Smoking and Harm-Reduction Efforts Among Postpartum Women

Mimi Nichter, Mark Nichter, Shelly Adrian, Kate Goldade, Laura Tesler and Myra Muramoto

Qual Health Res 2008; 18; 1184
DOI: 10.1177/1049732308321738

Qualitative Health Research
Volume 18 Number 9
September 2008 1184-1194
© 2008 Sage Publications
10.1177/1049732308321738
http://qhr.sagepub.com
hosted at
http://online.sagepub.com

Smoking and Harm-Reduction Efforts Among Postpartum Women

Mimi Nichter
Mark Nichter
Shelly Adrian
Kate Goldade
University of Arizona, Tucson, Arizona, USA
Laura Tesler
University of California, San Francisco, California, USA
Myra Muramoto
University of Arizona, Tucson, Arizona, USA

The authors present findings from a qualitative study on postpartum smoking among low-income women ($N = 44$) who had been smokers at the onset of pregnancy. Interview data collected after delivery at Months 1, 3, and 6 postpartum are discussed to explore contextual factors contributing to smoking abstinence, relapse, and harm-reduction practices. By 6 months postpartum, 10 women (23%) had completely quit, 21 women (48%) had reduced their smoking by 50% of their prepregnancy levels, and 7 women (16%) had reduced their smoking by one third of their prepregnancy levels. Thus, the majority of the women were engaging in significant harm-reduction efforts despite being entrenched in high-risk smoking environments where they were provided with few messages to quit. Many mothers were concerned about their moral identity as a smoker and expressed concerns that their child might initiate smoking at an early age. Future programs targeting this population should acknowledge women's harm-reduction efforts in environments where smoking is normative.

Keywords: *postpartum care; smoking; tobacco and health; women's health*

Smoking during the postpartum period constitutes a significant health risk for both mother and child. Despite substantial gains achieved in the past decade in smoking cessation among pregnant women, maintaining abstinence after delivery remains a challenge. Approximately one half of women who quit smoking during pregnancy resume smoking within 6 months postpartum, and by 1 year postdelivery, relapse rates are as high as 80% (Colman & Joyce, 2003; Kahn, Certain, & Whitaker, 2002; Mullen, 2004; Mullen, Richardson, Quinn, & Ershoff, 1997).

It is well documented that infants and children exposed to tobacco smoke in utero and postnatally are at increased risk for otitis media, wheezing and asthma, lower respiratory tract infections, impaired lung function, and sudden infant death syndrome (Gaffney, 2000, 2001; Nafstad, Jaakola, Hagen, Botten, & Kongerud, 1996). As infants, they are also more prone to suffer from gastrointestinal dysregulation such as colic and acid reflux (Gaffney, 2000, 2001; Shenassa & Brown, 2004; Sondergaard, Henriksen, Obel, & Wisborg, 2001). Studies have also linked deficits in cognitive and behavioral performance to children of smokers (Kahn, Zuckerman, Bauchner, Homer, & Wise, 2002; Maughan, Taylor, Taylor, Butler, & Bynner, 2001). In addition, women who smoke are less likely to breast-feed their babies, and those who do breast-feed wean their babies earlier than nonsmokers (Horta, Kraner, & Platt, 2001; Scott & Binns, 1998).

Several factors have been identified as contributors to postpartum relapse. Most notable among these is living with a smoker—a factor that increases the odds of returning to smoking fourfold (Kahn, Certain, et al., 2002; Mullen, 2004). Studies of pregnant women who smoke have found that between one half and three fourths of them have partners who smoke, making these women highly susceptible to relapse postpartum (Nichter et al., 2007). Risk of relapse is greater for women who stop smoking later in pregnancy, who smoke at higher levels, who stop breast-feeding early,

and who are concerned with weight loss (Edwards & Sims-Jones, 1998; Fingerhut, Kleinman, & Kendrick, 1990). Quantitative studies have identified several factors that contribute to sustained cessation among women who quit smoking during pregnancy and remain a nonsmoker postpartum, including an intention to remain a nonsmoker, confidence in maintaining abstinence, and having perceived support for remaining a nonsmoker (Edwards & Sims-Jones, 1998; Mullen, Quinn, & Erschoff, 1990).

Several qualitative studies have explored factors influencing smoking and quitting among pregnant adolescents and women (Graham, 1987, 1993, 1994; McDermott & Graham, 2006; Nichter et al., 2007; Oaks, 2001; Ratner, Johnson, & Bottorff, 1999; Wakefield, Reid, Roberts, & Mullins, 1998). In contrast, relatively few qualitative studies have explored women's subjective smoking experiences during the postpartum period (Bottorff, Johnson, Irwin, & Ratner, 2000; Coxhead & Rhodes, 2006; Edwards & Sims-Jones, 1998; Ratner et al., 1999). One reason why social scientists have focused more on pregnant women who smoke than on postpartum women is because smoking while visibly pregnant indexes issues related to social norms and moral identity as well as notions of what constitutes good mothering. Pregnant women, regardless of social class, are given strong verbal and nonverbal cues not to smoke. At present, little is known about norms related to smoking postpartum among low-income families—for example, whether negative responses to smoking during pregnancy are relaxed or whether issues related to moral identity become less salient. To date, moral identity shifts and contextual factors affecting smoking after delivery have remained largely unexplored.

Quantitative analyses of prepartum and postpartum smoking have typically categorized women into simple dichotomous categories of smoker or nonsmoker. This categorization has reduced our understanding of smoking trajectories among mothers and obscured our understanding of quitting as a process that typically takes place over time. Quitting might entail significant harm-reduction efforts that serve as a foundation for future, more successful quit attempts. Harm reduction, through "reduced smoking" (reduction in the number of cigarettes consumed per day among continuing smokers), is a method to achieve cessation as well as a goal itself among smokers unwilling to make a quit attempt (Hughes, 2000).

To date, the findings of studies on the benefits of harm reduction and the impact of reduced smoking on morbidity and mortality have been mixed. In a review article, Hughes (2000) concluded that smokers can sustain reductions in smoking, and reductions in smoking do not undermine cessation (also see Stratton, 2001). Different conclusions have been reached about whether harm reduction decreases the risk for tobacco-related diseases. Godtfredsen, Prescott, and Osler (2005) found that among individuals who are heavy smokers (smoking 15 or more cigarettes per day), smoking reduction by 50% significantly reduces the risk of lung cancer. Conversely, a recent prospective cohort study found no evidence that heavy smokers who cut down their daily cigarette consumption by less than 50% significantly reduced their risk of premature death (Tverdal & Bjartveit, 2006). Nonetheless, there might be some benefits of smoking fewer cigarettes per day for those who cannot completely quit, in that reducing one's daily cigarette consumption might increase self-efficacy, decrease nicotine dependency, and pave the way for future cessation.

To date, cessation intervention programs for postpartum women have been met with only limited success (Gaffney, 2006; Levine & Marcus, 2004; Ma, Goins, Pbert, & Ockene, 2005). An appreciation of women's lives postpartum and an understanding of how smoking serves as a resource during this transitional time might contribute to the development of more effective and context-responsive smoking interventions.

Data for this article on postpartum smoking are derived from a longitudinal ethnographic study of low-income women who were smokers at the onset of pregnancy. We draw on interview data collected after delivery and up to 6 months postpartum to explore contextual factors contributing to smoking cessation, relapse, and harm-reduction efforts during the postpartum period. Beyond a quantitative presentation of how many women had quit or how many had relapsed, we present data on the experiences of women engaged in the "work" of smoking cessation. Smoking cessation is a dynamic process in which individuals engage in several forms of work involving lifestyle change and the management of self-identity and social relations as well as the work of coping with stress.

Postpartum interviews were focused on a range of issues, including (a) the identification of factors (e.g., environmental, contextual, health, etc.) that contributed to sustained abstinence postpartum and factors contributing to relapse, (b) an exploration of whether harm-reduction efforts during pregnancy were continued postpartum or whether women returned to prepregnancy smoking levels, (c) an examination of

how postpartum smoking affected women's decisions to breast-feed, and (d) a consideration of whether and to what extent antismoking messages from partners, family members, and providers changed after delivery.

Method

The study was conducted over an 18-month period (2000 to 2002) in a large city in the Southwestern United States. One of the main goals of this largely qualitative study was to follow women from pregnancy to postpartum to collect natural histories of smoking trajectories over time. The present article draws on data collected among 44 low-income women after delivery to 6 months postpartum.

An earlier article reported on women's smoking during pregnancy from the same cohort (Nichter et al., 2007). Eligibility criteria specified that a woman had been no more than 28 weeks pregnant at the time that she entered the study, had been smoking at the time she learned of her pregnancy, and was low income. Low income was defined as eligible for WIC (Women, Infants, and Children supplemental nutrition program); that is, the woman had an income of less than $30,000 for a family of four or was eligible for Medicaid. At the time of enrollment, women were asked about their present smoking status but were not recruited on the basis of their desire or intention to quit. Participants were aged 18 or older and fluent in either English or Spanish. Women were recruited through WIC clinics, family practice offices, baby fairs, ads in a weekly local shopper magazine, and flyers in secondhand shops that sold maternity clothes. Approval for the study was obtained from the Institutional Review Board at the University of Arizona. Informed consent was obtained from each of the participants in the study.

Three in-person interviews were conducted during Months 1, 3, and 6 postpartum. Semistructured in-person interviews were conducted at the woman's home and typically lasted about 1.5 to 2 hours per interview. A range of topics was covered, including the woman's and infant's general health, stress and depression, smoking and quit attempts, breast-feeding, harm-reduction practices related to smoking and other habits (e.g., changes in alcohol and drug consumption), partner support and lack of support, verbal and nonverbal messages about smoking by members of her social network, and interactions with health care providers. Women were asked to discuss how their smoking had changed since delivery. At each interview, they were asked to recount any changes in smoking quantity that had occurred since the previous interview. The interview schedule contained a set of core questions that were repeated at each interview as well as questions introduced during specific interviews to minimize informant fatigue and vary interview content. Interviews were tape-recorded and later transcribed. A saliva sample was collected at each of the in-person interviews, and cotinine analysis served as a validation of reported smoking abstinence.

Each informant was interviewed three times postpartum by the same interviewer who had met with her during pregnancy. This methodology allowed three female interviewers to develop a close rapport with each of her informants. A fourth interviewer, a native Spanish speaker, interviewed four women who preferred to be interviewed in their native language.

Interview questions were developed from pilot research with key informants from the community and medical professionals serving these women. Issues related to the Spanish translation were discussed among the interviewers, as three of the four were fluent in Spanish. Interviewers participated in the development and refinement of the questionnaire, and weekly meetings provided an opportunity to discuss emergent issues with the research team. Each interviewer wrote up interview notes (1- to 2-page reports on each interview that detailed the content as well as the context of the interview). Because interviews took place in women's homes, interviewers had ample opportunity to observe women's environments, and these observations were included in the notes. Ongoing review of these notes and transcribed interviews ensured that any problems with the data-collection process were quickly resolved.

Informants were given $20 at the end of each interview and a small gift (an infant health kit) following the birth of their child. In many cases, women stated that they looked forward to interviews as an opportunity to talk about their problems, particularly in the postpartum period when they were most socially isolated.

Description of the Sample

Of the 44 women who participated in the study postpartum, 62% (n = 27) were Anglo American, 25% (n = 11) were Mexican American, 2% (n = 1)

were African American, and 11% ($n = 5$) were multiethnic. The mean age of participants was 24 years, with a range between 18 and 43. One half of the women were married. In all, 36% ($n = 16$) of women were primapara; 64% ($n = 28$) were multipara. In terms of educational status, 34% ($n = 15$) had not graduated from high school, 39% ($n = 17$) had a high school diploma, and 27% ($n = 12$) had some post-high-school education.

Data Analysis

All interviews were tape-recorded and later transcribed verbatim and coded using ATLAS.ti 5.0 (Muhr, 2004). This software program permits classification and retrieval of data on the basis of codes, which facilitates the comparison of discourse across participants. A coding scheme was developed by the research team based on interview questions and important themes emergent from interviews and field notes. Coders were given extensive training in utilizing the coding scheme. After each coder had independently completed three interviews, the results were cross-checked for accuracy, and interrater reliability was established. Regular meetings were held to discuss emergent themes and problems with codes and to consider the creation of new codes that more adequately reflected women's narratives.

Findings

Smoking Status

All informants were daily smokers prior to pregnancy, with a mean number of cigarettes smoked per day at 20. Although almost one half of informants were able to quit at some point in their pregnancy for 3 weeks or more, only 32% remained nonsmokers throughout their pregnancy. In a previous article on smoking during pregnancy among this sample, we identified three distinct patterns that emerged: quitters, harm reducers, and shifters (Nichter et al., 2007). The first category, "quitters" ($n = 14$, 32%), were women who successfully quit smoking through their pregnancy. "Harm reducers" ($n = 19$, 43%) were women who engaged in significant harm-reduction efforts (defined as having reduced smoking during pregnancy by at least 50% of their prepregnancy smoking level and maintaining that reduction to the end of term). The third category, "shifters" ($n = 11$, 25%), were women who, despite intermittent harm reduction and quit attempts, were unable to reduce their smoking by at least 50% of their prepregnancy level across the months of pregnancy. Their smoking trajectories across pregnancy were marked by short-term and erratic changes with both reductions and increases in smoking occurring. In terms of prepregnancy smoking levels of women in these three groups, the quitters had the lowest daily mean (18 cigarettes per day) compared to the harm reducers (20 cigarettes) and shifters (23 cigarettes).

By 6 months postpartum, considerable changes had occurred in the women's smoking status. Of the 14 women who had quit smoking during pregnancy, 8 remained quit and 2 other women who had smoked during pregnancy quit. Among women who continued to smoke during pregnancy, by 6 months postpartum almost one half ($n = 21$, 48%) had reduced their smoking by 50% of their prepregnancy level. An additional 7 women (16%) had reduced their smoking by one third when compared to their prepregnancy levels. Notably, only 6 women (14%) of the sample returned to smoking at the same level as at prepregnancy.

Women Who Quit Smoking During Pregnancy: What Happened Postpartum?

Among those women who had quit smoking during pregnancy ($n = 14$), all remained quit for the first month postpartum. However, by Month 3 postpartum, 10 women (70%) remained quit, and by Month 6, 8 women (62%) remained quit. Of the 14 women (86%) who reported abstinence, 12 had cotinine levels of less than 50 ng/ml. Of the 8 women who remained quit, 4 were Hispanic and had been low-level smokers prior to becoming pregnant. The other women had developed strong nonsmoker identities during pregnancy and were motivated to stay quit for the health of the baby. Although 6 women did relapse postpartum, it is noteworthy that 6 months following delivery these women were smoking at one half of their prepregnancy level. Thus, these women were still engaging in significant harm-reduction efforts.

Women who had quit smoking during pregnancy and who remained quit postpartum were motivated to do so largely because of strong social support from their partners and friends. Another widely discussed motivation was a concern about being seen smoking by their children, even at very young ages. For example, when asked about her motivations for staying quit after delivery, a mother of three explained, "I don't really want to start smoking again because it's expensive but

mostly it's because of my daughter. I look at my baby and I don't want her to be smoking. And my other kids are at an age when they can really see what I'm doing."

Below, we discuss case studies of two women who had quit smoking during pregnancy and relapsed postpartum. These case studies allow us to highlight contextual factors that led to resuming smoking after delivery and provide data on how and why women engage in harm-reduction efforts.

Case 1. Patricia, a 21-year-old multiethnic woman, was married and pregnant with her first child. Before pregnancy, she smoked half a pack to a pack a day. During pregnancy, she gradually reduced her cigarette consumption, and from Month 5 until delivery she was completely abstinent. By 3 months postpartum, Patricia had resumed smoking three cigarettes a day and felt comfortable with her smoking level. Compared to what she had smoked prepregnancy, she explained, she hardly felt like she was a smoker anymore. Having a cigarette helped her deal with boredom: "I have nothing else to do except take care of my son." Smoking outside her home enabled her to take a much-needed break from the hard work of being a mom and helped her deal with feelings of anger and stress.

Although during pregnancy her husband encouraged her to quit—even reducing his own smoking to just one cigarette a day to offer support—after delivery they began to smoke together while drinking and after meals as a way of spending time together.

Patricia exclusively breast-fed her baby for more than 2 months. As a precaution, she waited some time after having a cigarette before she breast-fed so she would not smell like smoke. She did not think that smoking affected her breast milk, nor did she think that smoking three cigarettes a day would affect her own or her baby's health if she continued to smoke outside. At the last interview at 6 months postpartum, Patricia's smoking remained at that level.

Case 2. Melissa was a single mom, aged 31, who worked full-time to support her three children. Prior to this pregnancy, Melissa smoked a pack or more a day, a number that markedly increased when she went for "girl's night out." During her previous two pregnancies, she had reduced her smoking to a half a pack a day. She attributed her success in quitting during this pregnancy to the encouragement and pleading of her two children (aged 10 and 12) who were concerned about her health and the baby's and to coworkers who smoked but had encouraged her to quit.

Despite wanting to stay quit after delivery, Melissa recognized near the end of her pregnancy that resuming smoking would be a big temptation as a way of "getting her life back." She explained,

> I'm probably gonna socially smoke. I'm gonna go out and get drunk after I have the baby. I'm gonna smoke and I'm gonna drink. Because I'm not pregnant and I can. . . . I'll want to put myself in a social environment. I need some adult interaction.

Two months postpartum, Melissa smoked with family members and then resumed smoking one cigarette a day. She initially rationalized her smoking by saying that it might help her reduce some weight but quickly realized that it was not effective. By 4 months postpartum, Melissa was smoking 6 to 8 cigarettes a day and by 6 months postpartum, was up to 10 cigarettes a day. Much of her smoking was done at work or in the evening when the kids fell asleep and she felt bored.

Melissa lived and worked in high-risk smoking environments. Aside from her two children, she had no social support for quitting, as her social network was entirely composed of smokers. At her job, she was offered cigarettes by coworkers as soon as she returned after delivery and pressed to join them for smoke breaks. Her mother was also a smoker, who even smoked around the baby. Melissa expressed concern about this but felt powerless to tell her to stop. Her friends who were smokers also smoked around their children. Melissa felt particularly ashamed when she smoked near the baby, especially while putting her in the car seat and carrying her outside while she smoked. "The baby just stares at me and watches the cigarette," Melissa observed.

Despite her smoking, Melissa continued to exclusively breast-feed for 3 months and then introduced formula. Although initially she felt it was not good to start smoking again when she was breast-feeding because "at least some nicotine must get to her," Melissa added, "When it really mattered [in utero], I was quit." When asked if she waited after having a cigarette to breast-feed, Melissa explained she did not because "nicotine is in your body if you smoke, so it doesn't matter how long before or after a cigarette you breast-feed." She noted that smoking had no effect on the quantity of milk she had, although she imagined that "nicotine might create a flavor."

Although Melissa recognized that she was sending her children the wrong message by smoking around them, she had little motivation to quit because she inhabited a local world where smoking was pervasive. Staying quit also carried a high social risk as it might alienate her from types of social interaction viewed as desirable. Notably, Melissa reduced her smoking significantly from her prepregnancy level from more than a pack a day to a half pack a day. Her motivation for doing so was mostly her children's desires to see her as a nonsmoker and their concern about her health.

In both case studies presented, we find that the return to smoking postpartum is a gradual process that enables a woman to reenter her social world as either a single or a married woman. Smoking at a reduced level when compared to prepregnancy levels was perceived to be relatively safe, and both women expressed pride that they had not exposed their fetus to nicotine.

Women Who Had Not Quit During Pregnancy: Harm Reducers and Shifters

Harm reducers (n = 19) were women in our study who reduced their smoking significantly (by 50% of their prepregnancy level) during pregnancy. Most of these women were motivated to engage in harm reduction by both issues related to their moral identity as a good mother and concerns about the health of their fetus. Postpartum, we explored whether these women had quit smoking, returned to their prepregnancy levels of smoking (M = 20 cigarettes per day), or experienced new patterns of smoking. Results indicated that by 6 months postpartum, all 19 women (100%) continued to smoke. It is important that, despite the fact that they had not quit, almost 70% (n = 13) of these women still maintained a smoking level that was 50% lower than the amount smoked prepregnancy, at 6 months postpartum. Another 3 women in this category had reduced their smoking by one third of their prepregnancy level, still a substantial reduction. In fact, only 3 women (16%) had returned to the same level they had smoked prepregnancy.

Shifters (n = 11), identified as a distinct category of smoker during pregnancy, were those women who were able to cut back only slightly during pregnancy, typically for a short time, and exhibited erratic smoking patterns, shifting between reductions and increases in their smoking levels (prepregnancy M = 23 cigarettes per day). As a group, these women had the least amount of social support and appeared to be the most vulnerable in the sample, with lives marked by economic, relational, and residential instability. Three of these women were able to quit smoking postpartum (27%), two (18%) reduced their smoking by 50% of their prepregnancy level, and four women (36%) reduced their smoking by one third of their prepregnancy level. Two women (18%) reverted to their prepregnancy smoking level. Reasons for harm-reduction efforts postpartum among the harm reducers and shifters are discussed below.

Reasons for Harm-Reduction Efforts Following Delivery

One reason for reduced smoking in the first month following delivery was the belief that a newborn was particularly vulnerable to smoke. While pregnant, the mother's body was thought to serve as a filter for the smoke, preventing it from reaching and harming the fetus. After birth and during the first month, cigarette smoke was particularly hazardous to the infant's small lungs. Once the baby was bigger, however, it was believed that the child would become accustomed to the smoke. This idea might arise in part from providers' messages that women should limit the exposure of the newborn to residual smoke that might linger on the mother's shirt by changing their shirt after they have had a cigarette. Once the baby had passed this critical period of vulnerability, many of our informants began to increase their smoking.

Guilt About Smoking and Intentions to Quit

Among the women who engaged in significant harm-reduction efforts, there was a recognition and concern about the harm they might be causing their child. Women expressed considerable guilt about smoking. Many women longed to be a good role model for their child and described their desire to quit before the child was old enough to imitate their smoking or had recognition of their behavior. They believed their smoking would predispose their children to smoke when they got older. One woman vividly related how her friend's toddler had already used a pacifier as a cigarette, imitating his mom's frequent smoking. Images of their own children becoming smokers were frequent in their narratives. One woman explained how she already hid her smoking from her 6-month-old baby: "I don't really want him

to see me smoking. I don't want him to think that's a cool thing to do. . . . I know what happened to me and that's why I wanted to smoke, and I ended up getting addicted."

Some women hoped that their harm-reduction efforts would enable them to achieve a goal of quitting by the baby's 1st birthday. They viewed cutting back during pregnancy as a step toward quitting postpartum. Some informants noted that because they were no longer pregnant, they might be able to use the patch or nicotine gum to help them quit—neither of which were allowed during pregnancy. A few women noted that it was important to quit within the 1st year because by the time the baby became a toddler, the baby would require increased energy and ample breath to keep up with.

In interviews, very few women made direct statements about secondhand smoke being unhealthy for their children. Rather, women had only a vague understanding about how tobacco would actually harm their child. As one woman noted,

> I still get that guilty feeling. . . . Everybody's quick to tell me "don't smoke," but nobody's told me actually what it does. You know, it's just like, I think it's better off that I don't. But they just tell me, "Oh it's bad, and it's bad for your health and it's bad for his health," but they don't tell me why.

Significantly, in health care encounters, very few of our informants were asked about their smoking after pregnancy or, if asked, were simply told not to smoke. Typically when the woman said she did not smoke inside the home, the conversation ended there. One informant, when asked if her provider had asked about her smoking, responded, "It's not like the doctor has given up on me, but I guess they are just used to seeing a lot of women who smoke, because the doctor I go to is for low-income people. He just said, 'I'm only gonna tell you once.' After that, he hasn't asked me nothing."

Despite intentions to quit smoking, few of these women were able to do so. One factor that reduced their ability to quit was the need to return to work as soon as possible. Most women returned to work environments where coworkers smoked. Many also lived in social worlds where smoking was normative. Spending time with partners, friends, and family often involved smoking as a form of interaction and shared consumption. Some women commented that if their husband or boyfriend were to quit, it would limit their access to cigarettes and there would be less temptation to light up. Other factors that led women to continue smoking were the use of cigarettes as stress management, as self-medication during times of anger, as something to do when bored, and as a way to enjoy oneself in social contexts where drinking and smoking went together.

Breast-Feeding and Smoking

During the third trimester of pregnancy, informants were asked whether they intended to breast-feed and, if so, for how long. Of the sample, 84% ($n = 37$), equally distributed across quitters, harm reducers, and shifters, expressed an intention to breast-feed. How long they intended to breast-feed varied greatly. Although some women considered such a decision to be contingent on how their babies responded to breast milk, some said they planned to breast-feed until the baby started teething. Following delivery, 15 women (34%) did not initiate breast-feeding, and 19 women (43%) who did breast-feed did so for 1 month or less. There were no significant differences in smoking status between women who initiated breast-feeding and those who did not. In all, 10 women (33%) who were smokers did not breast-feed, compared to 5 women (36%) who had quit smoking. Even among women who did initiate breast-feeding, the bottle was introduced early. Notably, by 3 months postpartum, only 3 women in the entire sample were exclusively breast-feeding, far less than the 6 months recommended by the American Academy of Pediatrics (2005).

Several reasons emerged as factors contributing to the early introduction of infant formula. First, women expressed concern that breast-feeding limited the mother to being the only person who could feed the baby, which hindered their ability to interview for jobs and return to work. Needing to breast-feed also limited their ability to take breaks from the demands of child rearing, which was viewed as a significant loss. Breast-feeding was described as being energy- and time-consuming—a behavior that prevented women from sleeping and eating properly. Another issue noted by a majority of women was the stigma of breast-feeding in public. As low-income mothers, the women spent considerable time in public spaces such as health care offices (in an effort to obtain various social services) and on public transportation—spaces that were viewed as nonconducive to breast-feeding.

Perceived Health Risks of Smoking and Breast-Feeding

The majority of women in our sample (more than 90%) voiced concern about the health risks that smoking posed to their nursing infants. When directly asked whether smoking affects breast milk, one woman responded,

> I think it can. I mean, look what it does to you, and it's going to get, it gets not only into your lungs, but it gets into your bloodstream and everything, so why wouldn't it get into your milk and go to the baby? I don't know what it would do to the baby, but I'm sure it would do something.

When asked how that might occur, she explained that smoking "might kill or reduce the nutrients or vitamins in the breast milk or make less of it transfer to the baby." Several women commented on how smoking altered the constitution and taste of the milk:

> I would think it would make it, I mean obviously it's passing the nicotine to the baby and I just think it would make it taste gross.

> It's not good . . . 'cause the baby is getting the nicotine like I get it. . . . I assume it goes through your body. . . . It's gonna get in, like, if it's 2 minutes later or . . . 2 hours later, it's gonna get in.

Notably, women's concerns about the health risks of smoking while breast-feeding led them to engage in harm-reduction efforts, particularly during the first month postpartum.

Addiction to Nicotine Through Breast Milk

Several women voiced concern about the addictive qualities of nicotine being passed on to the child. They believed that their babies were addicted to nicotine because once they introduced formula, there were times when a bottle would not be satisfying—the baby would remain fussy until breast-fed. This was considered evidence of the infant's addiction to nicotine. Conversely, one woman who was smoking and breast-feeding once a day at 3 months postpartum explained that she needed to quit smoking before she could completely wean her child. She explained, "He's probably as addicted to nicotine as I am. If I cut down, if I stop smoking, then his withdrawal won't be as hard either. I've been thinking about that a lot; it makes me feel bad."

The three women who continued to exclusively breast-feed observed that their babies gained weight quickly and were sick less often. They considered their babies to be less vulnerable to any negative impacts that smoking might or might not have on breast milk. None of them perceived a risk between smoking and breast-feeding, and two of them continued to smoke at previous levels. They all mentioned receiving encouragement to breast-feed. In addition, two of them were told by service providers that it was okay to breast-feed and smoke. For these women, the health benefits of breast-feeding for the baby outweighed any risks she might have incurred.

Smoking for Weight Control Postpartum

Over the course of the study, we directly asked women whether they thought smoking helped them to control their weight, and we monitored their unprompted statements that emerged during discussions about other issues. Fear of weight gain is commonly cited in the literature as a deterrent to smoking cessation, particularly among women. Approximately one half of women in our sample thought that smoking did serve as a form of weight control. Several women noted that smoking served as a substitute for eating and that temptations to eat had increased after delivery, when they were confined to their home with the baby. As one woman explained, "Honestly, I either eat or smoke. . . . I make the choice, I don't want to get big, so I'll go smoke. But then sometimes I'll go out and have a cigarette and then I'll eat something. I can't do much else. I can't get up and leave, I can't even go for a walk."

The issue of smoking as a weight control strategy after delivery is complex and indexes a variety of issues including how much one smokes and one's level of satisfaction with one's weight. Because of normative weight gain during pregnancy, many informants were anxious to reduce their pregnancy weight postpartum. Although several women explained that smoking gave them something to do besides eat, they saw this as a temporary strategy. Losing some of their pregnancy weight was seen as a necessary first step before quitting. As one woman explained, "I need to see how well my diet goes first and then I can start concentrating on my quitting again." Fears of further

weight gain were predicated on experiences of previous quit attempts when they had gained weight. The thought of "ballooning out again" shortly after delivery was seen as too much of a social risk for some women who longed to "get their bodies back." Several women noted that their partners were urging them to lose weight and that this might have made a decision to quit very difficult during this transitional period.

It is important to recognize that although women did make an association between weight control and smoking, the majority of them did not cite weight control as the main reason for their smoking. Rather, issues of stress because of financial and relational problems, boredom, and having partners and friends who smoked were far more prominent in their narratives. In fact, several women commented that they did not believe they would gain weight if they quit. As one woman explained, "People say that if you quit smoking, you're gonna gain weight. But I don't think so. I think if you quit smoking, you'll feel more healthy, you'll exercise and be more active, you'll have more energy." Thus, for many of our informants who were engaged in significant harm-reduction efforts, quitting smoking was a goal and seen as a healthy life decision despite their awareness of the possibility of weight gain.

Discussion

This qualitative study of low-income women (N = 44) postpartum reveals that many women who do not quit smoking are engaging in significant harm-reduction efforts. At 6 months postpartum, almost one fourth (23%, n = 10) had quit smoking completely, almost one half (48%, n = 21) had reduced their smoking by 50% of their prepregnancy levels, and 7 women (16%) had reduced their smoking by one third of their prepregnancy levels. Only 6 women of the 44 (14%) returned to smoking at the same level as prepregnancy. Previous studies that have dichotomized postpartum women as "relapsed to smoking" or "quitters" have failed to recognize harm-reduction efforts. This has obscured an appreciation of women's ongoing efforts and accomplishments at reducing their smoking, efforts that can serve as important first steps in the process of quitting.

Women who were nonsmokers at 6 months postpartum were mostly those who had quit smoking during pregnancy and had strong social support for quitting from partners or family members. These women were clear about their intentions to stay quit as a means of preventing their children from becoming smokers. Quitting smoking was part of a larger life transformation that included trying to eat healthier and exercise, becoming a good role model for their child, and moving onto a career path.

In contrast, women who had stopped smoking during pregnancy but relapsed postpartum often spoke of smoking as one of the few ways they had to cope with the difficulties of their daily lives. Smoking also represented a way they could resume their adult lives and interact with people as they had before pregnancy (also see Coxhead & Rhodes, 2006; Graham, 1994). Although some of the women who continued to smoke at 6 months postpartum were highly motivated to quit, they lacked the social support to do so. Continuing to smoke, but at levels reduced from those before pregnancy, was a way to manage stress and to remain part of their established social circle.

Almost all of the women we interviewed were entrenched in high-risk smoking environments. During pregnancy, many received protective antismoking messages, both verbal and nonverbal, from a range of sources including health care providers, partners, parents, and coworkers (Nichter et al., 2007). Many women described feeling that they were under surveillance when they were visibly pregnant. These protective factors provided an impetus to quit smoking or cut down significantly during pregnancy, as they felt that their identity as "a good mom" was in question. Thus, pregnancy was a time when protective factors were strong in counterbalancing environments of risk (Nichter et al., 2007).

During the postpartum period, however, protective messages not to smoke tended to dissipate, whereas the risk environment remained the same (or even intensified), and reasons for smoking increased. Husbands or partners who had encouraged them to quit during pregnancy were far more ambivalent following delivery. Returning to work often placed women in another high-risk environment where coworkers tended to be smokers. For many of our informants, smoking was the main social activity engaged in during time away from the kids—be it with a partner, with coworkers, or alone while the kids were napping.

Several limitations of the present study should be noted. First, the sample size of postpartum women is quite small (N = 44), and thus generalizations to other groups of women might be inappropriate. Although we did include women of different ethnicities in our sampling, the sample size precludes

detecting potentially significant differences in smoking during the postpartum period across ethnic groups. In addition, our intensive interviews postpartum might have biased women's reporting of their smoking or might have enhanced their discussions of guilt about their continued smoking.

Implications for Health Care Providers

There is a clear need for more effective smoking cessation interventions for low-income women during the postpartum period. This qualitative study suggests that after delivery many women are actively engaging in reduced smoking and are doing so in environments where smoking is normative. These efforts are in and of themselves laudable and need to be validated and encouraged as steps on the road to cessation.

After delivery, when emphasis in the health care setting shifts to the infant, we found that few women were being asked about their smoking status. When a woman did "admit" to a provider that she smoked, she was typically encouraged to quit completely, a recommendation that might have been unlikely given her life circumstances. The emphasis on quitting as the only acceptable goal might actually work against mothers' harm-reduction efforts, especially in medical encounters where mothers want to present themselves as moral and responsible parents (Coxhead & Rhodes, 2006). Rather than telling women that they should quit, it might be prudent to support and encourage their efforts at continued harm reduction as a stage toward eventual quitting (Wakefield et al., 1998).

This raises the question of whether reducing the number of cigarettes that one smokes can be sustained and if such behavior typically leads to cessation. Results of research suggest that harm-reduction efforts (smoking less than or equal to 50% than at baseline) can be sustained by smokers and that reductions in smoking do not undermine cessation attempts (Hughes, 2000; Stratton, 2001). In fact, a pilot study of a smoking-reduction intervention is currently under way (Levinson et al., 2007).

Beyond supplying general information to mothers about the risks of smoking, health education efforts need to directly address the questions that postpartum women raise. Although all the women we interviewed were aware that smoking was bad for their baby, they were unclear about *how* smoking could affect their infant's health, particularly if they smoked cigarettes outside the home, a behavior they felt was morally responsible and that protected their child from harm. They were also unclear about whether they should breast-feed if they continued to smoke. Women in this sample felt that the little information they had received from providers was not helpful or was presented in a way that was condescending or judgmental. Health care providers and those who work in the field of tobacco research need to recognize that many women who continue to smoke postpartum are anxious to quit and are guilt ridden about the possibility that their child might become a smoker. Rather than continuing to label them as "bad mothers," we need to actively develop cessation intervention programs that answer their questions and address their concerns, acknowledge their efforts, and encourage next steps on the road to cessation.

References

American Academy of Pediatrics. (2005). Policy statement: Breastfeeding and the use of human milk. *Pediatrics*, *115*(2), 496-506.

Bottorff, J. L., Johnson, J. L., Irwin, L. G., & Ratner, P. A. (2000). Narratives of smoking relapse: The stories of postpartum women. *Research in Nursing & Health*, *23*, 126-134.

Colman, G. J., & Joyce, T. (2003). Trends in smoking before, during and after pregnancy in ten states. *American Journal of Preventive Medicine*, *24*, 29-35.

Coxhead, L., & Rhodes, T. (2006). Accounting for risk and responsibility associated with smoking among mothers of children with respiratory illness. *Sociology of Health & Illness*, *28*(1), 98-121.

Edwards, N., & Sims-Jones, N. (1998). Smoking and smoking relapse during pregnancy and postpartum: Results of a qualitative study. *Birth*, *25*, 94-100.

Fingerhut, L. A., Kleinman, J. C., & Kendrick, J. S. (1990). Smoking before, during and after pregnancy. *American Journal of Public Health, 80*, 541-544.

Gaffney, K. F. (2000). Tobacco smoke exposure and pediatric otitis media: Empirical basis for practice. *Primary Care Practice*, *4*(5), 508-514.

Gaffney, K. F. (2001). Infant exposure to environmental tobacco smoke. *Journal of Nursing Scholarship*, *33*, 343-347.

Gaffney, K. F. (2006). Postpartum smoking relapse and becoming a mother. *Journal of Nursing Scholarship*, *38*(1), 26-30.

Godtfredsen, N., Prescott, E., & Osler, M. (2005). Effect of smoking reduction on lung cancer risk. *Journal of the American Medical Association*, *294*, 1505-1510.

Graham, H. (1987). Women's smoking and family health. *Social Science & Medicine*, *25*, 47-56.

Graham, H. (1993). *When life's a drag: Women smoking and disadvantage*. London: HMSO.

Graham, H. (1994). Gender and class as dimensions of smoking behavior in Britain: Insights from a survey of mothers. *Social Science & Medicine*, *38*(5), 691-698.

Horta, B. L., Kraner, M. S., & Platt, R. W. (2001). Maternal smoking and the risk of early weaning: A meta-analysis. *American Journal of Public Health*, *91*, 304-307.

Hughes, J. (2000). Reduced smoking: An introduction and review of the evidence. *Addiction*, *95*(Suppl. 1), 3-7.

Kahn, R. S., Certain, L., & Whitaker, R. C. (2002). A reexamination of smoking before, during, and after pregnancy. *American Journal of Public Health*, *92*, 1801-1808.

Kahn, R. S., Zuckerman, B., Bauchner, H., Homer, C. J., & Wise, P. H. (2002). Women's health after pregnancy and child outcomes at age 3 years: A prospective cohort study. *American Journal of Public Health*, *92*, 1312-1318.

Levine, M. D., & Marcus, M. D. (2004). Do changes in mood and concerns about weight relate to smoking relapse in the postpartum period? *Archives of Women's Mental Health*, *7*, 155-166.

Levinson, A. H., Glasgow, R. E., Gaglio, B., Smith, T., Cahoon, J., & Marcus, A. (2007). Tailored behavioral support for smoking reduction: Development and pilot results of an innovative intervention. *Health Education Research*, *23*, 335-346.

Ma, Y., Goins, K. V., Pbert, L., & Ockene, J. K. (2005). Predictors of smoking cessation in pregnancy and maintenance postpartum in low-income women. *Maternal and Child Health Journal*, *9*(4), 393-402.

Maughan, B., Taylor, C., Taylor, A., Butler, N., & Bynner, J. (2001). Pregnancy smoking and childhood conduct problems: A causal association? *Journal of Child Psychiatry*, *42*, 1021-1028.

McDermott, E., & Graham, H. (2006). Young mothers and smoking: Evidence of an evidence gap. *Social Science & Medicine*. Retrieved May 25, 2006, from http://sciencedirect.com

Muhr, T. (2004). *User's manual for ATLAS.ti 5.0*. Berlin, Germany: Scientific Software Development.

Mullen, P. D. (2004). How can more smoking suspension during pregnancy become lifelong abstinence? Lessons learned from predictors, interventions and gaps in our accumulated knowledge. *Nicotine & Tobacco Research*, *6*(Suppl. 2), S217-S238.

Mullen, P. D., Quinn, V. P., & Erschoff, D. (1990). Maintenance of nonsmoking postpartum by women who stopped smoking during pregnancy. *American Journal of Public Health*, *80*, 992-994.

Mullen, P. D., Richardson, M. A., Quinn, V. P., & Ershoff, D. H. (1997). Postpartum return to smoking: Who is at risk and when. *American Journal of Health Promotion*, *11*, 323-330.

Nafstad, P., Jaakola, J. J., Hagen, J. A., Botten, G., & Kongerud, J. (1996). Breastfeeding, maternal smoking, and lower respiratory tract infections. *European Respiratory Journal*, *9*, 2623-2629.

Nichter, M., Nichter, M., Muramoto, M., Adrian, S., Goldade, K., Tesler, L., et al. (2007). Smoking among low income pregnant women: An ethnographic analysis. *Health Education & Behavior*, *34*(5), 748-764.

Oaks, L. (2001). *Smoking & pregnancy: The politics of fetal protection*. New Brunswick, NJ: Rutgers University Press.

Ratner, P. A., Johnson, J. L., & Bottorff, J. L. (1999). Smoking relapse and early weaning among postpartum women: Is there an association? *Birth*, *26*, 76-82.

Scott, J. A., & Binns, C. W. (1998). Factors associated with the initiation and duration of breastfeeding: A review of the literature. *Australian Journal of Nutrition & Dietetics*, *55*(2), 51-61.

Shenassa, E. D., & Brown, M. J. (2004). Maternal smoking and gastrointestinal dysregulation: The case of colic. *Pediatrics*, *114*(4), 497-505.

Sondergaard, C., Henriksen, T. B., Obel, C., & Wisborg, K. (2001). Smoking during pregnancy and infantile colic. *Pediatrics*, *108*(2), 342-346.

Stratton, K. R. (2001). *Clearing the smoke: Assessing the science base for tobacco harm reduction*. Washington, DC: National Academies Press.

Tverdal, A., & Bjartveit, K. (2006). Health consequences of reduced daily cigarette consumption. *Tobacco Control*, *15*, 472-480.

Wakefield, M., Reid, Y., Roberts, L., & Mullins, R. (1998). Results of a qualitative study of smoking among pregnant adolescents. *Journal of Adolescent Health*, *22*(1), 2-3.

Mimi Nichter, PhD, is an associate professor in the Department of Anthropology at the University of Arizona, Tucson, Arizona, USA.

Mark Nichter, PhD, MPH, is a regents professor of anthropology at the University of Arizona, Tucson, Arizona, USA.

Shelly Adrian, MA, is a PhD candidate in the Department of Anthropology, University of Arizona, Tucson, Arizona, USA.

Kate Goldade, PhD, is a recent graduate of the Department of Anthropology, University of Arizona, Tucson, Arizona, USA.

Laura Tesler, PhD, is a postdoctoral fellow at the Center for Tobacco Control at the University of California, San Francisco, California, USA.

Myra Muramoto, MD, MPH, is an associate professor in the Department of Family and Community Medicine, University of Arizona, Tucson, Arizona, USA.