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Continuing Education
ORIGINAL RESEARCH

The Experiences of Pregnant Smokers and Their Providers

Study findings suggest ways to better address tobacco use.

Smoking during pregnancy is one of the most-studied risk factors in obstetrics. Simpson's 1957 study of the effect of smoking on infant birth weight and incidence of prematurity was just the first of many studies identifying a host of adverse outcomes.[1] The deleterious effects of smoking on pregnancy and fetal and infant health, as well as on the long-term health of the child, have been well established (see *Evidence for Adverse Effects of Tobacco Use in Pregnancy*). In general, tobacco use is the single most preventable cause of morbidity and mortality in the United States, across all populations.[2] According to the Centers for Disease Control and Prevention (CDC) and other sources, prevalence is highest among people between the ages of 24 and 64, those living below the poverty line, those who are unmarried, those living in rural areas, and those having a high school equivalency degree or less education.[2-5]

In 2010, the U.S. Department of Health and Human Services launched its Healthy People 2020 initiative, which identifies smoking cessation during pregnancy as an objective within the "tobacco use" topic area and sets a target of having at least 30% of pregnant smokers quit during their first trimester.[6] Data from earlier years show that in 2015, 17% of pregnant women between the ages of 18 and 49 stopped smoking, an increase from the 11.3% who did so in 2005 but less than the 18.9% who did so in 2010.[6] The CDC has reported that in 2010, 54% of women who smoked reported quitting by their last trimester.[7] Unfortunately, smoking relapse rates for the first year following childbirth remain high, with estimates ranging from 50% to 80%.[8] The CDC has also indicated that 10.7% of women nationwide and 11.4% in New York State reported smoking during their last trimester.[7] But smoking rates can vary greatly depending on the specific geographic location. According to data from the New York State Department of Health, the 2014 rates for pregnant women in some upper New York State counties were higher, including 26% in Broome County, 37% in Chemung County, and 32% in Chenango County.[9]

Approaches to cessation. Because smoking is a complex behavior with physiologic, cognitive, behavioral, and emotional components, interventions addressing cessation must have a multifaceted approach. Treating tobacco use is an expected responsibility of good nursing care, and is endorsed by the American Nurses Association.[10] In 2008, the U.S. Public Health Service (USPHS) issued *Treating Tobacco Use and Dependence*, a clinical practice guideline that has become the gold standard for initiating smoking cessation treatment.[11] Its five-step approach (also known as the "5 A's") involves asking patients about tobacco use, advising tobacco users to quit, assessing their readiness to quit, assisting with quitting, and arranging follow-up care.[11]

The guideline recommends offering smoking cessation interventions whenever possible. Although there are numerous challenges to successful implementation[12]—indeed, addressing smoking history itself can be a barrier[13]—smoking cessation interventions have been shown to be effective in "reducing continued smoking into late pregnancy and in improving infant health."[14] That said, a Cochrane review by Lumley and colleagues of 72 randomized controlled trials of intervention strategies, conducted between 1975 and 2008, found only a 3% to 6% difference in the combined maximum effect of

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ABSTRACT

Background: The U.S. Department of Health and Human Services' initiative Healthy People 2020 targets tobacco use, including smoking during pregnancy, as a continuing major health concern in this country. Yet bringing the U.S. Public Health Service's 2008 clinical practice guideline, *Treating Tobacco Use and Dependence*, into routine prenatal care remains challenging. Our previous nurse-managed intervention study of rural pregnant women found no significant cessation effect and significant discordance between self-reported smoker status and urinary cotinine levels.

Purpose: The overall purpose of this follow-up study was to increase our understanding of the experiences of pregnant smokers and their providers. No qualitative studies could be found that simultaneously explored the experiences of both groups.

Design and methods: This qualitative descriptive study used focus group methodology. Nine focus groups were held in two counties in upper New York State; six groups consisted of providers and three consisted of pregnant women. Four semistructured questions guided the group discussions, which were audiotaped and transcribed verbatim. Transcripts were read and coded independently by six investigators. Themes were identified using constant comparative analysis and were validated using the consensus process.

Results: The total sample consisted of 66 participants: 45 providers and 21 pregnant women. Most of the providers were white (93%) and female (93%). A majority worked as RNs (71%); the sample included perinatal and neonatal nursery nurses, midwives, and physicians. The pregnant women were exclusively white (reflecting the rural demographic); the average age was 24 years. All the pregnant women had smoked at the beginning of their pregnancies. Four common themes emerged in both the provider and the pregnant women groups: barriers to quitting, mixed messages, approaches and attitudes, and program modalities. These themes corroborate previous findings that cigarette smoking is used for stress relief, especially when pregnancy itself is a stressor, and that pregnant women may feel guilty but don't want to be nagged or preached to.

Conclusions: These results have implications for how smoking cessation programs for pregnant women should be designed. Health care providers need to be cognizant of their approaches and attitudes when addressing the subject of smoking cessation. Specific educational suggestions include "putting a face" to the issue of tobacco use during pregnancy. More research is needed on how best to implement the 2008 clinical practice guideline in specific populations.

Keywords: clinical practice guideline, pregnancy, smoking, smoking cessation, tobacco use

interventions to promote cessation and no significant effect on relapse.[15] Similarly, a systematic review of counseling effects on perinatal cessation found only a 4% absolute difference.[16] And a recent update of the Cochrane review found that the cessation interventions in the 20 newest studies had a lower effect size (3%).[17] The authors stated: "Trials where the interventions became part of routine pregnancy care did not appear to help more women to quit, which suggests there are challenges to translating this evidence into practice."[17]

Several studies have attempted to address the specific needs of pregnant smokers by exploring their experiences. In a systematic review of 26 qualitative studies on pregnant women's experiences of smoking during pregnancy, Flemming and colleagues identified themes of guilt and concealment, as well as "a fundamental tension between the twin identities of smoker and expectant mother."[14] One barrier to quitting may be that interventions are viewed as inaccessible and ineffective,[18] perhaps because of a perception of health care providers as insensitive or judgmental.[19, 20]

External stressors may exacerbate the inherent stress of pregnancy. Women who smoke may face unique challenges related to their geographic location, socioeconomic status, and familial relationships, among other factors. For example, in a study of 15 low-income African American women, participants cited economic hardship and living in violent neighborhoods as among the stressors outside their control, and felt that smoking helped alleviate that stress.[21] In other studies, pregnant women also cited social isolation as a source of stress, such as may result from withdrawing from the working world or from the social act of smoking, or from feeling isolated in relationships if family members and friends continue to smoke.[20, 22] Few studies have explored the experiences of both pregnant smokers and their providers.

Our previous study. In an earlier study of 194 pregnant rural smokers enrolled in a nurse-managed program called Smoke Free Baby & Me, we found significant differences in validated smoking cessation at the postpartum visit among participants who had quit just before their first prenatal visit, but no differences among those who were current smokers.[23] The program was based on the 5 A's and was integrated into real-world routine perinatal care. The findings support the Cochrane reviews' recommendations that better psychosocial support for smoking cessation and a better understanding of how to integrate the

Evidence for Adverse Effects of Tobacco Use in Pregnancy

Pregnancy Effects

- Abruptio placenta
  - Meyer MB, Tonascia JA. *Am J Obstet Gynecol* 1977;128(5):494-502.
  - Salihu HM, Wilson RE. *Early Hum Dev* 2007;83(11):713-20.
- Ectopic pregnancy
  - Coste J, et al. *Am J Pub Health* 1991;81(2):199-201.
  - Hyland A, et al. *Tob Control* 2015;24(4):328-35.
  - Roelands J, et al. *J Women's Health* 2009;18(6):867-72.
- Impaired placental vascularization
  - Ortigosa S, et al. *Reprod Toxicol* 2012;34(1):73-9.
- Placenta previa
  - Chelmow D, et al. *Obstet Gynecol* 1996;87(5 Pt 1):703-6.
  - Handler AS, et al. *Am J Obstet Gynecol* 1994;170(3):884-9.
- Polyhydramnios
  - Myhra W, et al. *Am J Pub Health* 1992;82(2):176-9.
- Spontaneous abortion
  - Hyland A, et al. *Tob Control* 2015;24(4):328-35.
  - Kline J, et al. *N Engl J Med* 1977;297(15):793-6.

Fetal Effects

- Birth defects: gastroschisis, oral cleft
  - Little J, et al. *Bull World Health Organ* 2004;82(3):213-23.
  - Skarsgard ED, et al. *Birth Defects Res A Clin Mol Teratol* 2015;103(2):111-8.
  - U.S. Department of Health and Human Services. *The Health Consequences of Smoking—50 Years of Progress*, 2014
- Fetal malpresentation
  - Talas BB, et al. *Taiwan J Obstet Gynecol* 2008;47(4):402-7.
- Intrauterine growth restriction
  - Jaddoe VW, et al. *Am J Epidemiol* 2007;165(10):1207-15.
  - Miller HC, et al. *Am J Obstet Gynecol* 1976;125(1):55-60.
  - Tong VT, et al. *MMWR Surveill Summ* 2013;62(6):1-19.
- Low Apgar scores
  - Hammoud A, et al. *Am J Obstet Gynecol* 2005;192(6):1856-63.
- Low birth weight
  - Ricketts SA, et al. *Am J Pub Health* 2005;95(11):1952-7.
  - Simpson WJ. *Am J Obstet Gynecol* 1957;73(4):808-15.
- Premature birth
  - Mainous A, Hueston W. *J Fam Pract* 1994;38(3):262-6.
  - Mei-Dan E, et al. *J Perinat Med* 2015;43(5):553-8.
  - Simpson WJ. *Am J Obstet Gynecol* 1957;73(4):808-15.
- Stillbirth
  - Butler NR, et al. *Br Med J* 1972;2(5806):127-30.
  - Hyland A, et al. *Tob Control* 2015;24(4):328-35.
  - Salihu HM, et al. *Nicotine Tob Res* 2008;10(1):159-66.

Childhood Health Effects

- Asthma
  - Gilliland FD, et al. *Am J Respir Crit Care Med* 2001;163(2):429-36.
  - Hollams E, et al. *Am J Respir Crit Care Med* 2014;189(4):401-7.
- Behavioral problems
  - McCrory C, Layte R. *J Abnorm Child Psychol* 2012;40(8):1277-88.
  - Naeye RL, Peters EC. *Obstet Gynecol* 1984;64(5):601-7.
  - Wakschlag LS, et al. *Arch Gen Psychiatry* 1997;54(7):670-6.
- Cognitive impairments
  - Zhou S, et al. *Curr Probl Pediatr Adolesc Health Care* 2014;44(8):219-41.
- Ear infections
  - Stathis SL, et al. *Pediatrics* 1999;104(2):e16.
- Nicotine addiction
  - Kandel D, et al. *Am J Pub Health* 1994;84(9):1407-13.
  - Niaura RS. *Am J Addict* 2001;10(1):16-29.
- Overweight and obesity
  - Gorog K, et al. *Matern Child Health J* 2011;15(7):985-92.
- Sudden infant death syndrome
  - DiFranza JR, Lew RA. *J Fam Pract* 1995;40(4):385-94.
  - Tong VT, et al. *MMWR Surveill Summ* 2013;62(6):1-19.

USPHS guideline, especially in vulnerable subpopulations, are needed.[15, 17] Motivation to quit involves both internal and external forces that unite in a desire for behavior change. Curry and colleagues defined the intrinsic factors as health concerns and self-control and the extrinsic factors as immediate reinforcement and social influence.[24]

Present study objectives. The objectives of the present study were twofold: to increase our understanding of the experiences of pregnant smokers, including motivation to quit; and to increase our understanding of providers' experiences with perinatal smoking cessation programs in order to gain insights that will help providers best deliver the stop-smoking message.

METHODS

Design and setting. A qualitative descriptive design was used, and data were gathered through focus groups. This methodology is often employed instead of surveys when exploring sensitive issues because focus groups offer opportunities to observe interactions among participants and allow for gathering and analyzing information that is embedded within complex societal contexts.[25, 26]

This study was conducted with pregnant women and their providers in two rural counties in upper New York State; the health care providers also serve rural northern Pennsylvania. These counties are part of New York's Southern Tier region, the northern edge of Appalachia, where the prevalence of tobacco use is high, as it is in other rural areas.[27] All pregnant women in both counties receive prenatal care at one of 10 private offices that accept both public and private insurance. They give birth at one of three hospitals that provide labor, delivery (a range of 325 to 1,400 births per year), and postpartum services. (See Table 1 for demographic data on the study settings.) Approval for the study was obtained from Binghamton University's Human Subjects Review Committee and from the institutional review boards of the participating offices and hospital systems.

Sample and procedure. Active enrollees in the Medicaid Obstetrical and Maternal Services (MOMS) program who were self-reported smokers and at least 16 weeks pregnant were invited to participate in focus groups. Initial contact was made by the MOMS' coordinators via e-mailed written invitation or telephone call (or both). Similarly, all nurse and physician providers in both outpatient and inpatient settings were invited to participate in focus groups. At least one coordinator or contact person was identified in each facility; that person contacted prospective participants via written invitation, with face-to-face follow-up.

Focus groups for providers and those for pregnant women were conducted at different times and locations. Each group met just once for 90 minutes. All groups were held as dinner meetings, either in private rooms in restaurants (pregnant women) or in conference rooms (providers). All participants gave both written and verbal consent before being enrolled in a focus group. Demographic data were collected before the start of the sessions. Each group had two moderators: one who facilitated discussion using "open listening," and another who observed nonverbal communication and the general tone and mood of the group and made field notes.[28, 29] To ensure reliability and consistency, the principal investigator (one of us, GRB) was the primary moderator for all but one of the focus groups (she chose not to facilitate the one provider group held in her hometown so as not to bias discussion). An incentive of $25 plus dinner was provided. All group discussions were audiotaped with participants' consent.

The discussion with the pregnant smokers was aimed at addressing the study's first objective and was facilitated by use of a semistructured guide. We asked:

1. What are your impressions of the stop-smoking message you are receiving (or received) from the nurses or physicians when you are (or were) pregnant? (This question referred to both present and past pregnancies.)
2. Did anything stand out?
3. How would you like the nurses or physicians to deal with the subject of smoking? Can you give us an example?
4. Is there anything else you could tell us that would help us improve how we approach this issue?

Similarly, the discussion with the providers was aimed at addressing the study's second objective and was facilitated by use of a semistructured guide. We asked:

1. What are your impressions of smoking cessation efforts targeted to your patients?
2. Does anything stand out as working really well?
3. Does anything stand out as not working well? Can you give us an example?

Table 1. Demographic Profile of Study Settings

	County 1	County 2
Total population	96,874	88,015
Persons per square mile	70.9	223.2
Median annual household income	$41,519	$40,891
Race/ethnicity		
White	96.1%	90.7%
Black	1.6%	6.3%
Hispanic	1.1%	2.1%
Asian	1.1%	1.1%
Percentage below poverty level	15%	16%

Note: percentages may not sum to 100% because of rounding.

4. Is there anything else you could tell us that would help you in approaching patients about this issue?

The moderators used these guides in order to achieve thematic consistency from group to group and to be able to address all the issues that are part of this research. They used reflective listening, silence, and clarification follow-up questions (such as "Can you tell me more about that?") and statements (such as "I hear you saying . . ."). Additional probing questions were not used because we didn't want to disturb the flow of the conversation; at the same time, participants were reminded to stay on topic. The moderators were educated on the purpose of the research and trained in focus group facilitation before the study was conducted.

Data analysis. The focus group discussions were transcribed verbatim. They were then read and coded independently by each of six reviewers (including GRB and RC) who also listened to the audiotapes of the focus group sessions. The reviewers noted the repetition of words and phrases, which were bracketed for further review and analysis in the interest of identifying key themes that would emerge from such an analysis. When themes were identified, they were confirmed by the six reviewers using a Delphi consensus process.

Table 2. Demographic Profile of Focus Group Participants: Providers (N = 45)

Variable	No. of Providers (%)
Sex	
Female	42 (93.3)
Male	3 (6.7)
Age, years	
20–30	4 (8.9)
31–40	3 (6.7)
41–50	13 (28.9)
51–60	21 (46.7)
61–70	2 (4.4)
No answer	2 (4.4)
Race/ethnicity	
White	42 (93.3)
Asian	3 (6.7)
Provider role	
RN	32 (71.1)
MD	5 (11.1)
LPN	4 (8.9)
NP	1 (2.2)
PA	1 (2.2)
MA	1 (2.2)
Nurse manager	1 (2.2)

MA = medical assistant; PA = physician assistant.
Note: percentages may not sum to 100% because of rounding.

RESULTS

There was a total of 66 participants: 45 health care providers and 21 pregnant smokers. The providers were predominantly white (93%) and female (93%), and a majority were RNs (71%). Their work environments were almost equally divided between outpatient and inpatient settings. (See Table 2 for the providers' demographic data.) All the pregnant women were white, reflecting the rural demographic; 100% were Medicaid insured. The mean age was 24 years. Of the 21 women, 62% were either single (n = 8) or living with a partner (n = 5); the remaining 38% were married (n = 8). (See Table 3 for the pregnant women's demographic data.) They reported smoking an average of about seven cigarettes per day, with only three stating that they had recently quit during pregnancy. Although the inclusion criteria called for participants to be at least 16 weeks pregnant, three women at earlier stages were permitted to participate because we didn't want to turn anyone away who wanted to come to a focus group.

Nine focus groups were held in three distinct communities within the two counties. Three groups consisted of pregnant smokers and six of providers. The number of groups and of participants per group (pregnant women, six to eight; providers, six to 14) were determined by response to the invitations and by recommendations that focus groups include six to 15 participants to maximize the flow of discussion.

Four themes were repeated within and across transcripts and across pregnant smoker and provider groups: barriers to quitting, mixed messages, approaches and attitudes, and program modalities.

Barriers to quitting. Several barriers to successful smoking cessation were identified by the pregnant women and the providers. These included the need for relief from stress and boredom, the presence of other smokers in the household or at work, peer pressure, physiologic addiction (including withdrawal symptoms), lack of self-esteem, and lack of motivation.

Stress. The word "stress" was often repeated. When speaking of trying to quit, one pregnant woman said, "You know, I was too aggravated. I have a lot of, like, stress. So, yeah, that's what I say is a lot of it." Cigarette smoking was seen as a relief from the trials and tribulations of everyday life and as something that helped ease the added burden of pregnancy. Some women felt that the stress of quitting was a barrier as well. One woman said, "It was—you know, it's a big stress on you too. If you quit, and you're stressing about it all." This was also echoed by nurse providers. As one said,

> I think some people think it's stress relief too. They need to find something else for stress relief. I just hear "You don't understand the stress I'm under." You know? They really don't talk about the expense of it.

Smoking was also seen as something to do to help with boredom. One woman said, "So you're bored, what are you going to do? Sit down and smoke a cigarette." Another said, "I tend to smoke when I'm bored."

Triggers and physiologic addiction. Pregnant participants noted that being around other smokers, whether at home or in the workplace, served as a constant trigger to continued tobacco use. In the workplace, some felt peer pressure to continue to go outside to smoke with colleagues. Moreover, doing so also provided social connection and support. Those factors, together with what one nurse termed a "terrible addiction," made it difficult for women even to contemplate quitting. Fears of withdrawal symptoms and mood swings were expressed by many of the women. As one pregnant woman said,

> I can't go too long without [a cigarette] either. I get very emotional, very angry, and have a bad attitude. So that's very difficult. You know what's really bad is when your friends tell you "You're being a b——."

The desire for a cigarette is powerful. As one nurse, referring to her experiences with these patients, observed, "As soon as the baby is born, it is not 'Can I see my baby?' but 'Can I have a cigarette now?'"

Insufficient motivation. Many women spoke of having little or no motivation to quit smoking. As one said, "I enjoy it too much to quit. It makes me happy; it relaxes me." Another said of herself, "The part that wants to quit is smaller than the part that doesn't . . . [quitting] depends on willpower and determination." Only three of the 21 pregnant women had quit smoking during pregnancy; barriers to quitting was a consistent theme across the groups. The three women who had quit cited as factors their awareness of the adverse effects of smoking on the baby, the mother, or both, and the urging of others. One woman stated, "I started having pains in my chest and everything, so I decided to quit." Another said, "My family's supportive. My husband told them I'd better quit smoking, but—well, it isn't hard for me to quit."

Providers spoke to the perplexing nature of the motivation to quit. One said,

> The motivation for the ones that quit is the baby. 'Cause I'll ask them, "So you quit smoking? Why did you quit?" [And the response is] " 'Cause I'm pregnant."

But another provider stated, "So that self-motivation—I don't know how you do that, you know. How do you make somebody motivated to do something?"

Mixed messages. Many women reported receiving mixed messages from various family members and providers about smoking. Several women spoke of discrepancies between their experiences of previous pregnancies or anecdotal family experiences and the statistical and scientific evidence provided by health care workers. One woman said, "My mother smoked [when she was pregnant] with me and I am fine." Another said, "I smoked with all three of my other kids and they do not have asthma." Women also reported confusion about the relative impact of cutting down versus quitting, having received inconsistent information from different providers. As one woman noted,

> I've had doctors that have said "Well, just try to cut back as much as you can." So I've had both, or when I had my son that doctor wasn't hard on me about not quitting.

Even when given clear information by health care providers, some of the pregnant women weren't convinced that smoking is harmful to the fetus. One nursery room nurse, speaking about pregnant smokers, said,

> [They believe] that "if you have a low-birthweight baby, you're going to feed that baby and he's going to gain weight," or that "I can filter the smoke out for my baby when I am pregnant, but not after."

Another provider stated,

> They're told that "if you smoke, you're going to have a small baby and you'll probably deliver a few weeks early." I think that probably sounds good to a lot of young mothers.

All of the women were aware of the dangers of drinking alcohol during pregnancy, and many reported

Table 3. Demographic Profile of Focus Group Participants: Pregnant Smokers (N = 21)

Variable	Mean	Range
Age, years	24.38	17–36
Highest educational grade achieved[a]	11.04	8–16
No. of pregnancies	2.28	1–7
No. of live children	0.95	0–4
No. of weeks pregnant at time of participation	23.23	5–38
No. of cigarettes smoked per day	6.88	0–20

[a] Grades 8–12, high school; grades 13–16, college.

believing that cigarettes were less harmful than alcohol. One woman stated,

> I'd rather smoke a cigarette than take a drink of alcohol to relieve stress. Risks of alcohol are so huge and so terrible. . . . It's still a risk, but not as profound. You don't see effects up front. I will not touch a drop of alcohol.

A more innovative approach is necessary to disseminate the message of smoking cessation.

Many providers also reported persistent misinterpretations of the available facts about smoking during pregnancy, with many pregnant women repeating the myth that quitting can increase the incidence of miscarriage because it increases the mother's stress. One woman remembered making a choice between the stress and risk she associated with quitting and risks to the child:

> If it's the difference between me going "hrrrgghhh!," you know, or having a miscarriage or still having a child with asthma, I'm going to do what's more healthy for me.

Another issue with the congruency of information stems from the involvement of many different providers, each with her or his own habits and ways of addressing the cessation message. One provider stressed the importance of a consistent approach by team members:

> I mean you have to have the physicians buying into it, the midwives buying into it—everybody from the first time that they're seen. Even the ultrasound girl.

One pregnant participant said she could tell the difference between providers who smoked and those who did not: "You can always tell which doctors don't smoke—[those are] the ones that are lecturing you, but the ones that do smoke, they don't tend to lecture you as much."

Approaches and attitudes. Both providers and pregnant women reported problems with providers' approaches and attitudes in addressing smoking cessation. Repeated words and phrases included "preachy," "judgmental," "shut off," "turn off," "browbeat," "hound," "spout," "lecture," and "guilt." One woman reported being "made to feel like a bad and stupid person." Another woman said that upon telling her provider that she smokes,

> he goes, "Well don't you think that's pretty pathetic?" I said, "I'm paying you to tell me I'm pathetic?" I mean, you know, it's that kind of stuff that makes you just, you're so livid, you're going to go right outside and smoke! You're going to go right out and light up!

A sense of "pushback" came up repeatedly, even among providers discussing the current state of antismoking ads. One provider noted, "And now those commercials make you feel bad, so you shut it off." Another said, "They turn the channel. I think she's right, they turn the channel." One provider remembered her own smoking days:

> Any time someone would mention to me while I was smoking that "You should quit—you know, this and this and this and this." I'd always offer some little flippant comment and say . . . "When I'm ready to quit, when I've finally decided, I will! But until then, I won't."

One pregnant woman stated plainly, "People hounding me makes me smoke more," while another said, "I find that the majority of the older nurses, like our parents' age and up, are more judgmental or more [likely] to give you dirty looks and lecture you."

Evidence of such adversity between providers and pregnant women was pervasive. Many pregnant women complained of not being asked what they knew "before the lecture begins." All focus group participants cited a lack of adequate time between providers and patients, and a mutual tension stemming in part from a lack of trust and frustration. Providers reported fear of jeopardizing the nurse–patient relationship, citing smoking cessation as a "touchy topic." Both providers and pregnant women recognized the need for a more positive approach that includes positive language, encouragement with incentives and rewards, message repetition, follow-up, and continuity. They recommended that these strategies begin before conception and be repeated at the first prenatal visit and throughout the pregnancy, and postpartum, by all involved providers.

Program modalities. In addressing some of the barriers to quitting, providers and pregnant women made several suggestions. Many women mentioned "putting a face" to the issue of smoking during pregnancy, as has been done with fetal alcohol syndrome and shaken baby syndrome. One woman said,

> I think since there is an image . . . for alcohol problems with pregnancy, and there's not for smoking, people generally look at smoking as not as bad since there's no label.

And one provider suggested,

> If we had some kind of video like the shaken baby video, only have a video that deals with smoking? . . . Maybe make it mandatory for not just the smoking mothers but for everybody to see it and sign the paper, just like they do for the shaken baby [video].

Suggested visual aids included showing a baby withdrawing from nicotine, showing the effects of nicotine on fetal heart rate, and showing the effects of nicotine on blood vessels as it crosses the placenta.

Several pregnant women expressed the wish for an experiential visit. One woman stated that she would like a trip to

> the [neonatal ICU] or something and see a baby hooked up to a ventilator whose lungs aren't matured because their mom was smoking and they went into labor at 30 weeks or something.

Another woman suggested,

> I would have like someone that has like unfortunately had a horrible experience while being pregnant . . . have them come in and talk about their story and show like actual visual facts and pictures, and if the child is alive and something is horribly wrong with it; bring in the child. Like this is what your child could look like . . . because people react better and more to visuals.

Many women said they would appreciate smoking cessation programs that included some social support, such as is offered by Alcoholics Anonymous (AA) and buddy systems, as well as help in strengthening existing support systems. A pregnant smoker said,

> I think it'd be easier to quit smoking if you had something like an AA meeting but for smokers. . . . I think if I had the urge to have a cigarette, and you could call somebody and say "Well, you know, I'm really stressed out right now and I really need to talk or I'm going to light up a cigarette." You know, and sometimes that helps. . . . I think if we had more of a social group of people that say they want to quit. Because it's so hard when you're in a home that has other people that smoke.

Both providers and pregnant women suggested that providers help patients to identify coping mechanisms for managing stress, such as exercise and keeping busy. They also spoke to the importance of having access to educational materials, including information on how smoking during pregnancy increases the risk of sudden infant death syndrome (SIDS). One woman said,

> I went from a pack and a half to maybe like three-quarters of a pack and now I'm down to like six [cigarettes] a day, and a lot of that's due to my daughter and hearing about the increased rate of SIDS.

DISCUSSION

Several studies have examined diverse interventions aimed at helping pregnant women to quit smoking.[17,23] Yet there has been little research incorporating the experiences and ideas of pregnant smokers and their providers in developing and testing more effective, meaningful interventions. This study sought to increase our understanding of the experiences of pregnant smokers and their providers in order to gain insights that will help providers best deliver the stop-smoking message. Four overarching themes emerged: barriers to quitting, mixed messages, approaches and attitudes, and program modalities. Each has clear implications for the development of more effective interventions.

Pregnant smokers reported that providers could be insensitive to their needs.

This study is unique in that we conducted focus groups with both patients and providers, the latter group including perinatal and neonatal nursery nurses, midwives, and physicians. Our results speak to the many challenges inherent in implementing the USPHS's 2008 clinical practice guideline, including the 5 A's, in real-world care. How, when, and why providers ask patients about tobacco use, advise them to quit, assess readiness to quit, assist with quitting, and arrange follow-up care is as complex as tobacco use itself. The effectiveness of providers' interventions greatly depends on their expertise in the area of smoking cessation.

This study yielded rich data about the perceptions and insights of both pregnant smokers and providers. First, numerous barriers—including general stress, stress of pregnancy, physical addiction, and lack of

motivation—were cited as reasons for not choosing to quit smoking. These findings are corroborated by other studies showing that, even when participants can identify numerous health risks associated with smoking during pregnancy, they continue to smoke for the perceived benefits (including stress relief, weight management, and alleviation of boredom).[22, 30, 31] We found that many pregnant women use smoking as a coping mechanism, and feel that quitting would only increase stress both for themselves and for their babies; other studies corroborate this.[20, 22] Although we hoped to explore motivation to quit, this did not emerge as a theme. Instead, participants identified specific barriers, such as stress, that decreased their motivation to quit.

avoiding the issue with patients who needed such counseling.[13] Similarly, they also reported findings that providers have cited feeling a lack of competence and time constraints as reasons for avoiding the discussion.[13, 32, 33] Some providers have perceived that such discussions may be ineffective.[34]

In our study, pregnant smokers reported that providers could be insensitive to their needs, and often did not offer choices for smoking cessation. Similarly, other researchers have found that pregnant smokers want their providers to be understanding, direct, open, and sincere in discussing cessation with them.[19, 20, 22] A recent study among British midwives found that the midwives recognized that the optimal approach was supportive and nonjudgmental, using affirming

Providers need to ensure that they provide consistent information when advising women about smoking cessation, and should also be aware of the impact of their own health behaviors.

Second, the pregnant women in our study reported receiving mixed messages about the dangers of smoking during pregnancy from family members, friends, and providers. They were skeptical regarding the risks to the fetus, especially if they'd previously had favorable pregnancy outcomes or had heard favorable anecdotes about their mothers' experiences as pregnant smokers. This finding was similar to findings in a study by Haslam and Draper, in which pregnant women knew the risks, but "refuted [them] by citing previous uncomplicated pregnancies experienced by themselves, female relations, and friends."[22] Many providers also reported persistent misinterpretations of the available facts by pregnant women. For example, like the women in Haslam and Draper's study, some women in our study felt that low birth weight wasn't detrimental and could be addressed by simply feeding the baby; some even saw low birth weight as a potential benefit, allowing easier labor and delivery. And the pregnant women reported being aware of providers' smoking behaviors. Such mixed messages indicate that providers need to ensure that they provide consistent information when advising women about smoking cessation, and should also be aware of the impact of their own health behaviors.

Third, the approaches taken and attitudes expressed by providers had an impact on smoking cessation interventions. Providers felt they had to establish trust and rapport with their patients, and worried that discussing the "touchy topic" of cessation might jeopardize that relationship. As in our study, others have found that providers regretted not addressing or

language.[35] We also found that both providers and pregnant smokers viewed some mass media campaigns as harsh, and described how this had a "pushback" effect. These findings differed from those of a study among physicians, many of whom felt that using scare tactics about the dangers of smoking was an effective strategy, although they conceded that they lacked verifying evidence.[34]

Fourth, participants' suggestions for improving program modalities were specific and unique. Several participants suggested using visual aids—most notably a video on the effects of tobacco use during pregnancy that employed a nonjudgmental approach—and recommended that such aids be integrated into routine perinatal care. Other suggestions included encouraging healthy coping mechanisms such as exercise and improving social support. Our study confirms what other studies have found: that a more innovative approach is necessary to disseminate the message of smoking cessation.[19, 22, 36] The development of more effective interventions should employ theoretical frameworks such as Bandura's triadic reciprocal determinism.[37] In this model, determinants of human behavior include behavioral factors (such as self-efficacy, skills, and practices), cognitive factors (such as knowledge, outcome expectations, and attitudes), and environmental factors (such as social norms, cultural norms, and community access). For anyone to learn and practice new behaviors, often several things must change. Thus, for example, both pregnant women and their providers need improved knowledge—for pregnant women, knowledge of the effects of tobacco

on fetal and maternal health; for providers, knowledge of effective counseling approaches. Both groups will also need a sense of self-efficacy about their ability to change behavior, a belief that their actions can have positive consequences, and access to support.

Policy implications. Over the past decade, several tobacco control policies have been proposed and, in some cases, enacted. A 2007 Institute of Medicine report, *Ending the Tobacco Problem: A Blueprint for the Nation*, calls for interventions that approach tobacco use as a disease.[38] This approach emphasizes the need for nurses and other health care providers to be better prepared, both through their training curricula and through continuing education, on how best to treat tobacco use as an addiction. That emphasis remains timely. The USPHS's clinical practice guideline, *Treating Tobacco Use and Dependence*, with its 5 A's approach, has not been updated since its publication in 2008.[11] More current, evidence-based practices need to be incorporated, especially given the recent upsurge in the use of alternative tobacco products such as electronic cigarettes and hookahs. Furthermore, the Affordable Care Act requires that health insurance providers cover preventive services, including tobacco cessation, at no cost to patients.[39] As access to care increases, providers will need to have adequate resources and interventions in place, so they can better approach and discuss tobacco addiction and cessation with their patients. For optimal outcomes and reduction of health care costs, developing and using more effective, innovative interventions should be a priority for all providers.

Practice implications. When addressing tobacco use with any patient, pregnant or not, it's important to deliver behavioral change messages that are fact based, nonjudgmental, and tailored to the individual. It's also important to be consistent in using the 5 A's approach.

Several issues affect the implementation of system-wide tobacco cessation interventions. First, the high rate of nondisclosure of smoking status among pregnant women limits the reach of cessation programs. For example, our previous study found that 40% of women in an intervention group who reported not smoking at 28 weeks' gestation tested positive for urinary cotinine.[23] When providers can't identify pregnant smokers by asking, no intervention occurs. Developing an innovative tobacco use assessment tool that would omit the possible effects of providers' attitudes would allow us to more successfully identify those patients who need intervention. Tobacco users often withhold information because they worry about how their disclosure will be received. Research indicates that people are more likely to answer questions truthfully when using computerized technologies than when answering face-to-face.[40]

Second, providers need to be better equipped to advise, assess, and assist their patients when addressing the risks of tobacco use during pregnancy. Unfortunately, many perinatal nurses have had little training in providing tobacco-related interventions and may not offer consistent guidance and support. Short educational group training sessions can be effective in increasing their knowledge, attitudes, and intervention behaviors.[41]

Lastly, nurses and other providers often cite lack of time as a major barrier to providing tobacco cessation counseling. The standardized use of an educational video on the risks of smoking, designed for pregnant smokers and developed with input from pregnant smokers, would not only "put a face" to the issue, but would also help in conserving providers' time. Such visual aids could be made available through an iPad or other tablet during a woman's first office visit, with follow-up at later prenatal visits.

Limitations. Because the study was conducted with rural white participants who were enrolled in the MOMS program and insured by Medicaid, the findings may not be generalizable to other populations. Although one inclusion criterion was that participants had to be at least 16 weeks pregnant, a few women at earlier stages of pregnancy were allowed to participate. Also, with the use of focus groups, it's possible that participants' answers were influenced by their perceptions of what the group perceived as desirable. As a self-selected sample, the pregnant women who agreed to participate might have more interest in the topic than pregnant women in general. Similarly, the self-selected provider sample might be more likely to follow the recommendations of the treatment guideline than providers in general.

CONCLUSION

The study findings indicate that many factors influence perinatal smoking cessation, including barriers to quitting (such as stress, triggers and physiologic addiction, and insufficient motivation to quit), mixed messages, and the approaches and attitudes of providers. The findings also suggest that more effective assessment and intervention strategies that speak to the real-world situations of pregnant women need to be developed and implemented. Lastly, because providers' attitudes affect smoking cessation outcomes, more emphasis should be placed on enhancing their counseling skills. ▼

For 11 additional continuing nursing education activities on smoking cessation, go to www.nursingcenter.com/ce.

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