Addictive Behaviors 37 (2012) 956–961

Contents lists available at SciVerse ScienceDirect

Addictive Behaviors

Maternal self concept as a provider and cessation of substance use during pregnancy ☆

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ARTICLE INFO

Keywords:
Smoking
Pregnancy
Substance abuse
Self concept
Antisocial behavior
Depression

ABSTRACT

Objective: Maternal substance use during pregnancy is a common modifiable risk factor for poor birth outcomes, and is associated with long term psychological risks to offspring. As self concept is known to affect substance use behaviors in non-pregnant women, we hypothesized that self concept as a provider may be particularly salient to cessation of use during pregnancy. To isolate psychological processes specific to pregnancy from those associated with the transition to parenthood, we examined birth mothers who made adoption placements participating in the Early Growth and Development Study.

Methods: We obtained lifetime and pregnancy substance use history and psychological measures at 3 to 4 months postpartum from 693 women recruited from the Northwest, Southwest, and Mid-Atlantic regions of the United States. Life history calendar and computer-assisted personal interviewing methods were used to minimize reporting bias. Using logistic regression, we assessed the association of self concept as an adequate provider with cessation of substance use during pregnancy, controlling for sociodemographic variables, depressive symptoms experienced during pregnancy, past year antisocial behaviors, family history of substance abuse, timing of pregnancy recognition, timing of initiation of prenatal care, and emotional adjustment to the adoption decision.

Results: More positive self-concept as an adequate provider was independently associated with cessation of substance use and earlier initiation of prenatal care during pregnancy [OR = 1.223; 95% C.I. (1.005–1.489); B(SE) = .201(.100)]. Familial substance abuse, depressive symptoms, and antisocial behaviors during pregnancy, were also independent predictors, and more strongly associated with cessation [OR = .531; 95% C.I. (.375–.751); B(SE) = −.634 (.178)], [OR. 940; 95% C.I. (.906–.975); B(SE) = −.062 (.019)], [OR = .961; 95% C.I. (.927–.996); B(SE) = −.040 (.018)].

Conclusions: Enhancing maternal identity as a provider for the fetus during pregnancy, along with treatment of depression, may improve motivation to stop substance use.

1. Introduction

Despite ample evidence that pregnancy is a unique and salient factor in smoking cessation (Ruggiero, Tsoh, Everett, Fava, & Guise, 2000; Woodby, Windsor, Snyder, Kohler, & Diclemente, 1999), and cessation of other substances of abuse (Crozier et al., 2009), it is unclear why. Women who quit smoking during pregnancy are more confident and successful in abstaining during their pregnancy compared to non-pregnant women over a similar period of time, yet do not seem to utilize the same behavioral processes associated with successful abstinence as utilized by non-pregnant quitters (Buja et al., 2011; Stotts, DiClemente, Carbonari, & Mullen, 1996). Understanding the psychological processes that account for greater motivation to stop substance use during pregnancy can inform the design of more effective prenatal interventions, and may also provide insights about motivation to change addictive behaviors more broadly.

It is well known that motivation to change substance use behaviors is complex (DiClemente, 1999); during pregnancy, motivation may involve short term factors related to pregnancy, such as wanting to provide a healthy environment for the fetus, and long term factors associated with anticipated parenthood, such as not wanting to be known by the child as a smoker (Curry, Grothaus, McBride, Lando, & Pirie, 2001). In normal pregnancies, these processes are difficult to disentangle since most women anticipate parenting the child resulting from their pregnancy. To isolate the specific psychological effects of

☆ Previous presentation: N/A.

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doi:10.1016/j.addbeh.2012.04.002

pregnancy on substance use behavior, we examined a sample of women who all made postnatal adoption placements following their pregnancies. In these women, motivation for cessation of substance use may have been more directly attributable to pregnancy, specifically, the presence of a fetus inextricably linked to them, and affected by their substance use. We have previously shown, using a subset of this sample, that women who stopped substance use during pregnancy reported greater feelings of self worth, and fewer symptoms of anxiety and depression, suggesting important psychological differences between women who stop using substances during pregnancy and women who continue (Massey et al., 2011). The goal of this study was to elucidate how self concept associated with pregnancy may influence motivation to stop substance use, defined herein, as the use of tobacco, alcohol, illicit drugs or prescription drugs used for non-medical purposes.

Self concept is an important source of motivation for abstinence in non-pregnant substance abusing women (Avants, Margolin, & Singer, 1994; Donovan & Rosengren, 1999). During pregnancy, self concept may be particularly salient since women begin to provide for the nutritional needs of the developing fetus, and substance use, once an individual behavior, becomes a maternal behavior (Bailey & Hailey, 1986; Smith, 1999). As such, acknowledgement of the new role as a provider during pregnancy (or lack thereof) may influence motivation for stopping substance abuse. Furthermore, as self-efficacy to quit smoking is predictive of successful quitting during pregnancy (Manfredi, Cho, Crittenden, & Dolecek, 2007), women's perceived efficacy as providers may be similarly predictive of successful cessation of substance use during pregnancy. The goal of this study was to test the hypothesis that self concept as a provider would be independently related to cessation of substance use during pregnancy, taking into account the timing of recognition of the pregnancy, and the timing of prenatal care initiation, both of which would be expected to affect provider self concept. Additionally, we controlled for known correlates of prenatal substance use including age, race, income, educational attainment (Cnattingius, 2004), familial substance abuse (Agrawal et al., 2008), maternal antisocial behavior (Weaver, Campbell, Mermelstein, & Wakschlag, 2008), and depressive symptoms experienced during the pregnancy (Prusakowski, Shofer, Rhodes, & Mills, 2010; Zhu & Valbo, 2002).

2. Methods

2.1. Sample

Participants were birth mothers participating in the Early Growth and Development Study (EGDS), a prospective study of birth parents and adoptive families, linked through the adopted child aimed at examining the interplay of genes and environment on offspring development (Leve et al., 2007; Leve, Neiderhiser, Scaramella, & Reiss, 2010). The EGDS drew its sample from 33 adoption agencies in 10 states across three regions in the United States: Northwest, Southwest, and Mid-Atlantic. These agencies reflect the full range of U.S. adoption agencies: public, private, religious, secular, those favoring open adoptions, and those favoring closed adoptions. So as not to influence their decision to place versus raise their children, we needed to approach and recruit potential participants after adoption processes were legally concluded, at 3 to 4 months postpartum. Demographic information for the total EGDS birth mother sample is as follows: Mean age was 25.1 years (standard deviation (SD) = 6.2 years), mean annual household income was $25,000 (SD = $16,000), and mean educational attainment was a high school degree. Racial/ethnic distribution was: 69.2% Caucasian, 13.7% African American, 6.5% Hispanic, 4.3% more than one race, 2.3% American Indian or Alaskan Native, 1.8% Asian, 2.2% unknown or not reported. Marital status was: 55.5% single, never married; 18.9% living with a partner in a committed relationship; 11.1% married; 10.5% divorced, not remarried; 3.7% separated; 0.5% remarried; 0.3% single, widowed.

2.2. Study design

The current study is a cross-sectional secondary data analysis aimed at understanding psychological processes involved in the cessation of addictive substance use (defined as the use of tobacco, alcohol, illicit drugs, or prescription drugs used for non-medical purposes) specifically due to pregnancy. Factors which may have contributed to the development of substance use prior to pregnancy can confound differences observed between pregnancy users and pregnancy nonusers. Thus, we excluded women who never used these substances prior to pregnancy and examined only the 693 birth mothers in the EGDS sample (out of a total of 913) who reported any lifetime use of tobacco, alcohol, illicit drugs, or prescription drugs used for non-medical purposes. There were no statistically significant differences in demographic information between the total EGDS birth mother sample and the study sample. Participants completed in-person assessments with a trained interviewer at 3 to 4 months postpartum. The specific method used for each measure, within the context of these in-person assessments, is described below.

2.3. Measures

2.3.1. Substance use

Utilizing computer-assisted personal interviews (CAPI) conducted in a private setting, known to reduce social desirability bias in reporting sensitive information (Duffy & Waterton, 1984; Gallant, 1985; Newman et al., 2002; Perlis, Des Jarlais, Friedman, Arasteh, & Turner, 2004; Turner et al., 1998), we assessed lifetime substance use using a modified Composite International Diagnostic Interview-Short Form (CIDI-SF) (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998). Questions were modified to pertain to lifetime rather than 12-month use, and to include tobacco, in addition to alcohol, marijuana (marijuana or hashish), painkillers (prescription opiates), sedatives (barbiturates and non-benzodiazepine hypnotics), hallucinogens (LSD, MDMA, mescaline), inhalants, amphetamines (included methamphetamine and prescription stimulants), cocaine, heroin, and tranquilizers (benzodiazepines). Cronbach's α was between .94 and 1 for subscales pertaining to different substances of abuse.

We assessed substance use during pregnancy using the Pregnancy History Calendar (PHC) developed for this study, based on the Life History Calendar method of retrospective reporting (Caspi, et al., 1996). The interviewer helped each participant create a timeline of memorable events during the past year including, but not limited to, pregnancy-related events. Then, participants were asked to refer to this timeline to assist in the recall of substance use. We then created a dichotomous variable to reflect cessation of substance use during pregnancy, versus continued use of any substance, derived from information about the presence of lifetime substance use (CIDI-SF), and the absence of any use during pregnancy (PHC).

2.3.2. Self concept as a provider

We assessed self concept as a provider using the 4-item Adequacy as a Provider subscale from a CAPI version of the Adult Self-Perception Profile, a 50-item measure of domain-specific self-concept (Messner & Harter, 2007). An example of one item is, “Some adults feel they are not adequately supporting themselves and those who are important to them BUT other adults feel they are providing adequate support for themselves and others.” Participants were asked to select which statement was most like them and rate whether the statement was “really true for me” or “sort of true for me”. Each item is scored from 1 to 4, with 1 indicating lowest self concept and 4 indicating the highest ($\alpha = .80$). The adequacy as a provider subscale has shown moderate rank-order stability ($r = .50$) over a one year period in young adults (Donnellan, Trzesniewski, K. Conger, & R. Conger, 2007); for this study, in which assessment occurred 3 to 4 months postpartum, we