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RESEARCH

Tailoring a NICU-Based Tobacco Treatment Program for Mothers Who Are Dependent on Opioids

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ABSTRACT

Objective: To collect formative information to design a tailored tobacco treatment intervention for women with newborns treated or evaluated for neonatal abstinence syndrome and to explore current tobacco use behaviors and facilitators and barriers to smoking cessation.

Design: Qualitative descriptive study.

Setting: An academic medical center in the southern United States.

Participants: Mothers of newborns who were treated or evaluated for neonatal abstinence syndrome at birth within the preceding 3 months. Women recruited were older than 18 years and reported opioid dependence and smoking during pregnancy.

Methods: Participants took part in semistructured individual interviews that lasted approximately 1 hour. Interviews were professionally transcribed and analyzed in MAXQDA using content analysis.

Results: Five themes emerged from the data: *Strategizing to Reduce Risk, Desire to Quit Smoking in the Future, Holding on to Smoking While Working Through Recovery, Feeling Judged by Nurses,* and *Feeling Supported and Empowered by Nurses*. Participants reported that they to reduce risk to their newborns by avoiding second- and thirdhand smoke exposure. Participants wanted to stop smoking but reported many barriers, including multiple life stressors compounded by their newborns' extended stays in the hospital. However, most participants described overall positive experiences and the support of health care providers.

Conclusion: Holistic tobacco treatment programs that incorporate stress relief and social support and are led by trusted health care providers have the potential to be effective to reduce smoking in new mothers with histories of opioid dependence disorders and smoking and whose newborns are in the NICU.

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Smoking during pregnancy is a leading cause of preventable adverse birth outcomes (U.S. Department of Health and Human Services, 2014), including preterm birth (Ion & Bernal, 2015), low birth weight, and sudden infant death syndrome (Zhang & Wang, 2013). In addition, smoking during the first trimester was associated with a 19% increase in NICU admissions (Räisänen et al., 2014). Furthermore, the risks of smoking continue beyond the perinatal period. Women who smoke were less likely to breastfeed (Weiser et al., 2009), and children exposed to secondhand smoke were more likely to have ear and respiratory infections and asthma attacks (U.S. Department of Health and Human Services, 2006). Exposure to secondhand smoke in the first 6 months of life was associated with an increased risk of hospitalization for serious infection until children are 8 years old (Kwok et al., 2008).

Smoking cessation during pregnancy is ideal but difficult and not always achieved. In the United States, 10.7% of women reported smoking in the third trimester of pregnancy (Tong et al., 2013). In addition, 42% of women who successfully stopped smoking during pregnancy ultimately relapsed, and this rate of relapse remained constant over a 10-year period (Rockhill et al., 2016). The rates of smoking during pregnancy are even greater in vulnerable groups of women, including women with other addictions. Nearly all (approximately 95%) women dependent on opioids reported smoking during pregnancy

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(Chisolm et al., 2013). According to the National Survey on Drug Use and Health (2005–2014), 5% of pregnant women in the United States reported nonmedical prescription opioid use (Kozhimannil, Graves, Levy, & Patrick, 2017).

To promote long-term cessation for mothers, tobacco treatment and relapse prevention interventions are needed in the early postpartum period, particularly for women with opioid dependence. The American College of Obstetricians and Gynecologists (2011) recommended the 5 A's approach for smoking cessation in the perinatal period. Holbrook and Kaltenbach (2011) found that integration of a 6-week 5 A's–based tobacco treatment intervention into substance use disorder treatment led to a substantial reduction in cigarettes consumed per day among pregnant and parenting opioid-dependent women. However, the small percentage of women who successfully stopped smoking in this program indicates the need for a longer, more intensive intervention.

The NICU is a logical place for tailored tobacco treatment support in the postpartum period. Newborns exposed to smoke in utero tend to have longer stays in the NICU. This is particularly true for newborns of women with opioid dependency who smoke during pregnancy. Smoking during pregnancy increases the risk of neonatal abstinence syndrome (NAS; Choo, Huestis, Schroeder, Shin, & Jones, 2004). NAS is a constellation of symptoms experienced by neonates exposed to opioids prenatally; it can lead to prolonged hospital stays and pharmacologic treatment with morphine (Kocherlakota, 2014). Smoking during pregnancy was associated with greater necessary doses of morphine and longer hospital stays among infants who were opioid exposed in utero (Jones et al., 2013). Mothers with infants in the NICU reported interest in receiving health services in this setting, including tobacco cessation treatment (Verbiest, McClain, Stuebe, & Menard, 2016). Finally, having an infant with a high-risk health condition also could serve as a teachable moment (Pollak et al., 2010) in which the mother has a greater level of interest in health behavior change to promote the health of her infant.

Evidence supports the efficacy of tobacco-related interventions delivered in the NICU (King, Wooderson, Rees, Neild, & Wright, 2008; Phillips et al., 2012; Stotts et al., 2013). King et al. (2008) tested the John Hunter NICU smoking cessation program, which included motivational counseling delivered by a clinical nurse consultant; a 2-week supply of nicotine replacement therapy; educational materials on smoking cessation; enrollment into QUIT, a telephone cessation support program; and follow-up services in outpatient care or by phone. According to self-reported smoking status, 33% of participants successfully stopped smoking (King et al., 2008). Furthermore, interventions to promote smoke-free homes among mothers of infants in the NICU have been shown to be effective. Stotts et al. (2013) tested Baby's Breath II, an intervention in the NICU to promote smoke-free home policies for caregivers that included motivational interviewing sessions (two in the hospital and two in the home) paired with the potential for incentives (e.g., prize drawings). Significantly more caregivers who participated in the intervention adopted smoke-free homes than those who received usual care (64% vs. 20%). Phillips et al. (2012) also tested an innovative intervention designed to prevent relapse to smoking and promote breastfeeding among mothers of infants in the NICU that was tailored to participants' life circumstances. They designed this dual intervention in part because breastfeeding enhances maternal–infant bonding and reduces stress, which reduces risk of relapse to smoking. Results of this randomized controlled trial indicated that more women who received the intervention remained smoke-free than women in the control group (81% vs. 46%) at 8 weeks (Phillips et al., 2012).

In addition, tobacco treatment interventions tailored for disadvantaged women show promise. Stewart et al. (2010) tested a tobacco treatment intervention targeted to women living in poverty; they found a decrease in participants' desire to smoke and number of cigarettes smoked per day. The intervention targeted tobacco use but holistically addressed barriers to tobacco cessation in women's lives through the promotion of self-efficacy, positive health behaviors, support seeking, and building social networks. Although these results are promising, no other studies were identified in which researchers examined the effects of tobacco intervention delivered in the NICU specifically for women with opioid dependence.

Therefore, the purpose of this study was to collect formative information to design a NICU-based, tailored tobacco treatment intervention for women with newborns who were treated or

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