
Relationships Between Physician Advice and Tobacco and Alcohol Use During Pregnancy

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Introduction: We sought to examine relationships between physician advice and use of tobacco and alcohol during pregnancy among 683 women in the upper Midwest.

Methods: Data on risk of substance use during pregnancy were analyzed using logistic regression analysis.

Results: A higher proportion of women used tobacco (34%) than alcohol (25%) during their most recent pregnancy. Women who received advice from a physician to abstain from alcohol reported a lower risk of smoking and drinking during pregnancy than women who did not receive such advice. Risk of smoking and drinking during pregnancy was also common among women who reported early onset of alcohol use.

Conclusions: Results suggest that physician advice regarding alcohol use during pregnancy is protective against maternal smoking and drinking during pregnancy.

Medical Subject Headings (MeSH): physician-patient relations, tobacco use, alcohol drinking, pregnancy. (Am J Prev Med 1999;16(3):244-247) © 1999 American Journal of Preventive Medicine

Introduction

Maternal drinking and smoking during pregnancy are associated with considerable infant morbidity and mortality.¹⁻³ Most studies of maternal drinking and smoking during pregnancy have focused on individual-level factors associated with alcohol and tobacco use during pregnancy, such as marital status, education, alcohol and tobacco use, onset of alcohol and tobacco use, and negative lifestyle behaviors.⁴⁻⁸ Other variables may also influence maternal drinking and smoking during pregnancy. One such variable is physician advice to abstain from alcohol and tobacco.

Previous studies have shown that physician advice has been effective in reducing alcohol and tobacco use.⁹⁻¹² Other studies have found that brief interventions with physicians or nurses have been effective in reducing alcohol consumption among hospitalized problem drinkers.¹³ Despite evidence that physician advice may be effective in modifying drinking and smoking behaviors, only a few studies have examined relationships between physician advice, maternal smoking and drinking during pregnancy.¹⁴⁻¹⁶

This study examines correlates of substance use during pregnancy among women in the upper Midwest. The specific purpose of this study is to determine whether physician advice is associated with a lower lifetime risk of alcohol and tobacco use during pregnancy.

Methods

Sampling and Data Collection

This research is based on data from the 1993 Alcohol, Tobacco, and Pregnancy: The Beliefs and Practices of Minnesota Women survey (ATPBPMW). The ATPBPMW survey included a representative sample of Minnesota women of child-bearing age. To ensure geographic representativeness, the sample was drawn proportionately by region using random-digit dial techniques. Two exclusion criteria were used in identifying subjects. One, subjects were excluded if they were younger than 18 years of age and over 45 years of age. Younger women (13- to 17-year-olds) were excluded because obtaining parental consent to interview minors would have been difficult over the phone. Women over 45 years of age were excluded because only women of child bearing age were of interest. Two, subjects were excluded if they did not speak English. Non-English speaking subjects were excluded because of limited resources to hire bilingual interviewers. Women aged 18 to 45 were surveyed in each household using the next (or most recent) birthday technique.¹⁷

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Interviews were conducted by trained interviewers via telephone. Quality control techniques were used to ensure that the interviews were done accurately and completely. Eighty percent of the women contacted completed interviews ($n = 1,017$). In the present study, data analyses were restricted to those women who reported ever being pregnant for 5 or more months ($n = 683$). The 5-month pregnancy criteria was used because most women know they are pregnant by the fifth month. Interviews were conducted via telephone using a standard questionnaire.

Measures

Dependent Variables. Two outcomes were assessed in these analyses: alcohol and tobacco use during pregnancy. Alcohol and tobacco use during pregnancy were assessed by separate questions that asked respondents to indicate whether they had ever had any alcoholic drinks or cigarettes during their most recent pregnancy (1 = yes, 0 = no).

Independent Variables. Independent variables included physician advice regarding alcohol and tobacco use. Physician advice was assessed by two separate questions that inquired about varying types of messages subjects received regarding alcohol or tobacco use during their most recent pregnancy. Physician advice regarding drinking was coded to compare women who were given advice to stop drinking with women who were given advice to reduce their drinking or told that drinking was okay. Women who indicated that they did not receive advice because they didn't drink were excluded from the analysis. Physician advice regarding tobacco use was coded in the same manner.

Control Variables. Variables such as age, marital status, educational attainment, employment status, insurance status, prenatal help-seeking behavior, age of first drink, and treatment history served as control variables.

Analyses

For bivariate analyses, chi-square analyses were performed to determine if each of the study variables were independently related to each of the outcome variables. Logistic regression analysis was then used to determine whether the relationships observed in bivariate analyses would remain in adjusted analyses. Separate models were computed for maternal smoking and drinking during pregnancy. Variables were entered for each model using stepwise regression methods. A correlational analysis was conducted to assess collinearity between study variables. None of the study variables was highly intercorrelated.

Results

Prevalence of Alcohol and Tobacco Use During Pregnancy

A higher proportion of women used tobacco (34%) than alcohol (25%) during their most recent pregnancy.

Tobacco Use During Pregnancy

Tobacco use during pregnancy was more common among women who were less educated and single, and among women who reported early onset of drinking and being previously treated for substance abuse (Table 1). Smoking during pregnancy was less common among women who received advice from a physician to abstain from alcohol during pregnancy. The odds of smoking during pregnancy among women who received physician advice to abstain from alcohol were about one half that of women who did not receive such advice (1.00 versus 1.86).

Alcohol Use During Pregnancy

Drinking during pregnancy was also less common among women who received advice to abstain from alcohol during pregnancy (Table 1). Age of first drink was associated with an increased odds of alcohol use during pregnancy, with women who had their first drink at age 15 years or younger reporting the greatest use of alcohol during their pregnancy (OR = 2.17).

Discussion

To summarize, women who received advice from a physician to abstain from alcohol during their pregnancy reported a lower lifetime prevalence of smoking and drinking during pregnancy than women who did not receive such advice. This was not the case for women who received advice regarding smoking during their pregnancy. Results are consistent with previous studies that show relationships between physician advice and reductions in alcohol use and alcohol morbidity.¹²

Physician advice to abstain from alcohol during pregnancy was related to non-use of tobacco during pregnancy. One explanation for this finding is that physicians may be more likely to give advice regarding alcohol than tobacco use to pregnant women. In this study, however, women were less likely to receive advice from their physicians regarding alcohol (57%) than tobacco use (61%) during pregnancy. An alternative explanation for this findings is that health messages regarding drinking during pregnancy are very salient among pregnant women and affect smoking behavior during pregnancy as well. Indeed, 82% of ATPBPMW women indicated that it was "extremely likely" that daily drinking by a pregnant woman would cause harm to an

Table 1. Unadjusted and adjusted odds ratios of using alcohol and tobacco during pregnancy

Independent variable	Drank			Smoked		
	Unadjusted odds ratio	Adjusted odds ratio	CI	Unadjusted odds ratio	Adjusted odds ratio	CI
Age						
18–24	1.00	1.00		1.00	1.00	
25–29	0.84	0.77	(0.288, 2.04)	0.43	0.40	(0.133, 1.18)
30–34	1.14	1.28	(0.535, 3.05)	0.39	0.61	(0.224, 1.64)
35–39	1.45	2.05	(0.670, 3.82)	0.32	0.56	(0.207, 1.54)
40–45	1.16	1.81	(0.556, 3.23)	0.39	0.83	(0.307, 2.26)
Married						
Yes	1.00	1.00		1.00	1.00	
No	1.26	1.51	(0.941, 2.42)	2.86	2.01	(1.17, 3.45)
Education						
College/Adv	1.00	1.00		1.00	1.00	
Vocational	0.95	0.99	(0.638, 1.53)	3.28	2.55	(1.23, 4.65)
High School	0.75	0.77	(0.448, 1.31)	6.00	5.25	(2.35, 9.73)
<High School	0.96	0.98	(0.338, 2.82)	30.00	20.74	(4.85, 88.62)
Employment						
Yes	1.00	1.00		1.00	1.00	
No	1.12	1.13	(0.720, 1.77)	1.51	1.43	(0.810, 2.51)
Insured						
Yes	1.00	1.00		1.00	1.00	
No	0.55	0.47	(0.200, 1.11)	2.35	1.22	(0.557, 2.67)
How long after pregnancy sought MD advice						
0–3 months	1.00	1.00		1.00	1.00	
4–6 months	1.43	1.54	(0.677, 3.51)	2.54	1.44	(0.548, 3.78)
MD advised no drinking						
Yes	1.00	1.00		1.00	1.00	
No	1.84	1.68	(1.07, 2.63)	1.54	1.86	(1.07, 3.22)
MD advised no smoking						
Yes	1.00	1.00		1.00	1.00	
No	1.47	1.15	(0.760, 1.74)	0.752	0.64	(0.382, 1.05)
Age at first drink alcohol						
≤15 yrs	1.94	2.17	(1.31, 3.62)	2.17	2.01	(1.06, 3.78)
16–17 yrs	1.30	1.39	(0.893, 2.16)	1.97	2.08	(1.18, 3.64)
≥18 yrs	1.00	1.00		1.00	1.00	
Ever treated for substance abuse						
No	1.00	1.00		1.00	1.00	
Yes	1.16	0.80	(0.341, 1.87)	4.36	2.57	(1.02, 6.47)

Note: Boldface indicates significant finding at $\alpha \leq 0.05$.

unborn baby; whereas, 72% indicated that it was “extremely likely” that daily smoking woman would cause harm to an unborn baby.

This study has limitations that suggest directions for future research. First, the sample included highly educated women living in the upper Midwest. Therefore, results may not be generalizable to more diverse regions of the country. Second, the percentage of women who smoked or drank during their pregnancy may have been underreported. Some women may have been reluctant to admit they smoked or drank during pregnancy, especially after physician advice not to do so. Third, results were based on retrospective data. Respondents may not have accurately recalled whether or not a physician gave them advice to abstain from alcohol or tobacco during their pregnancy. Future studies may wish to use more diverse samples of women;

include collateral data on alcohol and tobacco use during pregnancy from physicians, and include questions on current and lifetime use of alcohol and tobacco during pregnancy.

To summarize, study results suggest that physician advice regarding alcohol use during pregnancy may be protective against maternal drinking and smoking during pregnancy. Future studies, however, are needed to confirm the results of this study.

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