPD subsamples separately. Nonresponse rates for the following categories exceeded the overall subsample nonresponse rates by 15 percent or more: Black PDs; NPDs age 71 and older; PDs separated from their husbands; PDs with household income under \$8,000; NPDs with household income \$8,000–\$15,000; NPDs completing college but not graduate school; NPDs who were retired or disabled; and NPDs reporting both masturbation and premarital sexual experience. None of the drinking variables had categories with excessive nonresponse rates. Based on their known or expected relationships to other variables, income and race seemed to be the two most important variables for weighting adjustments. Accordingly, nonresponse weighting adjustments were applied to the 1986 sample based on division of the PD and NPD subsamples into three categories: Blacks; race Other/income under \$15,000; race Other/income \$15,000 and above.

Data Collection

The 1981 survey questionnaire was administered face-to-face by female NORC interviewers. It included questions (described below) about drinking behavior, drinking-related problems, alcohol dependence symptoms, and lifetime drinking history. Other questions dealt with demographic characteristics, family history and socialization, personality traits and values, social roles, characteristics of the respondent's primary interpersonal relationship, stressful life events, depression, sexual experience, reproductive dysfunction, use of drugs other than alcohol, and antisocial behavior.

The follow-up survey, again administered by female NORC interviewers, used measures of drinking behavior and drinking consequences identical to those used in 1981. Other questions asked about changes in demographic characteristics such as marital and employment status since 1981, and about other major life events such as births, deaths, physical illness, depression, and sexual and reproductive dysfunction. New questions addressed employment experiences, feelings of role overload and role deprivation, sexual experience and sexual abuse, and relationship conflict/violence.

Measures

Predictor Variables: The 1981 survey was designed to assess the individual and combined effects of a large number of variables that had been associated with women's drinking in previous theory and research, as well as additional variables not addressed in earlier work. The conceptual model guiding the study assumed that a woman's demographic and family background (including such variables as age, education, religious orientation, and recalled parental behavior including drinking) affects three major sets of influences on drinking behavior: 1) personality characteristics (including personal motives and values, drinking-related beliefs and attitudes, and gender-role attributes); 2) perceived social environment (including social norms and interactions with significant others); and 3) life experiences (including stressful life events, sexual and reproductive experience, affective disorder, other drug use, and antisocial behavior). Background, personality, social environment, and life experiences all influence contexts of drinking behavior, levels of alcohol consumption, and drinking consequences.⁸ From the large set of variables initially included in the 1981 survey, variables were selected for the present longitudinal analyses if they had shown a significant positive relationship to heavier drinking and/or to adverse consequences of drinking in earlier cross-sectional analyses of 1981 data.^{2,4,8-13}

Time 1 predictors were demographic characteristics, personality attributes, social-environmental conditions, and life-history events as measured in the 1981 survey. For some variables, additional interim predictors consisted of specific changes in demographic status (e.g., becoming divorced or unemployed) or major life experiences (e.g., miscarriage/stillbirth, depressive episode) during the 1981–86 follow-up interval. We also measured the Time 2 (1986) values of Time 1 predictors in order to analyze possible Time 2 consequences of Time 1 drinking. Brief descriptions of personality variables, sexuality-related variables, and drinking variables are provided in the Appendix; descriptions of all other variables can be obtained by writing the authors.

Drinking Variables: Questions about the frequency and quantity of consumption of wine, beer, and liquor were used to estimate respondents' average daily intake in ounces of ethanol per day for the 30 days preceding the survey.^{5,14} Minor refinements in the 1986 survey adjusted for

TABLE 1—Changes in Problem Drinking Indicators, 1981–86, among 1981 Nonproblem Drinkers (NPDs) and Problem Drinkers (PDs), by Age (%)

1986 Problem Drinking Indicators	Age 21–34		Age 35–49		Age 50+		Total	
	NPDs	PDs	NPDs	PDs	NPDs	PDs	NPDs	PDs
None	73.0	37.8	95.6	25.8	95.4	26.1	88.8	32.7
One	13.8	34.8	4.4	17.1	3.4	38.3	6.9	30.7
Two or Three	13.3	27.4	0	57.2	1.2	35.6	4.3	36.5
Weighted N	(46)	(80)	(58)	(37)	(49)	(23)	(153)	(140)

the new popularity of wine coolers and low-alcohol beer, the use of malt liquor, and slight declines in the ethanol content of wine and liquor. Estimating procedures are summarized in the Appendix. Other drinking measures included the frequency of heavy episodic drinking (six or more drinks per day) and the frequency of intoxication (“feeling drunk”) in the 12 months preceding the survey.

An index of nine kinds of problem consequences of drinking included driving while feeling intoxicated, starting fights (with family members or others), damage to job performance, interference with housework or chores, drinking-related home accidents and problems with children, and spouse’s or partner’s complaints about the respondent’s drinking and threats to leave the drinker. An index of five alcohol dependence symptoms consisted of memory lapses while drinking (blackouts), rapid drinking, morning drinking, inability to stop drinking before becoming intoxicated, and inability to stop or reduce alcohol consumption over time. These indexes summed the number of different consequences and symptoms reported for the 12 months preceding the survey. A composite Problem Drinking Index (PDI) summed the occurrence in the past 12 months of 1) any episode of intoxication, 2) any problem consequence, and 3) any alcohol dependence symptom (scores ranged from zero to three).

Data Analysis

Data analysis involved weighting cases to take into account unequal probabilities of inclusion at several levels of selection, including 1981 stratification by drinking level, 1986 selection of PD and NPD samples, and response rate variations in both surveys.⁴ For significance tests we adjusted weights by constant ratios to produce weighted Ns equal to the actual numbers of respondents in the PD and NPD samples.

This paper reports results of three analyses. First, cross-tabulations describe patterns of change in problem drinking indicators between the 1981 and 1986 surveys. Second, regression analyses examine the effects of individual Time 1 and interim predictors on six Time 2 drinking variables, and the effects of six Time 1 drinking variables on Time 2 values of Time 1 predictors. Dependent variables in the regression analyses were standardized residuals. Each Time 2 drinking variable was regressed on its Time 1 equivalent plus measures of 1981 consumption (average consumption and heavy episodic drinking) to produce standardized residuals as measures of Time 2 drinking patterns not predicted by Time 1 drinking patterns. Similarly, each Time 2 condition (e.g., sexual dysfunction in 1986) was regressed on its Time 1 equivalent, producing standardized residuals as measures of Time 2 conditions not accounted for by Time 1 conditions.

The third analysis uses results of the second analysis as a winnowing procedure to develop 12 unique multiple regression equations showing the combined effects of Time 1 and interim predictors on the same standardized residuals of each of six measures of Time 2 drinking, for the NPD and PD samples separately. Predictors were included in these equations 1) if they predicted ($p < .10$) the Time 2 drinking variable in the bivariate analyses described above, or 2) if they predicted ($p < .10$) the Time 2 drinking variable in (a) equations that entered all Time 1 predictors simultaneously, or (b) equations that entered all predictors simultaneously, using interim predictors for those variables with both Time 1 and interim versions. Every equation included age as a control variable. In the 12 final equations, predictors were entered hierarchically in two steps: Time 1 predictors (those that occurred before 1981 or that constituted the respondent’s status in 1981), followed by interim predictors (occurring during the follow-up interval). Based on earlier cross-sectional

findings, every predictor (except age) in the second and third analyses was hypothesized to predict heavier drinking or more adverse drinking consequences. For this reason, one-tailed tests of significance were used for relationships in the predicted direction, two-tailed tests for relationships in the opposite direction.

Design effects were assessed for seven of the resulting regression equations.¹⁵ In only two (intoxication and PDI, among PDs only) did the mean of the individual square roots of design effects slightly exceed 1.0 (1.017 and 1.101 respectively), and the overall mean for all predictors in the seven equations was less than 1.0 (0.963). This indicates that the findings reported here are not affected by weighting or cluster characteristics of the PD and NPD subsamples to an extent that would require adjustment for departures from the simple random sampling model.

Results

Changes in Problem Drinking

Table 1 shows five-year changes in the three problem drinking indicators (consumption, problems, symptoms) used to define the 1981 NPD and PD samples. A large majority of all 1981 NPDs remained free of problems five years later; 11.2 percent had developed at least one problem drinking indicator. Of the 1981 PDs (who in 1981 had reported at least two of the three indicators), approximately one-third (32.7 percent) by 1986 reported none of the three indicators and another one-third (30.7 percent) reported only one indicator.

Patterns of change were quite different for three age groups:

- Onset of problem drinking was most common among young women age 21–34; more than one-fourth (27.1 percent) of the 1981 NPDs in this age group reported at least one problem drinking indicator by 1986, compared with 4.4 percent of 1981 NPDs age 35–49 ($\chi^2 = 8.85$,

TABLE 2—1981 Sociodemographic Predictors of Five-Year Onset and Chronicity of Problem Drinking Indicators: Hierarchical Multiple Regression Coefficients with Unadjusted (Zero-Order) Weighted Means and Rates

Time 1 (1981) Sociodemographic Predictors	Time 2 (1986) Problem Drinking Indicators						
	Average Consumption (ounces ethanol/day)	Heavy Episodic Drinking (% any)	Intoxication (% any)	Problem Consequences (% any)	Dependence Symptoms (% any)	Problem Drinking Index (% 1+)	Problem Drinker Sample Criteria (%1+)
Younger Age							
NPD Onset							
Beta 1	-.04	+.22	+.30	+.17	+.10	+.23	*
Beta 2	-.08	+.20	+.25	+.06	+.04	+.13	
21-34 (51)	.175	35%	52%	24%	14%	54%	27%
35+ (106)	.151	10%	6%	3%	1%	7%	4%
PD Chronicity							
Beta 1	-.05	+.15	+.15	+.02	+.05	+.11	
Beta 2	-.21	+.13	+.15	+.01	+.07	+.12	
21-34 (77)	.490	57%	75%	53%	37%	78%	62%
35+ (66)	.881	59%	63%	54%	44%	76%	74%
Unemployed, 1981							
NPD Onset							
Beta 1	—	—	—	+.07	—	—	
Beta 2	—	—	—	-.01	—	—	
Yes (10)	.213	37%	28%	28%	11%	28%	28%
No (146)	.151	17%	19%	9%	5%	21%	11%
PD Chronicity							
Beta 1	—	—	—	—	—	—	
Beta 2	—	—	—	—	—	—	
Yes (7)	.457	56%	73%	44%	49%	73%	62%
No (135)	.668	58%	70%	54%	39%	77%	67%
Employed Part Time, 1981							
NPD Onset							
Beta 1	—	-.16	—	—	—	—	
Beta 2	—	-.17	—	—	—	—	
Yes (31)	.216	14%	15%	8%	4%	18%	12%
No (125)	.146	18%	20%	10%	5%	22%	11%
PD Chronicity							
Beta 1	+.13	—	—	-.16	—	—	
Beta 2	+.23	—	—	-.14	—	—	
Yes (22)	.674	53%	64%	44%	33%	70%	50%
No (119)	.637	60%	73%	56%	42%	80%	70%
Nontraditional Job for Women, 1981							
NPD Onset							
Beta 1	—	+.07	+.12	—	—	—	
Beta 2	—	+.04	+.06	—	—	—	
Yes (42)	.149	24%	26%	6%	3%	27%	9%
No (107)	.165	15%	15%	8%	4%	17%	9%
PD Chronicity							
Beta 1	—	—	-.17	—	—	—	
Beta 2	—	—	-.14	—	—	—	
Yes (47)	.630	64%	64%	52%	38%	71%	72%
No (80)	.613	55%	78%	53%	42%	84%	61%
Never Married, 1981							
NPD Onset							
Beta 1	+.06	-.01	—	—	+.12	—	
Beta 2	+.08	+.04	—	—	+.12	—	
Yes (17)	.242	34%	34%	18%	21%	34%	26%
No (140)	.151	16%	18%	9%	4%	20%	10%
PD Chronicity							
Beta 1	—	+.05	+.18	+.17	—	+.18	
Beta 2	—	+.05	+.16	+.16	—	+.14	
Yes (22)	.519	74%	86%	76%	52%	92%	87%
No (121)	.686	55%	67%	49%	38%	74%	64%
Divorced/Separated, 1981							
NPD Onset							
Beta 1	—	-.14	—	—	—	—	
Beta 2	—	-.14	—	—	—	—	
Yes (18)	.135	10%	34%	9%	3%	35%	9%
No (139)	.162	19%	17%	10%	5%	19%	12%

(continued)

TABLE 2—Continued

Time 1 (1981) Sociodemographic Predictors	Time 2 (1986) Problem Drinking Indicators						Problem Drinker Sample Criteria (%1 ⁺)
	Average Consumption (ounces ethanol/day)	Heavy Episodic Drinking (% any)	Intoxication (% any)	Problem Consequences (% any)	Dependence Symptoms (% any)	Problem Drinking Index (% 1 ⁺)	
PD Chronicity							
Beta 1	—	—	-.09	—	—	-.08	
Beta 2	—	—	-.08	—	—	-.07	
Yes (29)	.473	45%	55%	48%	23%	66%	57%
No (115)	.709	61%	74%	54%	44%	80%	70%
Cohabiting, 1981							
NPD Onset							
Beta 1	—	+.18	+.08	—	—	—	
Beta 2	—	+.17	+.06	—	—	—	
Yes (5)	.070	61%	51%	13%	0%	64%	13%
No (152)	.161	16%	18%	9%	5%	20%	11%
PD Chronicity							
Beta 1	—	-.26	—	—	—	—	
Beta 2	—	-.22	—	—	—	—	
Yes (14)	.865	24%	76%	52%	30%	76%	52%
No (129)	.633	62%	69%	54%	41%	78%	69%
Recent Empty Nest, 1981							
NPD Onset							
Beta 1	—	—	—	—	+.12	—	
Beta 2	—	—	—	—	+.10	—	
Yes (17)	.164	25%	25%	10%	12%	25%	21%
No (139)	.158	17%	19%	9%	5%	21%	10%
PD Chronicity							
Beta 1	—	—	—	—	—	—	
Beta 2	—	—	—	—	—	—	
Yes (16)	.925	51%	68%	64%	36%	84%	81%
No (124)	.628	58%	70%	51%	40%	76%	65%

*Not analyzed as a dependent variable.

Note.—Time 2 drinking variables were standardized residuals from regressing 1986 drinking variables on their 1981 equivalents. Each column shows multiple regression results for predictors of onset and chronicity of a specific Time 2 drinking variable. Predictors from the same equation appear in Tables 2 (sociodemographic), 3 (personality/life experience), and 4 (interim predictors). Beta 1 coefficients are from the first hierarchical step (including only Time 1 predictors) and Beta 2 coefficients are from the second hierarchical step (adding interim predictors). Underlined betas are significant at $p < .05$. With the exception of the far right-hand column (Problem Drinker Sample Criteria were not analyzed as a dependent variable), the absence of beta values indicates that the predictor was not significantly associated with that drinking variable in preliminary bivariate and multivariate winnowing analyses, and thus was not included in the final hierarchical equation. Weighted means and percentages are provided to illustrate the fit, or contrast, of simple bivariate comparisons with the more rigorous and conservative multiple regression analyses. Although means and rates are weighted, Ns are unweighted to show actual numbers of women in predictor categories. R^2 and R^2 change values for each equation and each hierarchical step are given at the bottom of each column, at the end of Table 4.

df = 1, $p = .003$) and 4.6 percent of 1981 NPDs age 50 or older ($\chi^2 = 7.54$, df = 1, $p = .006$).

● Remission of problem drinking was also most common among the youngest women; by 1986 only 27.4 percent of the 1981 PDs in the youngest age group still reported two or three problem drinking indicators, compared with 48.9 percent of 1981 PDs age 35 and older ($\chi^2 = 5.93$, df = 1, $p = .015$).

● Chronicity of problem drinking, on the other hand, was most likely among women age 35–49. Of the 1981 PDs in this age group, 57.2 percent continued to experience at least two problem drinking indicators in 1986, compared with 27.4 percent of women age 21–34 ($\chi^2 = 8.40$, df = 1, $p = .004$) and 35.6 percent of women age 50 or older ($\chi^2 = 1.84$, df = 1,

$p = .18$; for 35 to 49-year-olds vs. all others, $\chi^2 = 7.97$, df = 1, $p = .005$).

Bivariate Relationships between Time 1 Predictors and Time 2 Drinking, and between Time 1 Drinking and Time 2 Conditions

Bivariate analyses consisted of a series of regression equations that used each Time 1 and interim predictor to predict the standardized residuals of each Time 2 drinking variable, and reciprocal analyses that used each Time 1 drinking variable to predict the standardized residuals of Time 2 or interim conditions corresponding to Time 1 predictors. These bivariate analyses showed many significant time-ordered relationships. Of 23 Time 1 variables, ten were significant predictors of Time 2 drinking variables

among NPDs, and ten were significant predictors among PDs. Of ten interim variables, five were significant predictors of Time 2 drinking variables among NPDs, and six were significant predictors among PDs. In the other direction, of 19 Time 2 or interim conditions corresponding to Time 1 predictors, eight were significantly predicted by Time 1 drinking variables among NPDs, and 12 were significantly predicted by Time 1 drinking variables among PDs. Detailed results from the bivariate analyses are not presented here because of space limitations but are available upon request from the authors. Tables 2–4 include all Time 1 and interim variables that significantly predicted any of the six Time 2 drinking variables among either PDs or NPDs in the bivariate analyses. Of the 33 potential

TABLE 3—1981 Personality and Life Experience Predictors of Five-Year Onset and Chronicity of Problem Drinking Indicators: Hierarchical Multiple Regression Coefficients with Unadjusted (Zero-Order) Weighted Means and Rates

Time 1 (1981) Personality/Life Experience Predictors	Time 2 (1986) Problem Drinking Indicators						Problem Drinker Sample Criteria (% 1 ⁺)
	Average Consumption (ounces ethanol/day)	Heavy Episodic Drinking (% any)	Intoxication (% any)	Problem Consequences (% any)	Dependence Symptoms (% any)	Problem Drinking Index (% 1 ⁺)	
Depressive Episodes up to 1981							
NPD Onset							
Beta 1	—	—	—	—	—	—	
Beta 2	—	—	—	—	—	—	
Any (46)	.147	17%	20%	7%	3%	20%	11%
None (111)	.163	18%	19%	10%	6%	22%	12%
PD Chronicity							
Beta 1	—	—	+ .11	+ .17	+ .04	+ .10	
Beta 2	—	—	+ .05	+ .13	— .01	+ .06	
Any (77)	.603	55%	74%	55%	45%	80%	65%
None (66)	.724	61%	66%	51%	34%	74%	70%
Anxiety, 1981							
NPD Onset							
Beta 1	—	—	—	—	—	—	
Beta 2	—	—	—	—	—	—	
Yes (39)	.113	18%	27%	9%	5%	26%	9%
No (118)	.179	17%	16%	10%	5%	19%	12%
PD Chronicity							
Beta 1	— .20	—	—	— .16	—	—	
Beta 2	— .23	—	—	— .17	—	—	
Yes (55)	.565	57%	77%	48%	48%	84%	63%
No (88)	.718	58%	66%	56%	35%	73%	70%
Low Self-Esteem, 1981							
NPD Onset							
Beta 1	—	+ .18	+ .10	—	—	+ .02	
Beta 2	—	+ .16	+ .10	—	—	+ .01	
Yes (47)	.140	28%	26%	10%	3%	25%	11%
No (107)	.162	14%	18%	10%	6%	20%	11%
PD Chronicity							
Beta 1	—	—	—	—	—	—	
Beta 2	—	—	—	—	—	—	
Yes (54)	.622	58%	68%	50%	29%	72%	63%
No (88)	.667	57%	71%	55%	46%	80%	70%
Nontraditional Gender Traits, 1981							
NPD Onset							
Beta 1	—	+ .08	—	—	—	—	
Beta 2	—	+ .06	—	—	—	—	
Yes (48)	.182	22%	21%	11%	4%	24%	14%
No (106)	.155	17%	20%	9%	6%	21%	10%
PD Chronicity							
Beta 1	+ .26	+ .12	+ .14	+ .14	—	+ .13	
Beta 2	+ .25	+ .09	+ .15	+ .13	—	+ .14	
Yes (47)	1.021	58%	75%	60%	44%	82%	77%
No (91)	.464	58%	67%	49%	36%	75%	62%
No. of Drugs Used up to 1981							
NPD Onset							
Beta 1	—	+ .13	+ .12	+ .10	+ .18	+ .16	
Beta 2	—	+ .10	+ .14	+ .08	+ .14	+ .15	
2 ⁺ (26)	.196	23%	30%	10%	7%	30%	17%
0-1 (129)	.153	16%	18%	10%	5%	20%	10%
PD Chronicity ^a							
Beta 1	—	—	—	—	—	—	
Beta 2	—	—	—	—	—	—	
2 ⁺ (45)	.875	59%	67%	57%	49%	74%	73%
0-1 (98)	.559	57%	71%	51%	36%	79%	64%
No. of Drugs Used in 1981							
NPD Onset ^a							
Beta 1	—	—	—	—	—	—	
Beta 2	—	—	—	—	—	—	
2 ⁺ (4) ^b	—	—	—	—	—	—	
0-1 (144)	.165	17%	20%	10%	5%	22%	11%

(continued)

TABLE 3—Continued

Time 1 (1981) Personality/Life Experience Predictors	Time 2 (1986) Problem Drinking Indicators						
	Average Consumption (ounces ethanol/day)	Heavy Episodic Drinking (% any)	Intoxication (% any)	Problem Consequences (% any)	Dependence Symptoms (% any)	Problem Drinking Index (% 1 ⁺)	Problem Drinker Sample Criteria (%1 ⁺)
PD Chronicity							
Beta 1	+.16	—	—	—	+.14	+.11	
Beta 2	+.07	—	—	—	+.14	+.10	
2 ⁺ (15)	1.543	72%	81%	62%	81%	81%	91%
0-1 (125)	.540	55%	68%	53%	35%	76%	65%
Premature Baby, up to 1981							
NPD Onset							
Beta 1	—	—	—	—	—	—	
Beta 2	—	—	—	—	—	—	
Yes (10)	.117	0%	5%	0%	0%	5%	0%
No (145)	.162	19%	20%	10%	5%	22%	12%
PD Chronicity							
Beta 1	—	—	—	+.09	+.06	+.11	
Beta 2	—	—	—	+.08	+.03	+.10	
Yes (13)	.584	74%	82%	52%	54%	87%	73%
No (129)	.670	56%	69%	53%	38%	76%	67%
Miscarriage/Stillbirth, 1976-81							
NPD Onset							
Beta 1	—	+.05	—	—	—	—	
Beta 2	—	+.04	—	—	—	—	
Yes (6)	.082	62%	45%	0%	15%	45%	15%
No (149)	.161	16%	19%	10%	5%	20%	11%
PD Chronicity							
Beta 1	—	—	—	+.01	—	—	
Beta 2	—	—	—	+.03	—	—	
Yes (5)	.265	59%	80%	39%	39%	80%	39%
No (137)	.675	58%	70%	53%	40%	77%	68%
Infertility, up to 1981							
NPD Onset							
Beta 1	—	—	+.10	—	—	—	
Beta 2	—	—	+.11	—	—	—	
Yes (31)	.158	11%	18%	11%	8%	22%	14%
No (125)	.159	19%	20%	9%	4%	20%	10%
PD Chronicity							
Beta 1	—	—	—	—	—	—	
Beta 2	—	—	—	—	—	—	
Yes (18)	.916	78%	73%	49%	46%	73%	76%
No (125)	.625	55%	70%	54%	39%	78%	66%
Liberal Sexual Morality, 1981							
NPD Onset							
Beta 1	—	—	+.02	+.07	—	+.09	
Beta 2	—	—	+.02	+.14	—	+.11	
Yes (71)	.183	24%	35%	19%	10%	40%	22%
No (81)	.139	14%	10%	4%	2%	10%	5%
PD Chronicity							
Beta 1	—	—	—	+.10	—	—	
Beta 2	—	—	—	+.10	—	—	
Yes (95)	.755	63%	72%	58%	40%	79%	71%
No (47)	.475	43%	65%	45%	41%	74%	61%
Nontraditional Sexual Behavior, up to 1981							
NPD Onset							
Beta 1	+.11	+.13	+.10	—	—	+.08	
Beta 2	+.14	+.15	+.14	—	—	+.13	
Yes (95)	.176	24%	30%	13%	8%	32%	16%
No (46)	.146	8%	3%	6%	1%	6%	6%
PD Chronicity							
Beta 1	-.12	—	—	—	—	—	
Beta 2	-.13	—	—	—	—	—	
Yes (110)	.578	57%	74%	55%	37%	81%	67%
No (26)	.935	61%	59%	44%	47%	67%	67%

(continued)

TABLE 3—Continued

Time 1 (1981) Personality/Life Experience Predictors	Time 2 (1986) Problem Drinking Indicators						Problem Drinker Sample Criteria (%1 ⁺)
	Average Consumption (ounces ethanol/day)	Heavy Episodic Drinking (% any)	Intoxication (% any)	Problem Consequences (% any)	Dependence Symptoms (% any)	Problem Drinking Index (% 1 ⁺)	
Sexual Dysfunction, up to 1981							
NPD Onset							
Beta 1	—	—	—	—	—	—	—
Beta 2	—	—	—	—	—	—	—
Any (45)	.184	21%	22%	6%	5%	22%	10%
None (101)	.140	16%	19%	12%	5%	21%	12%
PD Chronicity							
Beta 1	—	—	+ .19	+ .19	+ .18	+ .29	—
Beta 2	—	—	+ .17	+ .15	+ .14	+ .27	—
Any (60)	.517	69%	81%	61%	52%	86%	75%
None (80)	.765	48%	59%	45%	29%	69%	59%
Heavy-Drinking Companions, 1981							
NPD Onset							
Beta 1	—	—	—	+ .06	+ .11	+ .04	—
Beta 2	—	—	—	+ .07	+ .11	+ .01	—
2 ⁺ (26)	.171	19%	25%	13%	0%	22%	13%
0-1 (130)	.157	17%	19%	9%	6%	21%	11%
PD Chronicity							
Beta 1	—	—	—	-.26	—	—	—
Beta 2	—	—	—	-.20	—	—	—
2 ⁺ (54)	.877	62%	73%	48%	37%	82%	65%
0-1 (88)	.550	56%	69%	56%	41%	76%	69%
Frequent-Drinking Partner, 1981							
NPD Onset							
Beta 1	—	—	—	—	-.17	—	—
Beta 2	—	—	—	—	-.15	—	—
Yes (22)	.171	19%	21%	9%	0%	21%	9%
No (135)	.157	17%	19%	10%	6%	21%	12%
PD Chronicity							
Beta 1	+ .11	—	—	-.04	—	—	—
Beta 2	+ .14	—	—	-.07	—	—	—
Yes (43)	.921	64%	69%	43%	39%	77%	62%
No (99)	.567	56%	71%	57%	40%	78%	70%

Note.—See Note, Table 2.

^aIn preliminary winnowing analyses, lifetime drug use was a stronger predictor of onset while current (1981) drug use was a stronger predictor of chronicity. Accordingly, only the lifetime use variable was included in the final regression equations for NPDs, and only the current use variable was used for PDs.

^bMeans and percentage rates are not provided for predictor categories with unweighted Ns less than 5.

predictors, only one—nontraditional feminine values—failed to predict any Time 2 drinking variables within either of the two subsamples.

Two variables often thought to be antecedents of problem drinking^{16,17}—divorce or separation, and the “empty nest”—appeared to occur primarily after heavy or problem drinking in the present longitudinal bivariate analyses. The experience of a recent “empty nest” (last child leaving home in the past three years) did not predict Time 2 drinking behavior in either subsample, but among PDs, higher average consumption at Time 1 increased the likelihood that a respondent’s last child would leave home during the three years prior to Time 2. Divorce and separation also occurred after rather than before heavy or problem drinking. Among

NPDs, higher average consumption, heavy episodic drinking, and intoxication at Time 1 increased the likelihood of divorce or separation during the follow-up interval; similarly, among PDs, higher average consumption, intoxication, and PDI scores at Time 1 increased the chances of divorce or separation by Time 2. Contrary to expectations, being divorced or separated at Time 1 predicted lower levels of intoxication and lower PDI scores at Time 2 among PDs. We discuss additional bivariate relationships later in this paper, as an aid to interpreting multivariate findings.

Multivariate Prediction of Time 2 Drinking

Because some predictor variables were intercorrelated, it was important to examine the independent effects of each

predictor, controlling for effects of all the others. Tables 2, 3, and 4 present the results of 12 unique hierarchical multiple regression equations predicting onset of problem drinking indicators among 1981 NPDs and chronicity of problem drinking indicators among 1981 PDs, using all predictors of a given Time 2 drinking variable surviving the winnowing process described above. Table 2 presents findings for Time 1 sociodemographic predictors; Table 3, findings for Time 1 personality and life-experience predictors; and Table 4, findings for all interim predictors. Although separated into three tables for convenience, the regression coefficients reflect the strength of each predictor when adjusted for all other predictors included in a given equation. Tables 2-4 also provide unweighted Ns, weighted means of

TABLE 4—Interim (1981–86) Sociodemographic, Personality, and Life Experience Predictors of Onset and Chronicity of Problem Drinking Indicators: Hierarchical Multiple Regression Coefficients with Unadjusted (Zero-Order) Weighted Means and Rates

1981–86 Interim Predictors	Time 2 (1986) Problem Drinking Indicators						Problem Drinker Sample Criteria (%1 ⁺)
	Average Consumption (ounces ethanol/day)	Heavy Episodic Drinking (% any)	Intoxication (% any)	Problem Consequences (% any)	Dependence Symptoms (% any)	Problem Drinking Index (% 1 ⁺)	
Became Unemployed, 1981–86							
NPD Onset							
Beta 2	—	+ .08	+ .12	—	—	—	
Yes (13)	.178	43%	68%	10%	0%	66%	10%
No (144)	.157	16%	16%	9%	5%	18%	11%
PD Chronicity							
Beta 2	+ .26	—	—	—	—	—	
Yes (24)	.832	50%	82%	58%	33%	88%	67%
No (119)	.624	59%	68%	52%	41%	75%	67%
Became Employed Part time, 1981–86							
NPD Onset							
Beta 2	—	—	—	+ .18	+ .05	+ .13	
Yes (34)	.225	22%	33%	27%	14%	33%	27%
No (123)	.143	17%	16%	5%	3%	18%	8%
PD Chronicity							
Beta 2	—	—	—	—	—	—	
Yes (30)	.572	63%	82%	48%	46%	84%	68%
No (113)	.683	56%	67%	55%	38%	75%	67%
Became Divorced/Separated, 1981–86							
NPD Onset							
Beta 2	—	—	+ .02	—	+ .01	+ .01	
Yes (11)	.154	25%	44%	17%	17%	44%	25%
No (146)	.159	17%	17%	9%	4%	19%	10%
PD Chronicity							
Beta 2	—	—	— .15	—	— .24	— .15	
Yes (29)	1.028	48%	68%	53%	30%	72%	55%
No (114)	.582	60%	71%	53%	42%	78%	70%
Began Cohabiting, 1981–86							
NPD Onset							
Beta 2	+ .18	—	+ .16	—	—	+ .18	
Yes (9)	.252	21%	46%	21%	6%	52%	21%
No (148)	.152	17%	18%	9%	5%	19%	11%
PD Chronicity							
Beta 2	+ .13	—	+ .10	—	—	—	
Yes (15)	1.104	58%	82%	65%	32%	82%	65%
No (128)	.613	58%	69%	52%	41%	77%	67%
Depressive Episodes, 1981–86							
NPD Onset							
Beta 2	—	—	—	+ .23	+ .16	+ .12	
1 ⁺ (40)	.155	24%	27%	21%	13%	28%	25%
None (115)	.156	15%	17%	5%	2%	19%	6%
PD Chronicity							
Beta 2	—	+ .10	+ .19	+ .08	+ .24	+ .10	
1 ⁺ (50)	.570	63%	81%	52%	54%	83%	64%
None (92)	.700	55%	64%	53%	32%	74%	68%
No. of Drugs Used, 1981–86							
NPD Onset							
Beta 2	—	+ .08	—	—	+ .07	—	
1 ⁺ (65)	.164	25%	20%	8%	8%	21%	11%
None (90)	.160	14%	20%	10%	3%	22%	12%
PD Chronicity							
Beta 2	—	—	—	+ .12	—	+ .05	
1 ⁺ (77)	.632	57%	75%	60%	45%	85%	72%
None (65)	.698	60%	64%	46%	34%	69%	63%
Premature Baby, 1981–86							
NPD Onset							
Beta 2	—	— .17	— .13	—	—	—	
Yes (2) ^a							
No (155)	.158	18%	20%	9%	5%	21%	11%

(continued)

TABLE 4—Continued

1981–86 Interim Predictors	Time 2 (1986) Problem Drinking Indicators						Problem Drinker Sample Criteria (%1 ⁺)
	Average Consumption (ounces ethanol/day)	Heavy Episodic Drinking (% any)	Intoxication (% any)	Problem Consequences (% any)	Dependence Symptoms (% any)	Problem Drinking Index (% 1 ⁺)	
PD Chronicity							
Beta 2	—	—	—	-.04	-.18	—	
Yes (4) ^a							
No (139)	.670	58%	70%	55%	41%	77%	69%
Miscarriage/Stillbirth, 1981–86							
NPD Onset							
Beta 2	—	—	—	—	—	—	
Yes (1) ^a							
No (156)	.159	18%	20%	10%	5%	21%	11%
PD Chronicity							
Beta 2	—	—	—	-.12	—	—	
Yes (6)	.204	70%	70%	14%	28%	70%	28%
No (137)	.679	57%	70%	55%	40%	78%	69%
Infertility, 1981–86							
NPD Onset							
Beta 2	—	—	—	—	—	—	
Yes (6)	.205	22%	29%	35%	0%	47%	35%
No (151)	.156	17%	19%	9%	5%	20%	10%
PD Chronicity							
Beta 2	+.29	—	—	—	+.13	+.08	
Yes (15)	-.140	58%	84%	64%	69%	89%	69%
No (128)	.609	58%	69%	52%	37%	76%	67%
Sexual Dysfunction, 1981–86							
NPD Onset							
Beta 2	—	—	—	—	—	—	
Any (41)	.146	10%	21%	15%	7%	23%	16%
None (97)	.157	21%	20%	8%	4%	22%	10%
PD Chronicity							
Beta 2	—	-.16	—	+.10	—	—	
Any (43)	.650	45%	75%	57%	37%	81%	71%
None (93)	.623	67%	70%	52%	42%	76%	65%
1st-Step R ² , R ² Change, and Total R ² Values for Each Equation Predicting Onset among Nonproblem Drinkers							
1st-Step R ²	.02	.24***	.20***	.07	.09*	.13**	
R ² Change	.03*	.04	.06	.09***	.04	.06	
Total R ²	.05	.28***	.25***	.16***	.13*	.19**	
1st-Step R ² , R ² Change, and Total R ² Values for Each Equation Predicting Chronicity among Problem Drinkers							
1st-Step R ²	.18***	.09*	.18**	.18*	.06	.20***	
R ² Change	.14***	.03	.04	.05	.12***	.03	
Total R ²	.32***	.12*	.22**	.23*	.18***	.24***	

Note.—See Note, Table 2.

^aMeans and percentage rates are not provided for predictor categories with unweighted Ns less than 5. (For R² values) *p < .05; **p < .01; ***p < .001.

average daily consumption, and weighted percentage rates on each of the Time 2 drinking measures for each predictor's primary category of effect. These unadjusted means and percentages from simple bivariate time-lagged comparisons are presented for descriptive purposes. However, for brevity, we limit our discussion to the more rigorous and conservative multiple regression analyses.

The numerous relationships summarized in Tables 2–4 mean that some relationships will be statistically significant simply by chance. For this reason, our discussion focuses primarily on those variables that predicted more than one Time

2 drinking variable, and on variables that showed consistent relationships to drinking within both NPD and PD samples or for both Time 1 and interim measures.

Time 1 vs. Interim Variables: Tables 2–4 show that both longer term (Time 1) and more recent (interim) influences are important for the longitudinal prediction of women's drinking. However, the time-order of interim variables and drinking changes cannot be specified precisely with the data analyzed here. Interim variables are most likely to be antecedents rather than consequences of drinking if they 1) are also significant as Time 1 predictors, and/or 2) are not consequences of increased drinking or

drinking problems in the two-way bivariate analyses reported earlier.

Predictors of Onset: As shown in Table 1, of 153 drinking women with no indicators of problem drinking in 1981, by 1986 17 (11 percent) had developed at least one indicator, and seven (4 percent) reported two or three indicators. Tables 2–4 show that the most consistent predictors of onset of heavier drinking or adverse drinking consequences were younger age, cohabiting at Time 1 or during the follow-up interval, lifetime use of drugs other than alcohol, and depressive episodes during the follow-up interval. Cohabiting was significant as both a Time 1 and an interim

predictor and predicted the largest number of Time 2 drinking variables (average consumption, heavy episodic drinking, intoxication, and PDI). Younger age predicted increased intoxication, and in equations without interim variables also predicted increased heavy episodic drinking and PDI scores, while the number of drugs used up to 1981 predicted increased intoxication and PDI scores and, in an equation without interim variables, increased alcohol dependence symptoms. Two Time 1 predictors—nontraditional sexual behavior and low self-esteem—each increased the likelihood of heavy episodic drinking at Time 2.

Predictors of Chronicity: Of the 140 1981 PDs for whom complete data are available, 51 (36.5 percent) continued to report two or three problem drinking indicators in 1986, while 43 (31 percent) reported only one indicator and 46 (33 percent) no longer reported any indicators. As shown in Table 3, the most consistent predictor of persistent problem drinking was Time 1 sexual dysfunction, which predicted Time 2 intoxication, drinking problems, alcohol dependence symptoms, and PDI scores. Depressive episodes during the follow-up interval predicted continued intoxication and dependence symptoms, and in an equation without interim variables, Time 1 depression predicted continued drinking problems.

Five other variables predicted that PDs would drink more heavily at Time 2: interim unemployment and infertility, and Time 1 part-time employment, nontraditional gender traits, and frequent-drinking partner. PDs who had never married by Time 1 were more likely to report Time 2 drinking problems and (in equations excluding interim variables) to report more Time 2 intoxication and higher PDI scores. Use of drugs other than alcohol at Time 1 increased the likelihood of continued alcohol dependence symptoms and (in the equation excluding interim variables) the heavier drinking.

Predictors of Remission: Although the analyses reported here were not designed to study remission of problem drinking, some variables that were expected to predict increased drinking had opposite effects in the longitudinal analyses (indicated by negative beta coefficients in Tables 2–4). For the most part, these were isolated effects, involving only single dependent variables. Consistent with the bivariate effects of Time 1 divorce, which reduced Time 2 intoxication and PDI scores among problem drinkers, becoming

divorced or separated during the follow-up interval decreased the level of Time 2 alcohol dependence symptoms reported by problem drinkers.

Discussion

Patterns of Change

As in earlier reports based on retrospective¹¹ and longitudinal^{14,18} data, women's drinking behavior in this study showed considerable change over a five-year period. Eleven percent of women with no signs of problem drinking in 1981 reported at least one problem drinking indicator in 1986, and 33 percent of the 1981 problem drinkers were completely free of problems five years later. This fluctuation may in part reflect the relatively mild definition of problem drinking used in this study, in contrast to more stable and interrelated alcohol problems associated with severe problem drinking or clinical alcohol dependence. However, our findings may also indicate that frequently drinking problems among women in the general, nonclinical population are sporadic or intermittent, possibly related to shifts in roles, contexts, and other circumstances in women's lives.

Age as a Mediator of Drinking Change

Women's problem drinking appears to change more in youth than later in life. Younger age significantly predicted the onset of intoxication among NPDs and significantly predicted reductions in average consumption among PDs. Women age 21–34 were more likely than older women to show both onset and remission of problem drinking indicators, while chronicity of problem drinking was greatest among women age 35–49.

These patterns are consistent with previous findings of higher rates of heavy episodic drinking, intoxication, and drinking problems among younger than among older women;⁴ with data showing greater remission of drinking problems among younger than among older men;¹⁹ and with findings of greater chronicity among middle-aged than among younger or older problem drinking women.²⁰ Younger women's greater movement both into and out of risky drinking behavior may relate to fluctuations in drinking contexts and drinking partners within this age group, as well as to transitions in employment, marital, and childbearing roles.^{10,21}

Nontraditional Life-style and Onset

Nonproblem drinking women who reported nontraditional sexual behavior (premarital sexual relations and/or masturbation before age 21) at Time 1 and those who cohabited at Time 1 were more likely than other NPDs to report heavy episodic drinking at Time 2, and those beginning cohabitation during the follow-up interval were more likely to report other problem drinking indicators. Nontraditional sexual behavior and cohabitation may be indicators of a life-style associated with greater freedom from the traditional moral constraints that have restricted both sexual and drinking behavior, especially in women.^{9,22} This greater freedom from conservative moral constraints may carry with it increased drinking opportunities and more permissive drinking norms that can heighten the risks of excessive drinking behavior. In addition, premarital and cohabiting relationships, lacking institutional protection or support, may involve stressful uncertainties that can lead to stress-medicating alcohol consumption.

Sexual Dysfunction and Chronicity

The best single predictor of chronicity was sexual dysfunction, which predicted continued intoxication, drinking problems, alcohol dependence symptoms, and PDI scores. This finding may reflect a tendency of problem drinking women to self-medicate sexual difficulties with alcohol, given prevailing cultural beliefs that drinking reduces sexual inhibitions and facilitates sexual pleasure.^{9,23,24} Since heavy alcohol consumption has detrimental effects on physiological sexual functioning,²⁵ a self-reinforcing cycle may occur in which heavy drinking becomes both cause and consequence of sexual dysfunction. Our findings suggest a need to address issues of sexuality and sexual dysfunction in the treatment and recovery of alcoholic women, and a need to assess drinking behavior among women presenting with sexual dysfunction—needs also noted by recent clinical writers.^{26–28} Because recent research on sexuality and drinking has focused mainly on women, it will be important to determine in future research the extent to which sexual experience and sexual dysfunction also influence drinking and problem drinking in men.

Role Deprivation and Women's Drinking

Other predictors of chronicity included never having been married, being employed part time at Time 1, and becoming

ing unemployed during the follow-up interval. Part-time employment during the follow-up interval also predicted onset of drinking problems among 1981 NPDs, as did cohabiting. We have suggested elsewhere that a lack or loss of stable, full-time employment or marital roles (e.g., being unmarried, unemployed, or employed part time) may constitute "role deprivation."¹⁰ Role deprivation may increase the risk of alcohol abuse by reducing women's self-esteem and feelings of social worth, and by reducing contact with role partners who could provide social support and feedback about excessive drinking behavior. Role deprivation as a risk factor for the onset and chronicity of problem drinking in women contrasts with earlier hypotheses regarding role conflict or role overload as causes of women's problem drinking^{29†} but is consistent with other evidence linking multiple roles to better health outcomes.^{30,31}

Other Drug Use and Women's Drinking

In preliminary bivariate analyses, different Time 1 drug use variables predicted Time 2 drinking for NPDs as compared with PDs: the number of different types of drugs used up to 1981 predicted Time 2 alcohol dependence symptoms and PDI scores among NPDs, while the number of different types of drugs currently used in 1981 predicted Time 2 consumption, dependence symptoms, and PDI scores among PDs. Similarly, in the multivariate analyses reported in Table 3, drug use up to 1981 increased the likelihood of subsequent intoxication and higher PDI scores (as well as dependence symptoms in the equation omitting interim variables) among NPDs, while current drug use in 1981 predicted continued dependence symptoms (and, in the equation without interim variables, higher average consumption) at Time 2 among PDs.

These patterns suggest that the relationships between women's drinking and their use of other drugs may differ at different stages of problem drinking. The onset of problem drinking may be facilitated by a woman's long-term tendency to use various psychoactive drugs—perhaps in an alternating pattern over time—to feel better, to have a good time, or to cope with

problems.⁸ Once drinking problems have developed, the concurrent use of alcohol and other drugs may have synergistic effects—both physiological and behavioral—that increase the risks of continued or worsened alcohol abuse.

Unexpected Findings

From previous cross-sectional findings^{10,29} and clinical-retrospective reports,^{16,17} we expected that divorce or separation and children's departure from home would predict the onset and/or chronicity of women's problem drinking. However, in the longitudinal bivariate analyses both of these experiences were more likely to follow than to precede problem drinking, and in multivariate analyses, becoming divorced or separated during the follow-up interval reduced the risk of Time 2 alcohol dependence symptoms among PDs. Causes and effects may be more complex than the simple time sequences here can reveal. For example, it is possible that a troubled marriage (perhaps involving sexual dysfunction or a problem-drinking spouse) may lead a woman into problem drinking, which then remits when the marital distress is relieved by divorce or separation. A more refined and focused analysis is needed to distinguish the effects of two different types of role relationships: positive, gratifying role relationships, whose loss may lead to increased drinking, and negative, frustrating role relationships, whose termination may result in reduced distress and decreased drinking.

Different Predictors of Different Drinking Behaviors

In the results presented here, different Time 1 and interim variables predicted different Time 2 drinking variables. Furthermore, these links between predictor and drinking variables were sometimes different for PDs and NPDs. We are clearly not dealing with a unitary entity—"problem drinking"—but rather with multiple aspects of risky drinking behavior and drinking consequences, which may be influenced differently by different characteristics of the drinker and her social environment.

Despite this complexity, a few generalizations are possible. Predictors of drinking patterns (average consumption, heavy episodic drinking, and intoxication) are more often situational variables (e.g., cohabiting, unemployment, frequent-drinking partner) or life-style variables (e.g., nontraditional sexual behavior, nontraditional gender traits), whereas predic-

tors of adverse drinking consequences (drinking problems, alcohol dependence symptoms) include more individual psychological variables (in particular, depression and sexual dysfunction). Psychological variables are also somewhat more prominent predictors of chronicity than of onset. These patterns suggest that the factors that lead a woman into high-risk drinking are not the same as the factors that sustain or exacerbate problem drinking. Participation in a nontraditional life-style, involving greater freedom from conventional moral constraints on women's drinking and sexual behavior, may entail both drinking opportunities and stressful uncertainties that can increase a woman's risk of hazardous drinking behavior. Whether problematic drinking behavior continues may depend on other factors, including the extent to which a woman uses alcohol to deal with personal or interpersonal difficulties such as sexual dysfunction, depression, or role deprivation. Delineating more fully the predictors of change at these different stages of problem drinking, for specific subgroups of women (e.g., by age), would allow primary and secondary prevention efforts to be targeted more precisely to the characteristics of the drinker, her social environment, and the extent to which she has progressed into problem drinking behavior. □

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APPENDIX— Personality, Sexuality, and Drinking Variables*

Personality

Depressive Episodes, up to 1981: Number of depressive episodes (two or more weeks of depressed mood and three or more depressive symptoms, occurring within the same month; from Diagnostic Interview Schedule³²) up to 1981 (0, 1, 2[†]).

Depressive Episodes, 1981–86: Presence of any depressive episodes (DIS criteria) in the five years before 1986 survey (yes/no).

Anxiety, 1981: Whether respondent considers self a nervous or anxious person at time of 1981 survey (yes/no).

Anxiety, 1986: Whether respondent considers self a nervous or anxious person at time of 1986 survey (yes/no).

Low Self-Esteem, 1981: With reference to 1981 self-description on seven gender-typed traits (Personal Attributes Questionnaire³³), in how many ways respondent would like to be different (two levels: some or many ways vs. a few or none).

Low Self-Esteem, 1986: As measured in 1981 (four levels).

Nontraditional Gender Traits, 1981: Nine-level index based on two traditionally feminine traits—devotion to others, understanding of others (Personal Attributes Questionnaire³³)—dichotomized at most nontraditional quartile.

Nontraditional Gender Values, 1981: Eleven-level index based on two traditionally feminine values—marriage and parenthood³⁴—dichotomized at most nontraditional quartile.

Nontraditional Gender Values, 1986: As measured in 1981.

Sexuality

Liberal Sexual Morality, 1981: Moral approval of adult premarital sex with love, in 1981 (four levels).²²

Liberal Sexual Morality, 1986: As measured in 1981.

*Definitions of other variables are available upon request from the authors.

Nontraditional Sexual Behavior up to 1981: Index based on having had premarital sexual relations and/or a self-induced sexual climax before age 21, reported in 1981 (three levels). The index label “Nontraditional Sexual Behavior” refers to traditional sociocultural norms disapproving of both masturbation and premarital sex (particularly for women), and is not meant to imply that either behavior is presently nonconventional (i.e., exhibited only by a “deviant” minority of women). There is considerable evidence that traditional norms of this sort can continue to affect behavior and associated moral judgments even when behavioral violations and attitudinal exceptions achieve a modal, perhaps even a majority, level in a statistical sense.³⁵

Sexual Dysfunction up to 1981: Index based on having experienced, up to 1981, lifetime lack of sexual interest, vaginismus, lifetime lack of orgasm, or unreliable (<50 percent of occasions) orgasm (four levels).⁹ Questions based on Kaplan’s classification of female sexual dysfunctions;^{36,37} some questions adapted from Diagnostic Interview Schedule.³² Male respondents answered parallel questions about male sexual dysfunctions.

Sexual Dysfunction, 1981–86: Index based on having experienced, between 1981 and 1986, lifetime lack of sexual interest, vaginismus, lifetime lack of orgasm, or unreliable (<50 percent of occasions) orgasm (four levels).

Drinking and Drinking Consequences

Average Consumption: Mean ounces of ethanol per day in last 30 days, estimated by calculating separately and summing for wine, beer, and liquor:

- (usual number of drinking days per month) × (usual number of drinks per typical drinking day) ×
- (size of drink: wine = 4 oz.; wine coolers = 5 oz. [1986]; beer = 12 oz. or 16 oz.; liquor = self-reported ounces per drink) ×

- (ethanol content: regular wine = 12 percent [1981], 11 percent [1986]; fortified wine = 18 percent; wine coolers = 12 percent [1986]; regular beer = 4 percent; malt liquor = 5 percent [1986]; low-calorie beer = 3 percent [1986]; low-alcohol beer = 2 percent [1986]; liquor = 41 percent [1981], 40 percent [1986])/30 days.

Heavy Episodic Drinking: Frequency, in past 12 months, of having six or more drinks of wine, beer, or liquor in a single day (three levels: never in past 12 months; one–three days or four–seven days in past 12 months; eight to 11 days in past 12 months to five or more days per week).

Intoxication: Frequency, in past 12 months, of drinking enough to feel drunk—where drinking “noticeably affected your thinking, talking, and behavior” (three levels: never in past 12 months; one–three days in past 12 months; four days in past 12 months to five or more days per week).

Problem Consequences: Number of drinking-related problems experienced in past 12 months, from a list of nine problems (see text, “Drinking Variables”; three levels: 0, 1, 2 or more).

Alcohol Dependence Symptoms: Number of alcohol dependence symptoms experienced in past 12 months, from a list of five symptoms (see text; three levels: 0, 1, 2 or more).

Problem Drinking Index (PDI): Index summing the occurrence in the past 12 months of 1) any intoxication, 2) any problem consequence, and 3) any alcohol dependence symptom (range: 0–3). Not to be confused with subsampling criteria for 1981 problem drinkers (at least two of the following: one or more ounces ethanol per day; one or more problem consequences in past 12 months; one or more alcohol dependence symptoms in past 12 months).