

Social Factors Related to Smoking among Rural, Low-Income Women: Findings from a Systematic Review

Star A. Mitchell, MSN, RN Shawn M. Kneipp, PhD, RN, ANP-BC, APHN-BC, FAANP, and Cheryl W. Gisco, PhD, RN, PMHNP-BC

School of Nursing, The University of North Carolina at Chapel Hill, Chapel Hill, North Carolina

Correspondence to:

Star A. Mitchell, School of Nursing, The University of North Carolina at Chapel Hill, 3rd Floor, Carrington Hall, CB# 7460, Chapel Hill, NC 27599-7460. E-mail: samitch5@email.unc.edu

ABSTRACT Objective: This systematic review of the literature assesses congruency of findings from descriptive, qualitative, and association studies focusing on factors influencing smoking and smoking cessation with findings from smoking cessation interventions that included low-income rural women. **Design and Sample:** Six databases relevant to the health and social sciences were searched in this systematic review using combinations of select keyword terms, specific inclusion criteria, and studies between 1997 and 2012. **Results:** Descriptive studies on this population of smokers provide economic, environmental, and social factors related to smoking patterns. Qualitative studies found social support received from an individual's social network was viewed as most beneficial when considering or maintaining smoking cessation while randomized controlled trials included in this review implemented social support through peripheral resources or resources with little personal connection to the sample and failed to produce significant results. **Conclusions:** Few studies have focused on the specific needs and difficulties of smoking cessation among rural low-income women and interventions have not targeted the complex social network of this population. Incongruence in study findings supports the need for smoking assessment and cessation interventions that incorporates the unique social and cultural meanings of smoking in rural low-income women.

Key words: low-income, rural women, smoking, social support, systematic review, tobacco use.

Background

Smoking research has a long history. We have extensive descriptions of demographic characteristics of low-income smokers, theories that provide a framework of antecedents to explain the behavior that drives an individual to start and continue smoking, and tested cessation interventions that are built on this collective material. Despite this body of knowledge, smoking rates in low-income rural women are not decreasing as they are in other sectors of society, and tobacco-related diseases are disproportionately affecting the health burden of rural communities. This systematic review focuses on the limited congruency between the behavioral, social, and emotional factors related to smoking in

low-income rural women; the predominant theories applied to explain smoking in this population; and the inadequate utilization of these critical factors in smoking cessation interventions that have been developed and implemented in this population. Further assessing the congruency of findings across studies, study designs, and smoking cessation interventions may help to explain lack of progress in this population and provide a framework for continuing research that mitigates smoking in this vulnerable population.

Each year approximately 480,000 deaths occur from smoking, one of the most preventable causes of death and disease in America (Centers for Disease Control and Prevention [CDC], 2014). The

CDC (2014) estimates that 18.1% (42 million) of the U.S. population smoke cigarettes, impacting quality of life for many while increasing individual financial burden and government expenditures related to health care. Health care costs directly related to smoking are approximately 133 billion dollars annually with an additional 156 billion in lost productivity (United States Department of Health and Human Services [USDHHS], 2014).

National smoking rates in adults have shown little change between 2005 (20.9%) and 2012 (18.1%) (CDC, 2014). In addition, a disproportionate distribution of smoking has created heavier health burdens of smoking-related disease in specific populations. Smoking rates are higher among people with less education (41.9%), those living below federal poverty level (27.9%), and residents of rural areas (27.8%) (American Lung Association [ALA], 2012; CDC, 2014). This information should encourage health care providers to look beyond national smoking rates and focus on subpopulations of smokers such as low-income rural women.

Geographically, rural areas comprise 90% of the United States and 16% of the population (ALA, 2012). Smoking among women and men in rural areas is twice the target rate of 12% identified in Healthy People 2020 (USDHHS, 2011) and nearly 5–6% higher than smoking rates in suburban or urban households (Doescher, Jackson, Jerant, & Hart, 2006). In rural households, 22.2% of adults smoke compared to 17.3% and 18.1% in suburban and urban households (Weg, Cunningham, Howren, & Cai, 2011). Rural smokers are also more likely to start smoking at an earlier age and consume a greater number of cigarettes per day than their urban counterparts (ALA, 2012). Despite knowledge of the negative health consequences from smoking and a national emphasis on reducing cigarette smoking, smoking rates in low-income rural women are not declining as they are in suburban and urban populations (CDC, 2011). An analysis of the National Survey of Drug Use and Health data from 2010 showed that 25.1% of rural women smoke compared to 20.8% of urban women and 27.4% of rural women smoke during pregnancy compared to 11.2% in urban pregnant women (ALA, 2012). Although differences in these points of prevalence rates of smoking may appear marginal between rural low-income women and women living in suburban and urban areas, the consequences of

smoking are realized with a greater health burden of tobacco-related disease outcomes in rural settings. For example, smoking-related lung cancer deaths are increasing in women living in heavily rural states (Jemal et al., 2008).

In 2001, the CDC recognized smoking as a women's issue, identifying a number of important factors that impact smoking behavior differences between women and men. Specifically, women smokers are more likely to be diagnosed with depression and more often smoke to control weight and negative moods (CDC, 2001). Smoking initiation in women is more often associated with a sense of rebellion against conventional values, a means of establishing independence from authority figures, and enhanced feelings of social acceptance within a peer group (American Cancer Society [ACS], 2014; ALA, 2012; CDC, 2001). Although it is not entirely clear what has driven trends in smoking over the past several years, from 2005 to 2010 smoking rates for women declined 60% less than those of men (CDC, 2001, 2006). While women's rates of smoking have continued to decline between 2010 and 2012, rates remain higher in women with a General Education Development (GED) as their highest level of education than rates in their more educated counterparts (CDC, 2014).

Women have demonstrated greater difficulty with successful cessation than men, relapsing more often and responding less favorably to nicotine replacement therapy (Bohadana, Nilsson, Rasmussen, & Martinet, 2003; CDC, 2001). Physical dependency on nicotine may also be less intense in women, pointing to the primacy of psychosocial influences in smoking addiction for this group (Perkins, 1996). Further studies with low-income women living in rural areas are needed to provide a more specific picture of underlying behavioral, social, and emotional reasons for smoking in this population and will be beneficial in developing targeted smoking interventions.

Methods

A systematic search of the literature for relevant studies published after 1997 using PubMed, Medline, EBSCO CINAHL, and Web of Science was conducted to evaluate the current state of knowledge on smoking in low-income rural women. Given the extensive amount of research on smoking, a 15 year

time frame from 1997 to 2012 was chosen to best reflect statistical, social, and scientific currency in studies focusing on smoking in rural low-income women. The MeSH terms “low-income OR poverty OR poor” were combined with combinations of the following terms using the AND command; “rural AND women OR female AND smoking OR smoking cessation OR tobacco”. One search removed the term rural to view limitations produced by the term but was returned to the search MeSH after studies listed did not reflect the focus of this study. For example, studies focusing on urban, global, or specific minority populations, global aspects of smoking, or smokeless tobacco were not included in this literature review. References cited in articles that met the search inclusion criteria were reviewed and searched using the Web of Science. Web of Science was also used to search for other publications by authors of studies that met initial inclusion criteria. Other database searches such as the Cochrane Report and the CDC publication on *Best Practices for Comprehensive Tobacco Control Programs—2007* were reviewed for relevant reports of study findings that were not identified in the initial search strategy (CDC, 2007).

Design and Sample

PubMed search criteria were specific to clinical studies on cigarette smoking and smoking cessation in rural low-income women. Studies were selected for inclusion if they were printed in English and conducted in the United States or Canada. Originally, 50% was set as the minimum level of low-income rural women to be included in the sampled population; however, an exception was made for one intervention study that provided valuable information on this topic and had 49.4% of the sampled women completing the study. Studies including men were included due to the relevant information they provided on this overlooked population of women and the very limited number of smoking studies identifying rural low-income women as a focus of interest. The population of interest was also limited to rural North American women identified as poor, low-income, or living in poverty, and who were identified as current or former smokers at the time the study was conducted. This review did not seek to directly distinguish factors associated with health care access, which may vary according to national, state, or local resources, but

focused on the social endeavor of smoking and identity-driven behaviors unique to rural low-income women. Each study was reviewed for its study design, quality of methods applied, and major findings. In randomized controlled studies, careful attention was given to the extent to which study findings from descriptive, qualitative, and correlational studies, and the theoretical frameworks used to inform the interventions tested.

Analytic strategy

Using Microsoft Excel, a detailed literature matrix following Garrard’s (2011) methodology was constructed that identified study author(s), title, data source, sample information, and major findings. Each study was classified as a randomized controlled trial, qualitative, descriptive, correlation, or a study that compared group differences. Patterns examined related to conceptual classification of participant experiences, attitudes, behaviors, emotions, or barriers/facilitators to cessation attempts and/or success, and supporting theoretical frameworks. The first two authors met bi-monthly to evaluate the search process, review search results, deliberate inclusion or exclusion of studies, discuss appropriate classification and coding, and confer regarding the synthesis of findings. The few differences during this process were resolved after joint review of inclusion criteria and careful review of the study by the authors.

Results

Despite the higher risk of smoking-related health sequelae among lower income rural women, there has been little research that targets this disadvantaged population. Searches through PubMed, EBSCO CINAHL, Web of Science, and other references yielded 389 records with an additional 32 records identified through article reference lists, journal reviews, and Internet searches. After duplicate studies were removed, there remained 274 records to be screened (Figure 1). After applying inclusion and exclusion criteria, 23 studies remained relevant to the focus of this search and were included in this review. Of these studies, 2 were qualitative, 16 were descriptive, 1 was a correlation/comparison, and 4 were randomized interventions. Analysis of these 23 studies provides a basis for the following review findings.

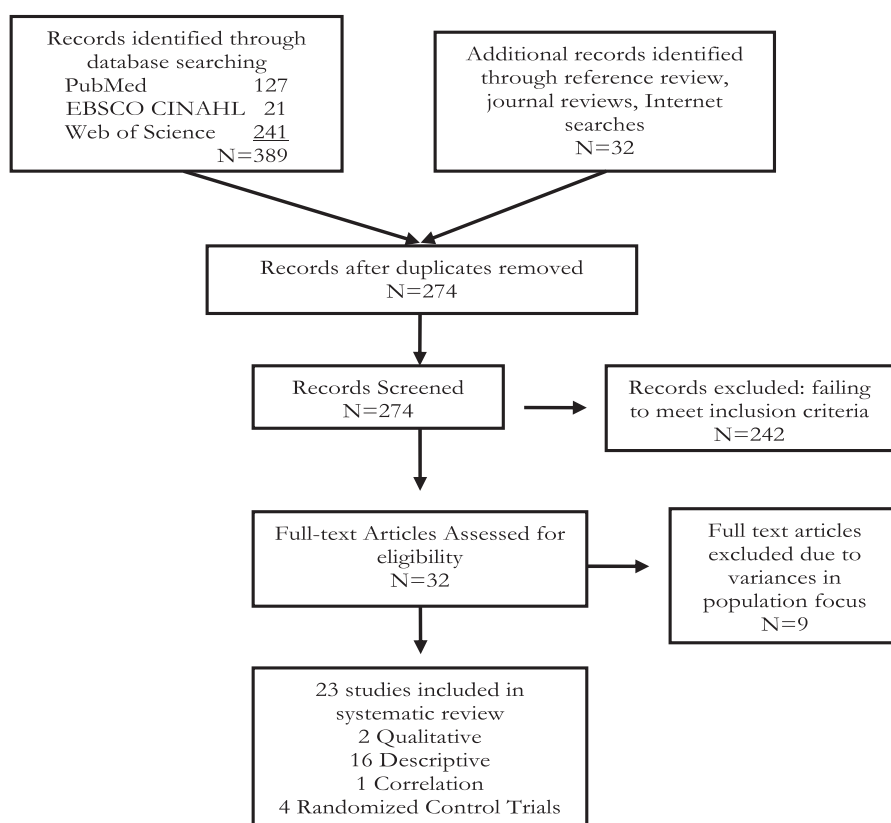
Findings from qualitative studies

Only two qualitative studies reported findings and were based on focus groups comprised of low-income rural smokers from Kentucky and the Midwest (Butler et al., 2012; Hutcheson et al., 2008). Although these two studies included both men and women, the majority were women. Seventy-nine percent (79%) of the 21 participants in Butler et al. (2012) were females recruited from economically distressed counties in Eastern Kentucky with poverty rates at least 1.5 times the national average; 63% of the 63 participants enrolled in Hutcheson et al. (2008) were female from a sample with 56% unemployment. Focused on smoking and smoking cessation, these studies identified social support and the individual's social network as significant factors in the decision to stop smoking and individual success with long-term smoking cessation. A finding of both of these studies was that barriers to cessation are strongly associated with a smoker's social network and the type of support received

from significant group members. Emergent themes related to previous smokers no longer feeling included in their social groups that continued to smoke, leaving the nonsmoker with less access to social support when facing stressors. The support of family, friends, professional, peers, and group support meetings was identified as a key facilitator for those attempting to quit (Butler et al., 2012; Hutcheson et al., 2008).

Findings from descriptive studies

Sixteen of the 23 published studies, or 70%, were descriptive, providing demographic data on age, race, ethnicity, socioeconomic status, educational level, marital status, employment, access to health care, and information related to smoking cessation programs provided by primary care providers (CDC, 2007, 2010, 2011, 2012; Pleis, Ward, & Lucas, 2010; Tseng, Yeatts, Millikan, & Newman, 2001). Others focused on national and rural trends in smoking or used data and literature reviews to



Adapted from PRISMA flow diagram. Moher D, Liberati A, Altman DG, The PRISMA Group (2009)

Figure 1. Results from Systematic Review

support development of conceptual frameworks to understand tobacco-related health disparities (ALA, 2012; Bottorff, Haines-Saah, Oliffe, & Sarbit, 2012; Doescher et al., 2006; Eberhardt & Pamuk, 2004; Jones, Parker, Ahearn, Mishra, & Variyam, 2009; Moolchan et al., 2007; Sorensen, Barbeau, Hunt, & Emmons, 2004; Voigt, 2010; Weg et al., 2011; Westmaas, Bontemps-Jones, & Bauer, 2010). Descriptive data were also presented in randomized controlled trials and qualitative study findings.

Among the descriptive findings, higher smoking rates, higher rates of poverty, and less access to health care were found among women living in rural areas (CDC, 2012). Low-income rural women were also identified as having less health insurance, less access to health care services, and traveling farther to participate in smoking cessation programs (Hutcheson et al., 2008). In addition, this population is less likely to receive smoking cessation information from health care providers or too frequently, have inadequate financial resources to pay for nicotine replacement therapy (Hendryx, 1993; Hutcheson et al., 2008).

Doescher et al. (2006) described how lower levels of education and unemployment are associated with higher smoking rates and contribute to smoking in rural women who are poor. An estimated 28.9% of people living below the poverty level smoke compared to 18.3% of those who are at or above the poverty level (CDC, 2012). Poverty in rural areas has been estimated at 16.6% compared to 13.2% in nonrural areas (United States Department of Agriculture, Economic Research Service [USDA], 2011). With a poverty rate of 38.1%, female-headed rural families have a higher poverty rate than any other family structures in the United States (USDA, 2011). This is approximately 10% higher than the 29.4% of nonrural female-headed families living in poverty (USDA, 2011). Relatedly, having a GED as one's highest level of education is correlated with the highest smoking rate of 45.2% in 2011, with women having only 9–11 years of education comprising the group with the second highest smoking rate at 33.8% (CDC, 2012).

Chronic stressors associated with living in poverty are coupled with high smoking rates. Socioeconomically disadvantaged women experience chronic stress due to limited social support, financial insecurity, heavy child-care responsibilities, high rates of domestic violence, and a state of chronic

unemployment (CDC, 2011; Doescher et al., 2006; Hutcheson et al., 2008; Sorensen et al., 2004). National survey reports and fieldwork studies have clearly documented that women use cigarette smoking to manage stress associated with these factors and to aid with relaxation (CDC, 2001).

Findings from correlational/association studies

Findings from this group of studies suggest that social aspects of smoking may be key to successful cessation efforts, and are consistent with those from descriptive and qualitative studies. For example, Christakis and Fowler (2008) used social network analysis and longitudinal statistical methods to follow the interconnected social networks of 12,000 participants in the Framingham Heart Study from 1971 to 2003. This study found clusters of former smokers quitting in concert according to their social network. If a spouse, friend, or sibling stopped smoking, the chances of a person continuing to smoke decreased from 67% to 25%.

One comparative study focused on differences in smoking cessation practices of rural and urban health care providers (Scott, LaSala, Lyndaker & Neil-Urban, 2003). Health care practitioner assessment of patient smoking patterns and emphasis on prescribing interventions occurred less frequently in rural settings when compared to urban settings. These findings are consistent with those from qualitative studies, suggesting greater information about and access to smoking cessation programs would facilitate smoking cessation in rural populations. Randomized controlled trial studies implementing professional support programs have not shown success in rural smokers (Bullock et al., 2009; Cupertino et al., 2007; Stoops et al., 2009).

Findings from randomized trials/intervention studies

There have been four randomized controlled trials that have focused on rural women who smoke or had a sample with a significant number of rural women smokers. The earliest study in the time frame of this search tested an 18 month community-designed intervention in rural African-American churches located in Virginia with 45.1% of initial participants and 49.4% of follow-up participants that completed the study being women (Schorling et al., 1997). Recognizing that

African-American rural churches have a strong base of social networks, this study tested a community-based smoking cessation intervention through health-oriented church coalitions. The intervention consisted of training one or two smoking cessation counselors in the church, who then provided counseling and self-help materials to members who desired to quit. Findings from this study did not demonstrate significant differences in 1-month cessation rates between the intervention and control group participants. Smoking cessation outcomes were better in church members than in nonchurch attenders, which may suggest that social support delivered through church coalitions influenced smoking cessation rates. Of significant interest in this study is that despite community smoking rates exceeding national rates, during initial identification of community-based health problems, neither county identified smoking as a primary health concern. Smoking cessation was included in the community-designed health program once church coalition members became aware that funding was contingent on including smoking cessation.

Three of the four studies provided social support using the telephone or Internet to test cessation interventions, change in readiness to quit, and/or engagement in cessation management. Two studies tested an intervention structured around social support through telephone counseling; one study sampled smokers from rural primary care practices in Kansas, two thirds of whom were female with an annual income less than \$40,000, and focused on long-term engagement in cessation counseling and readiness to quit (Cupertino et al., 2007). The other study sampled pregnant and/or postpartum smokers recruited from rural Midwest Women Infant and Children Nutritional Supplement clinics (Bullock et al., 2009). Neither intervention resulted in a significant change in smoking rates, though Cupertino et al. (2007) found that participants with lower income, lower educational attainment, and those lacking insurance were less likely to remain engaged in the 2-year telephone cessation intervention in this study. The third study had a total sample size of 68 which included 51 women (75%) and tested short-term effectiveness of an Internet-based abstinence reinforcement of smoking cessation in rural Kentucky smokers (Stoops et al., 2009). Results supported the feasibility of using the Internet to promote smoking

cessation and suggest effectiveness in initiating and maintaining smoking abstinence during the active 6-week intervention but did not show prolonged effects after the intervention concluded. These three studies indicate that social support provided through unfamiliar, outside resources have not proved effective in low-income rural populations.

Discussion

Discrepancies in social support attributes

One might expect that research on smoking cessation had been exhausted. However, this search indicates the sparse amount of information and randomized controlled trials (RCTs) that focus on what might be successful for developing smoking cessation programs specifically for low-income rural women. To date, there has been little exploration of the experiences of rural women who smoke and what they believe might increase their success if they attempt to quit. As a result, of the four RCTs testing interventions, there was little success beyond recognizing the need for additional research that assists future design of targeted interventions with this population.

Qualitative findings have clearly identified that smokers desire support from family, friends, peers, or “buddies” from their support system or social network. The few randomized trials that met the focus of this study used conceptual frameworks of social support; providing external or peripheral sources of support. Specifically, interventions failed to show significance when testing the use of telephone counselors or study nurses/counselors external to participants’ social networks and primary social support systems. The noted possible outlier among these studies used community church coalitions with trained local church members as counselors, and found the rate of smoking cessation was greater from church members and less in nonchurch attenders (Schorling et al., 1997). Although this intervention did not reach statistical significance, results suggest that social support provided by church members to other church members could influence smoking cessation in African-American communities; however, further research into the use of interventions using coalition models in targeted social networks is needed to better assess efficacy.

Although peripheral support resources provide general social support for smokers, conceptually this specific type of social support does not reflect what rural women have indicated as their desired source of support for cessation in qualitative findings, or in the relevance of social network influences found in correlational studies. Thematic findings from studies reviewed clearly point to the desire for social support from the individual's friends, family, and peer networks: there is little mention of desire for social support from individuals outside one's *personal* social network (Butler et al., 2012; Hutcheson et al., 2008).

Of significance is the finding that within the social network of low-income rural women, attempts to stop smoking can lead to conflict in their social support systems and those social networks that view smoking as a social norm (Christakis & Fowler, 2008). Finding a supportive social group during smoking cessation attempts can be challenging and stressful without the support of family and friends, regardless of whether sources outside this personal network are used as substitutes (Hutcheson et al., 2008). These social factors influence the smoking behaviors of rural low-income women that hold membership in communities with high smoking rates and little support from friends, family, and peers. Efforts of previous intervention studies have provided social support from trained counselors, telephone contacts, Internet-based reinforcement, and home health visits from care providers (Bullock et al., 2009; Cupertino et al., 2007; Stoops et al., 2009) but without attention to the importance that personal social networks have in this population. The literature reviewed in this study repeatedly references the desired social network as interconnected friends, family members, and coworkers as the type of social support that can impact smoking cessation in low-income rural women. Situating these review findings into social network literature, however, may shed light on how to use a more targeted social support approach to develop successful interventions for smoking cessation with low-income, rural women.

The nuances of "the social": Networks, meanings, and smoking

Herbert Blumer (1969) proposed that human beings act on the basis of the meanings things have

for them and that these meanings arise from the social interactions that occur between people. Meaning, which is formed in the context of social interaction, is subject to modification based on people's interpretation of surrounding situations at hand and the direction of action. In low-income rural women, significant social interactions take place in networks of family, friends, and coworkers (Butler et al., 2012; Hutcheson et al., 2008).

Based on this theoretical framework and other findings in the literature related to the lives of low-income rural women, it is plausible that efforts to cope with daily stressors of poverty, unemployment, low education, and family responsibilities, cigarette smoking is assigned social meaning when engaged in through social networks that provide emotional support, information, affirmation of social norms, and a sense of belonging (Hartley, 2004; Westmaas et al., 2010). This socially embedded meaning of smoking, therefore, can have positive and negative effects on low-income women's self-efficacy, self-image, and strategies used to cope with multiple psychosocial stressors (Sorensen et al., 2004). Unfortunately, positive rewards of belonging to a social network may be outweighing negative effects of smoking on health, thereby rendering interventions based on external sources of support ineffective.

Decisions to start or stop smoking, and chances of staying smoke-free are influenced by the individual's systems of social support and relationships within their social networks. Studies suggest the predictive and causal associations between individual social relationships and the individual's health has linked the lack or limitation of social support to disease and clearly distinguishes one's social network from the support that might be received through various sources (Cohen, 1988; House, 2001; House, Landis, & Umberson, 1988). Specifically, one's social network is comprised of the density, range, and multiplicity of one's social groups, while social support references the support one receives, its sources, and perceived adequacy. The pivotal role of social support and social networks in smoking has been documented in fieldwork studies with smokers (Cohen, 1988; Stewart et al., 2011). Social networks create a strong connection between individuals based on shared social capital which places the social relationship, or connection, above what the individual perceives as their own

attributes (Christakis & Fowler, 2009). An individual's social network functions to reinforce, maintain, and give meaning to one's social behaviors. Christakis and Fowler (2009) have interpreted social networks as encouraging a type of social contagion, where spread of a behavior begins with one person copying another person's behavior; others follow the behavior until it becomes pandemically accepted with new social meaning and social capital (Edge, 2008).

Social support that is received through social networks among low-income rural women differs from those of urban and suburban women (Hutcheson et al., 2008; Stevens, Colwell, & Hutchison, 2003). Smoking is common and expected in many rural communities (Eberhardt & Pamuk, 2004). Through fieldwork, Hutcheson et al. (2008) found that smoking in rural communities provided entry into a strong connection with desired social networks of family, friends, and community. Choosing not to smoke reduced individual's social capital and threatened acceptance in the network (Poland et al., 2006). Fear of being disconnected and isolated from one's social network hindered people's desire to quit smoking and reinforced smoking behavior. Incentives to stop smoking are inhibited by having few social networks available in rural communities to support nonsmoking. Also, inadequate recreational resources available as substitutes for smoking increases relapse. Lack of social support in poor populations, including rural women has a negative affect (Blaylock & Blisard, 1992; Christakis & Fowler, 2008). Although increased exposure to social support and social networks predict successful smoking cessation in higher socio-economic populations, increased exposure to social networks where there is smoking, may encourage smoking in low-income rural women (CDC, 2001; Christakis & Fowler, 2008; Tseng et al., 2001). For example, Hutcheson, et al. (2008) found that communal norms in rural areas included social pressure among peer groups to engage in or continue smoking, and a perceived lack of social resources necessary to encourage quitting. Smoking during leisure activities, at the workplace, with family members, as well as having limited access to nonsmoking support systems reinforced smoking in their social network (Butler et al., 2012). Low-income rural women also have a greater likelihood of living in a household with other adults who smoke, further

reinforcing smoking behavior (Sorensen et al., 2004; Stevens et al., 2010; Tseng et al., 2001; Weg et al., 2011).

The greater the number of smokers in the woman's social network, the greater the likelihood that women will smoke and have difficulty quitting for good (Christakis & Fowler, 2008; McLeroy, Bibequ, Steckler, & Glanz, 1988). Smoking in low-income rural women is more commonly considered a social norm, are more likely to have friends who smoke and they often participate in social activities that involve smoking (CDC, 2001; Christakis & Fowler, 2008). And smoking with coworkers and friends creates a sense of belonging and less isolation for this population of women (Butler et al., 2012; Hutcheson et al., 2008). In addition, in response to moral condemnation of smokers that can arise from more affluent or socially elite groups, many smokers have assumed a defensive posture that maintains smoking as a means of belonging and acceptance in their social groups and social networks. Smokers in disadvantaged and marginalized social groups are becoming resistant to tobacco control and defiantly opposing any pressure to quit (Poland et al., 2006). Taken together, these findings suggest a more nuanced approach to understanding the social meanings embedded in the cultural and social support networks of low-income rural women. These may play a key role in developing successful cessation and prevention interventions. Public health nurses practicing in rural communities are often challenged with assimilating clinical knowledge, understanding unique characteristics of local communities, and the life experiences of their patients with strategies aimed at improving health care outcomes. Unfortunately, most of the knowledge available on smoking in low-income rural women comes from studies that focus on smoking trends in the general population or smoking among women. The lack of smoking assessment and cessation interventions by rural health care providers (Hendryx, 1993; Hutcheson et al., 2008; Scott, LaSala, Lyndaker, & Neil-Urban, 2003) are two findings from this review that public health nurses can address in their practice; however, the findings also strongly suggest that these interventions must be developed to address the unique social and cultural needs of rural women.

Results of this review strongly suggest a disconnect between findings that identify one's personal

social network as the desired form of social support and interventions that have implemented social support provided by distant, alternative, more peripheral, or substitute sources of support. The role of social support in smoking cessation is nothing new; however, information from this review emphasizes that we pay attention to the type of social support and how variations can impact smoking cessation outcomes. Public health nurses must realize the social and cultural meanings associated with smoking in rural low-income women and take into account that social and personal consequences of being a nonsmoker may outweigh the health benefits of quitting. For rural, low-income women a change in smoking status may involve a transformation of social ties and relationships that the public health nurse should anticipate and plan for prior to initiating smoking cessation programs in rural communities. It is important to work with these women to identify other nonsmoking family members, friends, and identify social activities that will support shared social and cultural ties when considering and planning smoking interventions. Considering the importance of these social and cultural factors has potential to reduce tobacco-related diseases that are disproportionately affecting the health burden of rural communities.

As public health nurse researchers develop new smoking cessation interventions that implement theories of social support for low-income rural women, we must account for these nuances to move the field forward and provide interventions that target the smoker's personal social networks and understand the culture that surrounds smoking in low-income rural women. From an intervention development point of view, it is useful to reflect on findings that depict the personal meaning and social value that smoking has in this population before effective interventions that support smoking cessation can be developed. Further research in this area is foundational to developing interventions that aim to provide healthier alternatives and provide necessary social support systems with greater specificity around influential sources in social networks. Further exploring the meaning and value smoking has for rural low-income women may provide options for change that are more acceptable and realistic. Without effective intervention, chronic illness that results from smoking will continue to burden this group of women and per-

petuate the leading preventable cause of poor health and increased mortality in rural communities.

References

- American Cancer Society [ACS]. (2014). *Women and Smoking: An epidemic of smoking-related cancer and disease in women*. Atlanta, GA: American Cancer Society. Retrieved from <http://www.cancer.org/acs/groups/cid/documents/webcontent/002986.pdf>
- American Lung Association [ALA]. (2012). *Cutting Tobacco's Rural Roots: Tobacco Use in Rural Communities. 2012 Disparities in Lung Health Series*. Retrieved from <http://www.lung.org/assets/documents/publications/lung-disease-data/cutting-tobaccos-rural-roots.pdf>
- Blaylock, J., & Blisard, N. (1992). U.S. cigarette consumption: The case of low-income women. *American Journal of Agricultural Economics*, *74*, 698–705.
- Blumer, H. (1969). *Symbolic interactionism: Perspective and method*. Berkeley, CA: University of California Press.
- Bohadana, A., Nilsson, F., Rasmussen, T., & Martinet, Y. (2003). Gender differences in quit rates following smoking cessation with combination nicotine therapy: Influence of baseline smoking behavior. *Nicotine Tobacco Research*, *5*, 111–116.
- Bottorff, J., Haines-Saah, R., Oliffe, J., & Sarbit, G. (2012). Gender influences in tobacco use and cessation interventions. *Nursing Clinics of North America*, *47*, 55–70.
- Bullock, L., Everett, K., Mullen, P., Geden, E., Longo, D., & Madsen, R. (2009). Baby BEEP: A randomized controlled trial of nurses' individualized social support for poor rural pregnant smokers. *Maternal Child Health Journal*, *13*, 395–406.
- Butler, K., Hedgecock, S., Record, R., Denifield, S., McGinn, C., Murray, D., et al. (2012). An evidence based cessation strategy using rural smokers' experiences with tobacco. *Nursing Clinics of North America*, *47*, 31–43.
- Centers for Disease Control and Prevention [CDC]. (2001). *Women and smoking: Surgeon general's report, Executive Summary*. Retrieved from http://www.cdc.gov/tobacco/data_statistics/sgr/2001/executive_summary/index.htm
- Centers for Disease Control and Prevention [CDC]. (2006). Tobacco use among adults—United States, 2005. *MMWR*, *55*(42), 1145–1148. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5542a1.htm>
- Centers for Disease Control and Prevention [CDC]. (2007). *Best Practices for Comprehensive Tobacco Control Programs—2007*. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; October 2007. Retrieved from http://www.cdc.gov/tobacco/stateandcommunity/best_practices/pdfs/2007/BestPracticesComplete.pdf
- Centers for Disease Control and Prevention [CDC]. (2010). Vital signs: Current cigarette smoking among adults aged ≥18 years—United States, 2009. *MMWR*, *59*(35), 1135–1140. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5935a3.htm?s_cid=mm5935a3_w
- Centers for Disease Control and Prevention [CDC]. (2011). Vital signs: Current cigarette smoking among adults aged ≥18 years: United States, 2005–2010. *MMWR*, *60*(35), 1207–1212. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6035a5.htm?s_cid=mm6035a5_w
- Centers for Disease Control and Prevention [CDC]. (2012). Vital signs: Current cigarette smoking among adults: United States. *MMWR*, *61*(44), 889–893. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6144a2.htm?s_cid=mm6144a2_w

- Centers for Disease Control and Prevention [CDC]. (2014). Current cigarette smoking among adults-United States. *MMWR*, 63 (02), 29–34. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6302a2.htm?s_cid=mm6302a2_w#tab
- Christakis, N., & Fowler, J. (2008). The Collective Dynamics of smoking in a large social network. *The New England Journal of Medicine*, 358, 2249–2258.
- Christakis, N., & Fowler, J. (2009). *Connected: The surprising power of our social networks and how they shape our lives*. New York, NY: Little, Brown & Company.
- Cohen, S. (1988). Psychosocial models of the role of social support in the etiology of physical disease. *Health Psychology*, 7, 269–297.
- Cupertino, A., Mahnken, J., Richter, K., Sanderson, C., Casey, G., Resnicow, K., et al. (2007). Long-term engagement in smoking cessation counseling among rural smokers. *Journal of Health Care for the Poor and Underserved*, 18, 39–51.
- Doescher, M., Jackson, E., Jerant, A., & Hart, G. (2006). Prevalence and trends in smoking: A national rural study. *Journal of Rural Health*, 22, 112–118.
- Eberhardt, M., & Pamuk, E. (2004). The importance of place of residence: Examining health in rural and nonrural areas. *American Journal of Public Health*, 94, 1682–1686.
- Edge (2008). *The Third Culture*. Social Networks are like the eye: A talk with Nicholas A. Christakis, 2.25.08. Retrieved from http://www.edge.org/3rd_culture/christakis08/christakis08_index.html
- Garrard, J. (2011). *Health sciences literature review made easy: The matrix method*. Sudbury, MA: Jones & Bartlett Learning.
- Hartley, D. (2004). Rural health disparities, population health, and rural culture. *American Journal of Public Health*, 94, 1675–1677.
- Hendryx, M. (1993). Rural hospital health promotion: Programs, methods, resource limitations. *Journal of Community Health*, 18, 241–250.
- House, J. (2001). Understanding social factors and inequalities in health: 20th century progress and 21st century prospects. *Journal of Health and Social Behavior*, 43, 125–142.
- House, J., Landis, K., & Umberson, D. (1988). Social relationships and health. *Science*, 241, 540–545.
- Hutcheson, T., Greiner, K., Ellerbeck, E., Jeffries, S., Mussulman, L., & Casey, G. (2008). Understanding smoking cessation in rural communities. *Journal of Rural Health*, 24, 116–124.
- Jemal, A., Thun, M., Ries, L., Howe, H., Weit, H., Center, M., et al. (2008). Annual report to the nation on the status of cancer, 1975–2005, Featuring trends in lung cancer, tobacco use, and tobacco control. *Journal of the National Cancer Institute*, 100, 1672–1694.
- Jones, C., Parker, T., Ahearn, M., Mishra, A., & Variyam, J. (2009). *Health status and health care access of farm and rural populations*. EIB-57, U.S. Department of Agriculture, Economic Research Services. Retrieved from <http://www.ers.usda.gov/publications/eib-economic-information-bulletin/eib57.aspx>
- McLeroy, K., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education Quarterly*, 15, 351–377.
- Moolchan, E., Fagan, P., Fernander, A., Velicer, W., Hayward, M., King, G., et al. (2007). Addressing tobacco-related health disparities. *Addiction*, 102(Suppl.), 30–42.
- Perkins, K. (1996). Sex differences in nicotine versus nonnicotine reinforcement as determinants of tobacco smoking. *Experimental and Clinical Psychopharmacology*, 4, 166–176.
- Pleis, J., Ward, B., & Lucas, J. (2010). *Summary health statistics for U.S. adults, 2009: National Health Interview Survey*. National Center for Health Statistics, Vital Health Stat 10. Retrieved from http://www.cdc.gov/nchs/data/series/sr_10/sr10_249.pdf
- Poland, B., Grohlich, K., Haines, R., Mykhalovskiy, E., Rock, M., & Sparks, R. (2006). The Social context of smoking: The next frontier in tobacco control? *Tobacco Control*, 15, 59–63.
- Schorling, J., Roach, J., Siegel, M., Baturka, N., Hunt, D., Guterbock, T., et al. (1997). A trial of church-based smoking cessation interventions for rural African Americans. *Preventive Medicine*, 26, 92–101.
- Scott, L., LaSala, K., Lyndaker, C., & Neil-Urban, S. (2003). Smoking Cessation Practices of rural and urban health care providers. *Online Journal of Rural Nursing and Health Care*, 3, 29–43. Retrieved from <http://rnojournl.binghamton.edu/index.php/RNO/article/view/253>
- Sorensen, G., Barbeau, E., Hunt, M. K., & Emmons, K. (2004). Reducing social disparities in tobacco use: A social-contextual model for reducing tobacco use among blue-collar workers. *American Journal of Public Health*, 94, 230–239.
- Stevens, S., Colwell, B., & Hutchison, L. (2003). *Tobacco use in rural areas: A literature review. Rural Healthy People 2010: A companion document to Healthy People 2010: Volume 2*. The Texas A&M University System Health Science Center, School of Rural Public Health, Southwest Rural Health Research Center. Retrieved from <http://sph.tamhsc.edu/srhrc/rhp2010.html>
- Stewart, M., Greaves, L., Kushner, K., Letourneau, N., Spitzer, D., & Boscoe, M. (2011). Where there is smoke, there is stress: Low-Income women identify support needs and preferences for smoking reduction. *Health Care for Women International*, 32, 359–383.
- Stoops, W., Dallery, J., Fields, N., Nuzzo, P., Schoenberg, N., Martin, C., et al. (2009). An internet-based abstinence reinforcement smoking cessation intervention in rural smokers. *Drug and Alcohol Dependency*, 105, 56–62.
- Tseng, M., Yeatts, K., Millikan, R., & Newman, B. (2001). Area-level characteristics and smoking in women. *American Journal of Public Health*, 91, 1847–1850.
- United States Department of Agriculture, Economic Research Service [USDA]. (2011). *Rural America at a Glance, 2011 Edition*. Economic Information Bulletin, 85, September 2011. Retrieved from <http://www.ers.usda.gov/publications/eib-economic-information-bulletin/eib85.aspx>
- United States Department of Health and Human Services [USDHHS]. (2011). *Healthy People 2020, Tobacco Objectives*. Retrieved from <http://www.healthypeople.gov/2020/topics-objectives/topic/tobacco-use/objectives>
- United States Department of Health and Human Services [USDHHS]. (2014). *The Health Consequences of Involuntary Exposure to Tobacco Smoke: 50 years of progress*. Retrieved from <http://www.surgeongeneral.gov/library/reports/50-years-of-progress/>
- Voigt, K. (2010). Smoking and social justice. *Public Health Ethics*, 3, 91–106.
- Weg, M., Cunningham, C., Howren, M., & Cai, X. (2011). Tobacco use and exposure in rural areas: Findings from the Behavioral Risk Factor Surveillance System. *Addictive Behaviors*, 36, 231–236.
- Westmaas, J., Bontemps-Jones, J., & Bauer, J. (2010). Social support in smoking cessation: Reconciling theory and evidence. *Nicotine & Tobacco Research*, 12, 695–707.