



Examining the timing of changes in cigarette smoking upon learning of pregnancy



Sarah H. Heil^{a,b,c,*}, Evan S. Herrmann^c, Gary J. Badger^d, Laura J. Solomon^e,
Ira M. Bernstein^{a,f}, Stephen T. Higgins^{a,b,c}

^a Vermont Center on Behavior and Health, University of Vermont, USA

^b Department of Psychiatry, University of Vermont, USA

^c Department of Psychology, University of Vermont, USA

^d Department of Medical Biostatistics, University of Vermont, USA

^e Department of Family Practice, University of Vermont, USA

^f Department of Obstetrics, Gynecology and Reproductive Sciences, University of Vermont, USA

ARTICLE INFO

Available online 10 July 2014

Keywords:

Smoking
Pregnancy
Time course
Behavior change
Timeline Follow-back

ABSTRACT

Objective and method. Timeline Follow-back interviews were conducted with 107 pregnant women enrolling in smoking cessation and relapse prevention clinical trials in the Burlington, VT area between 2006 and 2009 to examine the time course of changes in smoking between learning of pregnancy and the first prenatal care visit. We know of no systematic studies of this topic.

Results. Women reported learning of pregnancy at 5.1 ± 2.2 weeks gestation and attending a first prenatal care visit at 10.1 ± 3.6 weeks gestation. In the intervening five weeks, 22% of women became abstainers, 62% reduced their smoking, and 16% maintained or increased their smoking. Women who made changes typically reported doing so within the first 2 days after learning of pregnancy, with few changes occurring beyond the first week after learning of pregnancy.

Conclusion. In this first effort to systematically characterize the time course of changes in smoking upon learning of pregnancy, the majority of pregnant smokers who quit or made reductions reported doing so soon after receiving the news. Further research is needed to assess the reliability of these results and to examine whether devising strategies to provide early interventions for women who continue smoking after learning of pregnancy is warranted.

© 2014 Elsevier Inc. All rights reserved.

Introduction

Learning of a pregnancy is a major event in a woman's life. In the average 6-week period between learning of their pregnancy and their first prenatal care visit (Ayoola et al., 2010; Kost et al., 1998; Nettleman et al., 2010; U.S. Department of Health and Human Services, 2010), women often make significant changes in health-related behaviors such as cigarette smoking (Crozier et al., 2009; Pirie et al., 2000). By the first prenatal care visit, about 20% of women who were smokers at the time they learned that they were pregnant have quit with little or no intervention (Solomon and Quinn, 2004). Among those still smoking at their first prenatal care visit, studies indicate that as a group they report reducing their smoking by an average of 50% from their pre-pregnancy smoking rate, from 20 to 10 cigarettes per day (Dornelas et al., 2006; Heil et al., 2008; Higgins et al., 2004; Pollak et al., 2007; Rigotti et al., 2006).

However, it is likely that there is significant variability in the “spontaneous” changes made across individual women. In addition, the time course of these changes remains unclear. Both the degree of change and the associated time course have implications for understanding the mechanisms underpinning such changes and for designing better smoking cessation interventions. For example, if spontaneous changes occur shortly after learning of pregnancy and are stable, it may suggest that changes are being driven by behavioral rather than hormonal or other biological mechanisms and that interventions could be initiated earlier in the pregnancy. Despite the important potential implications of such information, we know of no prior studies systematically examining this topic. Thus, the present study aimed to characterize for the first time the degree and time course of changes in smoking between learning of pregnancy and the first prenatal care visit.

Methods

Participants

Data were obtained from 107 women enrolled in a university-based outpatient research clinic for smoking cessation and relapse prevention during

* Corresponding author at: Rm. 1415 UHC, 1 So. Prospect St., Burlington, VT 05401, USA.
Fax: +1 802 656 5793.

E-mail address: sarah.heil@uvm.edu (S.H. Heil).

pregnancy and postpartum. Participants were recruited through prenatal care providers and the Women, Infants, and Children (WIC) clinic in the Burlington, Vermont area. Those who endorsed smoking at the time that they learned they were pregnant were invited to complete a detailed intake assessment evaluating eligibility for ongoing research trials.

Assessment

At the intake assessment, study participants completed questionnaires examining sociodemographics, current smoking status and environment, and smoking history. Relevant to the present study, participants were asked “On average, how many cigarettes per day did you smoke before learning you were pregnant?” to establish the rate of smoking pre-pregnancy. Participants also completed a Timeline Follow-back (TLFB) interview to establish the number of cigarettes smoked each day since learning of their pregnancy. Smoking TLFB interviews have been shown to provide reliable and valid data on patterns of smoking over extended periods of time in non-pregnant smokers (Brown et al., 1998; Toll et al., 2005). Briefly, the interviewer and the participant worked with a calendar to identify events of personal interest for the participant (i.e., day learned of pregnancy, appointments, family events, holidays, illnesses, and vacations) as anchor points to aid recall. The interviewer then led the participant forward from the day she learned she was pregnant, collecting daily reports of cigarette use through the day before the intake assessment. The date of the first prenatal care or WIC visit was collected from the maternal medical record. Attendance at a WIC visit was considered equivalent to attending a prenatal care visit because the smoking cessation counseling provided by WIC staff members is similar to that provided by prenatal care providers (Zapka et al., 2000).

Initially, pre-pregnancy smoking rate and the mean number of cigarettes smoked in the 7 days prior to their first prenatal care visit were compared for each participant. The first prenatal care visit took place an average of five weeks after participants learned of their pregnancy. Women who did not report smoking in the 7 days prior to their first prenatal care visit were labeled abstainers. Women who were still smoking, but smoked at a reduced level for each of the 7 days prior to their first prenatal care visit, were labeled reducers. All other women were labeled maintainers.

Once these three groups were identified, the time course associated with changes during the first 7 days after learning of their pregnancy was examined. This period was selected because reports suggest that smoking status early in a quit attempt predicts short- and longer-term success or failure (Higgins et al., 2006; Kenford et al., 1994; Yudkin et al., 1996).

Statistical analysis

Sociodemographic and smoking characteristics from participants' intake assessments were compared between participants classified as abstainers, reducers, and maintainers using analysis of variance (ANOVA) and chi-square tests.

Repeated-measures ANOVA was used to examine differences between groups (abstainers, reducers, or maintainers) and changes over time (pre-pregnancy and first 7 days after learning of pregnancy) on self-reported cigarettes per day. Additionally, a mixed model 4th order polynomial regression using random intercepts with group represented by a fixed factor was fit to the data. Analyses were performed using SAS software Version 9.2 (SAS Institute, Cary NC). Statistical significance was determined based on $\alpha = 0.05$.

Results

Categorization of smoking status

Among these 107 women who were smoking upon learning of their pregnancy, 24 (22%) were classified as abstainers, 66 (62%) reducers, and 17 (16%) maintainers.

Sociodemographics and other characteristics

Across groups, participants averaged 25 years of age, had a high school education, and had been smoking for 10 years (Table 1). Participants learned of their pregnancy at 5.1 (± 2.2) weeks gestational age and had their first prenatal care visit at 10.1 (± 3.6) weeks

gestational age. There were significant differences between groups on five sociodemographic and other characteristics (Table 1). Abstainers started smoking later and smoked fewer cigarettes pre-pregnancy relative to reducers and maintainers and abstainers and reducers were better educated, more likely to be pregnant for the first time, and more likely not to have smoking friends/family compared to maintainers.

Comparison of the time course of changes in smoking among abstainers, reducers, and maintainers

Significant differences between groups in the temporal changes in reported smoking were discernible in the first week after learning of pregnancy ($F_{14,728} = 11.6, p < .0001$). Abstainers and reducers substantially decreased their cigarettes per day ($F_{7,728} = 41.3, p < .0001$ and $F_{7,728} = 64.4, p < .0001$, respectively), while maintainers showed no evidence of altering their smoking behavior ($F_{7,728} = 0.61, p = .74$) (Fig. 1). Abstainers and reducers changed in a parallel fashion ($F_{7,704} = 0.29, p = .96$ for group by time interaction), with the vast majority of changes initiated within two days of learning of pregnancy. Following two-day reductions of 10.1 and 8.9 cigarettes per day for abstainers and reducers, respectively, there was no evidence of additional decreases during the first week for either group. The decreases observed after two days represented 83% (abstainers) and 72% (reducers) of the total reduction in cigarettes per day observed during the approximate five-week interval between learning of pregnancy and the first prenatal care visit. Additionally, mixed model polynomial regression revealed no significant differences in the quantitative pattern of change between abstainers and reducers although the abstainers' curve was uniformly lower relative to the curve of the reducers ($t_{321} = 3.6, p = .0003$).

The reported changes initiated by abstainers and reducers shortly after learning of pregnancy tended to be sustained through the weeks leading up to the first prenatal care appointment. Among the 24 abstainers, 17 (71%) initiated abstinence within the first two days after learning of pregnancy that was sustained uninterrupted through the first prenatal care visit. Among the 66 reducers, only 11 (17%) reported ever abstaining for one full day or more. Most of these reported only one quit attempt and these quit attempts had a median duration of four days (range, 1–37 days). Relatedly, the lack of change reported by maintainers also tended to persist. Among the 17 maintainers, 12 (71%) did not report abstaining from or reducing their smoking at any time between learning of pregnancy and their first prenatal care visit.

Discussion

The results of the present study reveal for the first time the time course of changes in smoking when women learn of pregnancy. The vast majority (84%) reported making substantive changes, usually within the first two days after learning of pregnancy, and largely sustaining these changes through their first prenatal care visit.

The results among abstainers are consistent with studies of professionally assisted quit attempts in pregnant and non-pregnant smokers where successful quitters usually initiate abstinence early in the quit attempt (Higgins et al., 2006; Kenford et al., 1994; Yudkin et al., 1996). The present results suggest that a similar pattern occurs among pregnant women who reduce their smoking. The similarities in the pattern of change among the abstainers and reducers are striking, with both groups reporting comparable, large reductions the first day after learning of pregnancy (7.5 and 5.9 cigarettes per day, respectively) and similar smaller reductions the second day (2.6 and 2.0 cigarettes per day, respectively). However, large differences in their pre-pregnancy smoking rate (12.3 vs. 18.8 cigarettes per day, respectively) mean that, despite parallel reductions shortly after learning of pregnancy, those who only reduced are still smoking an average of 7.6 cigarettes per day at their first prenatal care visit.

It is important to underscore the relationship between degree of change and socioeconomic status, with 58% of abstainers, 71% of

Download English Version:

<https://daneshyari.com/en/article/3100471>

Download Persian Version:

<https://daneshyari.com/article/3100471>

[Daneshyari.com](https://daneshyari.com)