Published in final edited form as:

Addict Behav. 2007 August ; 32(8): 1593–1601.

ESTIMATES OF PRENATAL ABSTINENCE FROM ALCOHOL: A MATTER OF PERSPECTIVE

Grace Chang, MD, MPH^{a,b}, Tay K. McNamara, PhD^a, Louise Wilkins-Haug, MD, PhD^{a,c}, and E. John Orav, PhD^{a,d}

a Brigham and Women's Hospital, Boston, MA 02115

b Department of Psychiatry, Harvard Medical School, Boston, MA 02115

c Department of Obstetrics-Gynecology, Harvard Medical School, Boston, MA 02115

d Department of Medicine (Biostatistics), Harvard Medical School, Boston, MA 02115

Abstract

Abstinence from alcohol has been recommended for both pregnant and pre-conceptional women. The purpose of this study is to compare self and partner reports of abstinence from alcohol in a sample of 253 pregnant women who were T-ACE (Tolerance, Annoy, Cut-down, Eye-opener) alcohol screen positive. Dyads' reports of the women's abstinence from alcohol before, during, and after pregnancy were compared. Based on their own self-report, less than 20% of the pregnant women were abstinent in their first trimester and about half were abstinent for the rest of their pregnancy. Partners significantly over-estimated the women's abstinence from alcohol at all points except in the post-partum period when the dyad had the highest rate of agreement (85.4%). Reasons for the discrepancies in the self and partner reports of prenatal abstinence, and how partners might influence such behavior remain speculative, but identify areas for future research and prevention.

Keywords

prenatal alcohol use; collateral report

1. Introduction

No amount of alcohol use can be considered safe during pregnancy (Office of the Surgeon General, 2005). As such, abstinence from alcohol has been recommended for both pregnant and pre-conceptional women (Sokol, Delaney-Black, & Nordstrom, 2003). Yet, a cross-sectional study based on the 1988 National Maternal and Infant Health Survey of mothers of 13,417 live-born infants found that half of all pregnant women drank alcohol in the 3 months before finding out that they were pregnant and that 60% of frequent drinkers did not know they were pregnant until the 4th week of gestation (Floyd, Decoufle, & Hungerford, 1999). The adverse consequences of maternal alcohol consumption at even low levels have been associated with problematic childhood behavior at age 6 to 7 years, leading to greater appreciation that

Dr. Grace Chang is the corresponding author and can be reached at 617-732-6775 (phone), 617-264-6370 (fax), Gchang@partners.org (e-mail), or Brigham and Women's Hospital, Department of Psychiatry, 75 Francis Street, Boston, MA 02115..

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

prenatal abstinence from alcohol is the only safe message (Mukherjee, Hollins, Abou-Saleh, & Turk, 2005; Sood et al., 2001).

Partners have been shown to be an important influence on individual health and health-related behavior, such as drinking, especially at the household level (Monden, van Lenthe, de Graaf, & Kraaykamp, 2003). Explanations for the similarity of household levels of alcohol consumption have included correlated, exogenous, and endogenous effects (Rice & Sutton, 1998). Husbands and wives tend to have similar drinking patterns at the time of marriage (correlated effects) and then share common life experiences (exogenous effects) that will impact them comparably since they live together (endogenous effects; Leonard & Das Eiden, 1999). The concordance of alcohol use has also been demonstrated among older couples who were similarly very accurate in reporting each other's usual frequency and quantity of alcohol consumption (Graham & Braun, 1999).

Younger couples may have more difficulty in describing their partners' drinking, particularly during pregnancy. A study of 9000 pregnant women and their partners compared men's and pregnant women's reports of the expectant father's smoking and drinking. While the couples were close to complete agreement for whether or not the expectant fathers smoked or drank (95% and 98%, respectively), they demonstrated less agreement for more detailed information, such as quantity (Passaro, Noss, Savitz, Little, & ALSPAC Study Team, 1997). A previous study compared self and collateral reports of prenatal drinking in a sample of 247 pregnant women (Chang, Wilkins-Haug, Berman, Goetz, Behr, & Hiley, 1999). While collateral reporters who were spouses or partners demonstrated consistently better agreement with the pregnant women than reporters such as other family members, collateral reports were generally exceeded by self-reports of prenatal alcohol consumption.

Given the potential consequences of behaviors such as drinking during pregnancy, partners' perceptions of abstinence are of particular interest, since they may influence prenatal alcohol use. The purpose of this study is to compare reports of abstinence from alcohol by the pregnant woman herself and her partner's report of her abstinence in a sample of 253 pregnant women before, during and after pregnancy. It was hypothesized that the couples would demonstrate best agreement on the pregnant women's abstinence behavior after study enrollment when the salience of not drinking would be greatest.

2. Materials and Methods

2.1 Setting

This study was conducted at the Brigham and Women's Hospital in Boston, Massachusetts (USA). An initial screening survey, which contained questions about diet, smoking, exercise, stress, usual drinking, and the T-ACE (Tolerance, Annoy, Cut-down, Eye-opener), a 4-item alcohol screening instrument, was given to patients initiating prenatal care at 1 of 3 hospital obstetric practices (clinic, faculty, and private group affiliate). E-mail and other study announcements also invited study inquiries, at which time the screening survey was made available.

2.2 Study Participants

Study participants were 253 of 304 T-ACE alcohol screen positive women enrolled in a randomized trial of a brief intervention for reducing alcohol consumption during pregnancy described in additional detail elsewhere (Chang et al., 2005). In this study, the sample was limited to the women whose partners were their spouses or the biological fathers of the index pregnancy. The pregnant women and their partners all provided written, informed consent. The Institutional Review Board of the Brigham and Women's Hospital reviewed and approved the

study. In addition, a Certificate of Confidentiality was awarded by the United States Department of Health and Human Services.

The T-ACE is a four-item, validated questionnaire designed to assess pregnant women for risk drinking in a clinical setting and is based on the CAGE (Sokol, Martier, & Ager, 1989; Chang, Wilkins-Haug, Berman, Goetz, Behr, & Hiley, 1998). It asks: T (tolerance), how many drinks does it take for you to feel high (the effects); A (annoy), have people annoyed you about criticizing your drinking; C (cut-down), have you ever felt you ought to cut down on your drinking; and E (Eye-opener), have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hang-over. The T-ACE was positive for pregnant women with a score of two or more. Two points were given when a pregnant woman reported a tolerance to more than 2 drinks and one point was given for each affirmative answer to the A, C, and E questions. The women also satisfied eligibility criteria such as having gestations less than 28 weeks when enrolled, consumed alcohol while pregnant or drank in excess of National Institute on Alcohol Abuse and Alcoholism (NIAAA) sensible drinking limits when not pregnant, and were able to include a partner of their choice.

2.3 Study Interviews

At the first interview which took place at the time of study enrollment, the pregnant women (referred to as the subjects) provided demographic and clinical information such as date of birth, highest level of education completed, home zip code, and estimated date of delivery. They also completed the Alcohol Timeline Followback (TLFB) interview to provide estimates of their daily drinking for the six months prior to study enrollment (Sobell & Sobell, 1992). Separately, their partners were interviewed about the pregnant subjects' use of alcohol for the previous 90 days using the NIAAA quantity-frequency questions while pregnant and typical 90-day consumption when not pregnant (NIAAA Quantity-Frequency Questions, 1995).

After delivery, subjects and their partners were interviewed again. The subjects completed the TLFB for their alcohol consumption from the time of study enrollment until the day of follow-up. Separately, the partners gave a collateral report on the subjects' use of alcohol since study enrollment using the NIAAA quantity-frequency questions until the time of follow-up.

2.4 Data Analysis

Data were analyzed with the SAS statistical package (Version 9.1, SAS Institute, Cary, NC, 2002–2003). Descriptive results are reported as percentages and medians. The subjects' self-reports of abstinence were compared to the partners' reports for the same, overlapping times for the early and late pregnancy and post-partum periods. Average consumption in a 90-day period while not pregnant was calculated from the women's TLFB interviews and the partners' reports for typical 90-day consumption for the women when not pregnant. Four periods of prenatal alcohol use were compared: 1) pre-pregnancy, typical 90-day consumption; 2) early pregnancy, or the time interval between the estimated date of conception and study enrollment which occurred at a median of 11.5 weeks or 80 days; 3) late pregnancy, or the antepartum period between study enrollment and delivery, or 200 days; and 4) post-partum, or the time after delivery and the follow-up interview, an average of 78 days. Abstinence was a dichotomous variable. The Mc Nemar chi-square test was calculated for the agreement matrix. Two indices of concordance were also calculated, phi, an index of the relation between any two sets of scores that can be both represented on ordered binary dimensions (e.g., agree-disagree), and kappa, which corrects for agreement by chance (Feinstein, 1985).

Finally, multinomial logistic regression was used to evaluate possible predictive factors (such as age, education, median family income) on how likely the couple was to agree on reports of alcohol use by the pregnant women. Self- and partner reports of frequency of alcohol

consumption were compared and considered to be in agreement if they were within 5% of one another; 5% was chosen because it represented about 1 extra drinking day every three weeks. The quantity reports of drinks per drinking day were compared and considered to be in agreement if they were within half a drink of one another; the half drink “allowance” was chosen because the subjects tended to self-report drinking in half-drinks or fractional values, whereas the partners tended to report drinks in whole numbers. Neither the subjects’ nor the partners’ report were considered to be the “gold standard.” Thus, two models were run with two different outcomes – subjects report more frequent alcohol consumption and partners report more frequent alcohol consumption.

3. Results

3.1 Demographic and Clinical Characteristics

Subjects’ characteristics are summarized in Table 1. Most participants were married (86.6%). The pregnant women had a median age of 31.4 years. Their partners were somewhat older, with a median age of 32.3 years. The median household income based on home zip code was \$55,700. The average median household income for the study time period in Massachusetts was \$50,587 (DeNavas, Cleveland, & Webster, 2003). About one-fifth of study participants was nonwhite (18.2%). The women enrolled at a median of 11.5 weeks gestation, and had a median formal education of 16 years. Self-reports of median frequency and quantity of alcohol use at the four time points are listed in Table 1 as well.

3.2 Self and Partner Reports of Alcohol Use

Self and partner reports of abstinence from alcohol during the four times of interest are compared in Table 2. Partners significantly over-estimated the women’s abstinence from alcohol at all points except in the post-partum period when the dyad had the highest rate of agreement (85.4%). In general, the rate of agreement about levels of abstinence increased over time, but the strength of agreement ranged from slight to fair except in the post-partum period when it was moderate ($K=.48$).

More detailed information about the comparison between self and partner reports of quantity and frequency of subject drinking is listed in Table 3. Figures 1 and 2 summarize the overall comparison between self-and partner reports of mean alcohol consumption at the four time points. Self-reports of drinking generally exceeded partners’ reports except for average frequency of drinking in late pregnancy, when partners’ reports exceeded the self-reports (6.2% versus 2.0%, Mc Nemar’s chi square=43.2, $p<.0001$).

Multinomial logistic regressions predicting inconsistent reports of drinking (subject self-reports more alcohol use or partners report more subject alcohol use) were run with subject age, education, ethnic background, and household income as predictors. Subject or maternal education was a significant predictor of partners reporting greater frequency of prenatal maternal alcohol use during late pregnancy ($b=.39$, $p=.04$) and the post-partum period ($b=.24$, $p=.01$). No other significant predictors of inconsistent reports of drinking frequency were identified. Multinomial logistic regression models predicting inconsistent reports of drinking quantity were not significant and thus not included in Table 4, which shows the results for predicting frequency.

4. Discussion

The main finding of this study is that partners of pregnant women estimated higher rates of the women’s abstinence from alcohol before and during pregnancy than the women themselves. The differences in rates of estimated abstinence were significant and reflected a consistent

pattern until the post-partum period. In general, the rate of agreement about levels of abstinence increased over time, but the strength of agreement ranged from slight to fair except in the post-partum period when it was moderate ($K=.48$). Since self-report drinking data are neither inherently valid nor invalid, it cannot be assumed that either the self or partner report should be the gold standard, although some conventions increase the value of collateral information if it reveals more substance use than the self-report (Carey & Simons, 2000; DelBoca & Noll, 2000).

Possible explanations for the discrepancies include the fact that more detailed drinking information was obtained from the women, leading to lower rates of self-reported abstinence. This is similar to the findings of a Swedish study where more prenatal alcohol use was identified with the Timeline Followback measure when compared to a screening instrument alone (Magnusson, Goransson, & Heilig, 2005). On the other hand, another study comparing the more detailed TLFB with a simple quantity frequency measure found that both provided remarkably similar aggregate drinking data, which was the basis of comparison for this study (Sobell, Agrawal, Sobell, Young, Cunningham, & Simco, 2003). Thus, the use of different instruments to obtain estimates of drinking behavior in the pregnant women may be a potential limitation.

It is also possible that partners were simply less aware of prenatal drinking by the expectant mothers who were not daily, heavy drinkers, or “rounded down” in their estimates. They may have reported on their own or social expectations for prenatal abstinence, which in another study had the contrary effect on reducing prenatal drinking (Reynolds, Coombs, Lowe, Peterson, & Gaynos, 1995). The women may have reported more use because they were aware that collateral reports were being obtained simultaneously; the use of even a bogus pipeline in an earlier study was thought to increase the accuracy of self-reported prenatal alcohol use (Lowe, Windsor, Adams, Morris, & Reese, 1986). On the other hand, pregnant women with more education were more likely to self-report less drinking than their partners both after study enrollment while pregnant and in the immediate post-partum period. It is possible that at these times, the better-educated subjects minimized self-reports of drinking, or their partners were more astute observers.

The clinical implications of the partners’ over-estimates of abstinence and underestimates of alcohol consumption are speculative. Hence, opportunities for research, to explain the discrepancies between self and partner report of alcohol use, and for prevention, exist. For example, if the partners had more accurate information, they may have chosen to express their support for prenatal abstinence and to identify ways for the expectant couple to achieve abstinence from alcohol. Indeed, the rates of agreement about alcohol use increased after study enrollment, perhaps reflecting improved communication or observation. Less than 20% of the pregnant participants self-reported abstinence in their first trimester and about half were abstinent for the rest of their pregnancy. Since even low to moderate alcohol use in the first and second trimester has been found to have an adverse impact on the cognitive status of children at the age of 10 (Wilford, Leech, & Day, 2006), effective ways to achieve and maintain prenatal abstinence from alcohol are needed.

Acknowledgements

This study was supported by grants from the National Institute on Alcohol Abuse and Alcoholism, R01 AA 12548 (GC) and K2400289 (GC).

References

- Carey KB, Simons J. Utility of collateral information in assessing substance use among psychiatric outpatients. *Journal of Substance Abuse* 2000;11:139–147. [PubMed: 10989774]

- Chang G, Goetz MA, Wilkins-Haug L, Berman S. Prenatal alcohol consumption: self versus collateral report. *Journal of Substance Abuse Treatment* 1999;17:85–89. [PubMed: 10435255]
- Chang G, McNamara TK, Orav EJ, Koby D, Lavigne A, Ludman B, et al. Brief intervention for prenatal alcohol use: a randomized trial. *Obstetrics and Gynecology* 2005;105:991–8. [PubMed: 15863535]
- Chang G, Wilkins-Haug L, Berman S, Goetz MA, Behr HM, Hiley A. Alcohol use and pregnancy: improving identification. *Obstetrics and Gynecology* 1998;91:892–898. [PubMed: 9610992]
- DelBoca FK, Noll JA. Truth or consequences: the validity of self-report data in health services research on addictions. *Addiction* 2000;95(Supplement 3):S347–S360. [PubMed: 11132362]
- DeNavas, WC.; Cleveland, R.; Webster, BH. US Census Bureau, Current Population Reports. Washington, DC: US Government Printing Office; 2003. Income in the United States: 2002; p. 60-221. Retrieved 26 January 2005 from <http://www.census.gov/prod/2003pubs/p60-221.pdf>
- Feinstein, AR. Clinical Epidemiology, the Architecture of Clinical Research. Philadelphia, PA: W.B. Saunders Co; 1985. p. 153-154.p. 182-186.
- Floyd RL, Decoufle P, Hungerford DW. Alcohol use prior to pregnancy recognition. *American Journal of Preventive Medicine* 1999;17:101–107. [PubMed: 10490051]
- Graham K, Braun K. Concordance of use of alcohol and other substances among older adult couples. *Addictive Behaviors* 1999;6:839–856. [PubMed: 10628517]
- Leonard KE, Das Eiden R. Husband's and wife's drinking: unilateral or bilateral influences among newlyweds in a general population sample. *Journal of Studies on Alcohol, Supplement* 1999;13:130–8. [PubMed: 10225497]
- Lowe JB, Windsor RA, Adams B, Morris J, Reese Y. Use of a bogus pipeline method to increase accuracy of self-reported alcohol consumption among pregnant women. *Journal of Studies on Alcohol* 1986;47:173–175. [PubMed: 3713181]
- Magnusson A, Goransson M, Heilig M. Unexpectedly high prevalence of alcohol use among pregnant Swedish women: failed detection by antenatal care and simple tools that improve detection. *Journal of Studies on Alcohol* 2005;66:157–164. [PubMed: 15957666]
- Monden CW, van Lenthe F, de Graaf ND, Kraaykamp G. Partner's and own education: does who you live with matter for self-assessed health, smoking, and excessive alcohol consumption? *Social Science in Medicine* 2003;57:1901–12.
- Mukherjee RAS, Hollins S, Abou-Saleh MT, Turk J. Low level alcohol consumption and the fetus. *British Medical Journal* 2005;330:375–6. [PubMed: 15718517]
- Allen, J.; Columbus, M., editors. NIAAA Quantity-Frequency Questions. Assessing *alcohol problems, a guide for clinicians and researchers* (NIH Publication No. 95–3745, p 460–01). Washington, DC: US Department of Health and Human Services; 1995.
- Office of the Surgeon General. U.S. Surgeon General Releases Advisory on Alcohol Use during Pregnancy. 2005 Feb 21. 2005 Retrieved 9 June 2006 from www.hhs.gov/surgeongeneral/pressreleases/sg02222005.html
- Passaro KT, Noss J, Savitz DA, Little RE. the ALSPAC Study Team. Agreement between self and partner reports of paternal drinking and smoking. *International Journal of Epidemiology* 1997;26:315–325. [PubMed: 9169166]
- Reynolds KD, Coombs DW, Lowe JB, Peterson PL, Gaynoso E. Evaluation of a self-help program to reduce alcohol consumption among pregnant women. *International Journal on Addiction* 1995;30:427–443.
- Rice N, Sutton M. Drinking patterns within households: the estimation and interpretation of individual and group variables. *Health Economics* 1998;7:689–99. [PubMed: 9890330]
- Sobell, LC.; Sobell, MC. Timeline follow-back, a technique for assessing self-reported alcohol consumption. In: Litten, R.; Allen, J., editors. *Measuring alcohol consumption*. Totowa, NJ: The Humana Press; 1992. p. 41-72.
- Sobell LC, Agrawal S, Sobell MB, Young LJ, Cunningham JA, Simco ER. Comparison of a quick drinking screen with the timeline followback for individuals with alcohol problems. *Journal of Studies on Alcohol* 2003;64:858–61. [PubMed: 14743950]
- Sokol RJ, Delaney-Black V, Nordstrom B. Fetal alcohol spectrum disorder. *Journal of the American Medical Association* 2003;290:2996–9. [PubMed: 14665662]

- Sokol RJ, Martier SS, Ager JW. The T-ACE questions: practical prenatal detection of risk drinking. *American Journal of Obstetrics and Gynecology* 1989;60:863–870. [PubMed: 2712118]
- Sood, B.; Delaney-Black, V.; Covington, C.; Nordstrom-Klee, B.; Ager, J.; Templin, T., et al. Prenatal alcohol exposure and childhood behavior at 6 to 7 years: I. Dose-response effect. *Pediatrics*. 2001. Retrieved 9 June 2006 from <http://www.pediatrics.org/cgi/content/full/108/2/e34>
- Wilford JA, Leech SL, Day NL. Moderate prenatal alcohol exposure and cognitive status of children at age 10. *Alcoholism: Clinical and Experimental Research* 2006;30:1051–1059.

Figure 1.
Drinking Frequency

Figure 2.
Mean Drinks/Drinking Day

TABLE I

SUBJECT CHARACTERISTICS¹

Subject	Frequency or Median with Interquartile Ranges
Married (%)	86.6%
Median household income	\$55,700 (\$45,075 to 67,403)
Nonwhite	18.2%
Black	6.0%
Native American	0.4%
Asian/Pacific Islander	3.2%
Hispanic	6.8%
South Asian	0.8%
Multiracial	0.8%
Unknown	0.2%
Median age (years)	31.4 (28.7–34.3)
Median age, partner (years)	32.3 (30.4–36.2)
Median education (years)	16
Median gestation at enrollment (weeks)	11.5 (9.0–15.0)
Pre-pregnancy alcohol consumption	
Median drinks/drinking day	1.8 (1.2–2.4)
Median % drinking days	13.7% (6.2–30.0)
Early pregnancy alcohol consumption (pre-enrollment)	
Median drinks/drinking day	1.2 (.2–2.0)
Median % drinking days	2.5% (.9–5.8)
Late pregnancy (post-enrollment)	
Median drinks/drinking day	0.0 (0–1.0)
Median % drinking days	0.0 (0–2.0)
Post-partum	
Median drinks/drinking day	1.0 (.8–1.6)
Median % drinking days	5.3% (0–2.0)

¹ Due to missing data, actual sample sizes range from 252 to 253

TABLE 2

REPORTS OF ABSTINENCE

Time Frame	Self-Report	Partner	Agreement %	McNemar χ^2 , p-value	Φ	K ¹
Pre-pregnancy	18 (7.8%)	161 (70%)	34.4	135.4, p<.0001	.05	.02
Early pregnancy	44 (17.5%)	171 (68.1%)	44.6	116.0, p<.0001	.18	.10
Late pregnancy	125 (53.9%)	167 (72.0%)	69.0	24.5, p<.0001	.39	.36
Post-partum	35 (15.1%)	43 (18.5%)	85.4	1.88, p=.17	.48	.48

1

Value of K	Strength of Agreement
<0	Poor
0-.20	Slight
.21-.40	Fair
.41-.60	Moderate
.61-.80	Substantial
.81-1.0	Almost perfect

From: Feinstein AR. *Clinical Epidemiology, the Architecture of Clinical Research*. Philadelphia, PA: WB. Saunders Co., 1985, 182-186.

TABLE 3
COMPARISON OF REPORTS OF ALCOHOL CONSUMPTION BY TIME PERIOD

FREQUENCY (Percent drinking days)		Pre-pregnancy		Partner		Early pregnancy		Late pregnancy		Partner		Post-partum		Partner	
Percent		Self		Self		Self		Self		Self		Self		Self	
Abstinent		7.8		70.0		17.5		54.2		72.0		15.9		18.6	
>0-5		12.9		0		53.2		36.5		0		32.8		40.0	
>5-10		16.8		0		20.0		4.2		0		18.0		0	
>10-15		16.0		13.4		4.0		2.1		12.3		12.7		42.4	
>15-20		10.8		0		2.0		.84		0		4.9		0	
>20-30		9.9		8.7		1.2		1.7		9.7		7.4		0	
>30-40		9.5		2.8		.80		0		4.7		3.7		0	
>40-50		6.5		2.0		1.6		.4		0		2.0		0	
>50		9.1		3.2		0		0		1.3		2.9		0	

QUANTITY (Average number of drinks on drinking days)		Pre-pregnancy		Partner		Early pregnancy		Late pregnancy		Partner		Post-partum		Partner	
Percent		Self		Self		Self		Self		Self		Self		Self	
1<= drink		12.2		6.3		30.3		41.6		14.2		36.5		7.6	
>1-2 drinks		49.7		7.9		30.0		3.8		0		32.2		67.0	
>2-3 drinks		20.3		0		14.4		.4		0		7.6		0	
>3-4 drinks		6.5		.8		3.6		0		0		2.8		2.1	
>4-5 drinks		2.6		0		1.6		0		0		1.6		0	
>5 drinks		.4		1.6		1.6		0		0		1.2		3.0	

TABLE 4
MULTINOMIAL LOGISTIC REGRESSIONS PREDICTING CONSISTENT OR INCONSISTENT REPORTS OF DRINKING FREQUENCY

	Subject reports more alcohol b	se (b)	χ^2	p	Partner reports more alcohol b	se (b)	χ^2	p
BEFORE PREGNANCY								
Age	.017	.044	.14	.51	.008	.038	.04	.83
Education	.061	.103	.35	.71	.079	.089	.79	.37
Income	-1.35	1.59	.72	.39	-.71	1.33	.28	.59
Nonwhite	.37	.55	.45	.50	-.57	.50	1.30	.25
EARLY PREGNANCY								
Age	-.032	.035	.82	.37	-.019	.046	.17	.68
Education	-1.01	.079	.02	.88	-.004	.103	.00	.97
Income	-1.59	1.21	1.72	.19	-2.35	1.64	2.05	.15
Nonwhite	.14	.47	.09	.76	-.21	.64	.11	.74
LATE PREGNANCY								
Age	-.009	.032	.08	.78	.18	.13	1.89	.17
Education	.059	.074	.64	.42	.39	.19	4.17	.04
Income	.30	1.12	.07	.79	-.72	3.66	.04	.85
Nonwhite	.45	.44	1.06	.30	.98	1.28	.59	.44
POST-PARTUM								
Age	.009	.036	.06	.80	.063	.042	2.29	.13
Education	.092	.088	1.08	.29	.24	.096	6.43	.01
Income	.62	1.31	.22	.64	1.16	1.43	.66	.42
Nonwhite	.32	.47	.46	.50	-.46	.60	.61	.44