Pregnancy and Substance Use by Women:

A Multi-Ethnic Evaluation

Kalena E. Cortes
Office of Population Research
261 Wallace Hall
Princeton University
Princeton, NJ 08544-2091
kcortes@princeton.edu

and

Krista M. Perreira
Department of Public Policy
Abernethy Hall, CB #3435
University of North Carolina at Chapel Hill
krista_perreira@unc.edu

I. Introduction

Alcohol, tobacco, and other drug use among pregnant women are among the leading preventable causes of birth defects, mental retardation, and neurodevelopment disorders in the United States (Center for Disease Control 2002a, 202b; Finch, Vega, and Kolody, 2001). This investigation is the *first nationwide, multiethnic study* on the etiology of prenatal alcohol and tobacco use. This study makes an important contribution to our understanding of women's alcohol and tobacco use by thoroughly examining both individual-level and community-level risk and protective factors for substance use by pregnant women of Hispanic, Black Non-Hispanic, and White Non-Hispanic background and by immigrant women. Most importantly, the results of this study can be used to improve the design and effectiveness of prevention and treatment programs for pregnant women from ethnic subpopulations.

Specifically, this study aims to examine differences in the prevalence and etiology of alcohol and tobacco use during pregnancy by mother's ethnicity (i.e. Non-Hispanic white, Non-Hispanic black, Hispanic) and nativity (i.e. foreign-born vs. U.S./native-born); and to evaluate the relative importance of individual socio-demographic (e.g., acculturation, education, prenatal care use) and family factors (e.g., domestic violence, partner's alcohol and tobacco use, social support) in alcohol and tobacco use during pregnancy.

Previous studies evaluating risk profiles for substance abusing pregnant women: (1) have been based on small and population-specific sample sizes that are not generalizable to any national population; (2) have not comprehensively modeled both risk and protective factors at the individual, family, and community levels; and (3) have not had sufficient data to compare the relative importance of various risk and protective factors across ethnic groups. Newly available data from the Fragile Families and Child Well-Being Study make it possible to evaluate both differences in substance use during pregnancy by ethnicity and nativity.

II. Empirical Analysis

Data

The data for this study comes from the Fragile Families Data. The Fragile Families Study follows a birth cohort of (mostly) unwed parents and their children over a four-year period. The data were collected using a stratified random sample of all U.S. cities with 200,000 or more people. Cities

were stratified according to their policy environments and labor market conditions. Within these strata sampling occurred in three stages. First, cities were sampled. Second, hospitals within cities were sampled. Finally, births within these hospitals were sampled. The weighted data are representative of non-marital births in U.S. cities with populations over 200,000. Between June 1999 and October 2000, baseline interviews were conducted in 75 hospitals in 20 cities across the United States. Whenever possible both parents of the newborn were interviewed. Eighty-seven percent of eligible unmarried mothers, 82% of eligible married mothers, 76% of eligible unmarried fathers, 89% of eligible married fathers were interviewed. The baseline dataset include 4,898 completed mother interviews (1,186 marital births and 3,712 non-marital births) and 3,830 complete father interviews. Follow-up interviews with both parents are being scheduled for when the child is 12, 30, and 60 months old. At both the 30-and 60-month interview, in-home assessments of child well-being will be conducted. Our research will focus on data from the baseline survey only.

Ethnicity and Nativity Characteristics of the Sample

The analyses of prenatal alcohol and tobacco use will rely primarily on the maternal interviews. Mothers ranged in age from 16-50, with a median age of 24. In comparison, father's age ranged from 16 to 65, with a median age of 26. Overall, fathers tended to be 1-2 years older than mothers. The sample of mothers included substantial numbers of Caucasians (n=1,029), African Americans (n=2,318), and Hispanics (n=1,336). The sample size of each of these race-ethnic groups is sufficient for within group analyses. The ethnic distribution of fathers is similar to that of mothers. Seventeen percent (n=829) of new mothers were foreign-born. Thus, the sample of immigrant women is also sufficient for within group analyses. The majority of foreign-born mothers in the sample are of Hispanic (66%) heritage. Fathers were somewhat less likely (12% vs. 17%) than mothers to be foreign-born immigrants to the U.S. Like the mothers, the majority of foreign-born fathers in the sample are of Hispanic (66%) heritage.

Our preliminary analyses of Fragile Families show that 26% of the new mothers surveyed (N=4,898) report that they use some substance during their pregnancy. Tobacco (20%) was the most commonly used substance for these mothers, followed by alcohol (11%), and illicit drugs (6%). Only 2% of new mothers reported using multiple drugs during their pregnancies. While alcohol use is much lower in the Fragile Families population, the use of tobacco and illicit drugs is quite similar to what was reported from the 1992 NPHS (Mathias, 1995). Ethnic-racial patterns in the use of substances are

also quite similar to what was reported in the NPHS. Alcohol (15%) and tobacco use (29%) were highest among Caucasian mothers and lowest (7% and 10%, respectively) among Hispanic mothers. Furthermore, preliminary data show that the patterns of substance use by nativity are similar to those reported in the 1992 California Perinatal Substance Exposure Study. Unadjusted for any other factors, foreign-born women were significantly less likely to use any substances (alcohol, tobacco, or illicit drugs) during pregnancy than native-born women. Twenty-two percent of native-born women reported smoking during their pregnancy, while only 3% of foreign-born women reported smoking during their pregnancy. With respect to alcohol use, 12% of native-born women and 6% of foreign-born women reported its use during pregnancy.

Measurement of Dependent Variables

An overview of the dependent variables of interest at each point in time is provided in Table1. Substance use can be measured in terms of frequency, quantity, and duration of use. In the Fragile Families study, mothers were asked (1) "During your pregnancy, how often did you drink alcoholic beverages (nearly every day, several times a week, several times a month, less than once a month, never)?" and (2) "During your pregnancy, how many cigarettes did you smoke (≥2 packs a day, ≥1 but <2, <1 or, 0)"? Only frequency of maternal alcohol and tobacco use during pregnancy can be evaluated with the Fragile Families Study.

Statistical Model

Several models of the following form will be employed for each of the two main sets of outcomes (i.e., alcohol and tobacco use). In all models, the vector, M, refers to maternal characteristics; the vector, P, refers to paternal characteristics; and the vector, F, refers to family-level contextual characteristics. These models will be estimated by a logistic regression for any use and ordered logit regression for frequency of use to access the prevalence of maternal alcohol and tobacco use during pregnancy.[1]

$$\mathbf{MS}_j = \alpha_0 + \mathbf{M}_j\alpha_1 + \mathbf{P}_j\alpha_2 + \mathbf{F}_j\alpha_3 + \varepsilon_j \qquad (1)$$

where MS_j is the log odds of using a substance during pregnancy by mother j relative to the comparison group (i.e., non users in a simple logit). The vectors **M**, **P**, **F** are stated above. ε_j is an

[1] In the range of most data on alcohol and tobacco consumption, the logit and probit models have cumulative density functions that are virtually indistinguishable. Both types of models will be evaluated.

error term. More specifically, Model 1 is the baseline model specification that includes only the nativity and race variables (i.e., immigrant female dummy, Black, Asian/other, Hispanic race dummies). Model 2 includes the baseline variables adding in the maternal controls (i.e., age, educational attainment, and number of years in the U.S.). Model 3 includes the previous baseline and maternal controls plus paternal controls (i.e., age, race dummies, and educational attainment). Lastly, Model 4 is the full specification which includes the baseline, maternal, paternal, plus the family contextual controls (i.e., mother's marital status, number of
children in the household, mother's income, mother's welfare status, mother rent's, mother has a car, mother's religiosity, and kin financial support).[2]

III. Preliminary Results

We find that very different factors affect the usage of alcohol and tobacco during pregnancy for immigrant and native females. Immigrant females have the lowest prevalence of substances during their pregnancy. However, two very different factors affect their prevalence of alcohol and tobacco use. The alcohol prevalence is decreased for immigrant females after controlling for paternal characteristics, while for tobacco prevalence is decreased for immigrant females after controlling for family contextual characteristics. Also, very factors affect the prevalence for alcohol and tobacco use for mother's ethnicity. The prevalence of alcohol use for Black females is only decreased after controlling for both paternal and family characteristics; while the prevalence of tobacco use for Black females is only decreased after controlling for both maternal and paternal characteristics. For Hispanic females we also find that different factor affect their substance prevalence during their pregnancy. The factors that matter the most for alcohol use are paternal and family characteristics, while for tobacco use it is maternal and family characteristics. Asian females alcohol use is decreased after controlling for paternal and family characteristics, however, Asian females their tobacco use during pregnancy was not statistically significant in all the models specifications.

[2] Kin financial support is a dummy variable which is coded as "one" if the respondent answered "yes" to any of the following questions: "During the next year, if you needed help, could you count on someone in your family to: a. Loan you $200? Yes/No, b. Provide a place to live? Yes/No, c. Help with babysitting or child care? Yes/No."