

Socioeconomic Status and Women's Smoking Behavior: A Literature Review

Yan Huang (Corresponding author)

Department of Applied Health Science

Indiana University-Bloomington

Bloomington, Indiana 47405, U.S.A

E-mail: faithhuang1983@aol.com

Jing Ren

College of Business

Columbia Southern University, U.S.A

Received: August 23, 2010 Accepted: September 7, 2010 doi:10.5539/gjhs.v3n1p98

Abstract

Objectives: This paper presents a literature review that examines the relationship between socioeconomic status and women's smoking behavior in the United States.

Methods: A literature search was conducted among national and international peer-reviewed literature in the following databases: Academic Search Premier, CINAHL Plus with Full Text, Education Resource Information Center (ERIC), MEDLINE, and PsycARTICLES. A manual search was performed to obtain relevant articles within selected journals.

Results: Of the 9 reviewed studies, 5 indicated that a low education level is a causal factor which has a significant relationship with smoking behavior among women. 6 of the reviewed studies provided evidence that household income level plays an important role in women's cigarette smoking. Finally, 2 of the reviewed studies indicated that women's smoking behavior is influenced by their marital status.

Conclusion: The findings from this literature review indicate that future smoking prevention efforts targeting women might benefit from incorporating education, household income, and marital situation into multi-component programs that focus on the differences in socioeconomic status.

Keywords: Socioeconomic status, Smoking, Women

1. Introduction

Cigarette smoking is the largest cause of death and disability in the United States (Mokdad *et al.*, 2004), and is closely associated with many negative health outcomes such as cancer, heart and lung disease, premature births, and infant mortality (Ensminger *et al.*, 2009). In recent years, the population of women smokers has increased. Evidence shows that the smoking rates among women and men have become more similar (Johnson & Novak, 2009). In 1965, the percentage of women who smoked on a regular basis at the time of survey was 33.7%, compared with 51.9% for men, an 18 percentage point difference (CDC, 2007). By 1991, this difference had shrunk to approximately 4.6 percentage points (23.5% for men and 28.1% for women) (CDC, 2007). The most recent National Health Interview Survey (NHIS) estimates (2007) indicate continued, but relatively small, differences in the rates of current smoking between women (17.4%) and men (22.3%) (CDC, 2008). Smoking during pregnancy is another health concern for women. Unfortunately, despite the fact that up to half of all pregnant women who smoke stop smoking or refrain from smoking during their pregnancies (Fingerhut *et al.*, 1990), the vast majority of women smokers return to smoking after they give birth (Lorraine *et al.*, 2007).

For years, researchers have been searching for a better understanding of women's smoking behavior. Most studies have considered the impact of social influences, such as social context and peer smoking behavior. Previous research indicated that the influences of social context and peer smoking behavior are significantly associated with an increase in women's cigarette smoking (Dedobbeleer *et al.*, 2004 and Mohsin *et al.*, 2007). However, to our

knowledge, no review studies have been conducted that examine the influence of socioeconomic status on women's smoking behavior. The purpose of this paper is to conduct a literature review that examines the socioeconomic status that is associated with women's smoking behavior.

2. Methodology

Data sources

An in-depth literature search was conducted using the following electronic databases: Academic Search Premier, CINAHL Plus with Full Text, Education Resource Information Center (ERIC), MEDLINE, and PsycARTICLES. Three groups of search terms were used; they included: (1) socioeconomic status, (2) cigarette smoking, and (3) women. All of these search key words were entered at the same time. The electronic search was supplemented by a review of relevant bibliographies and consultation with experts. The search was confined to peer-reviewed research articles which had been written in English. All of the articles regarded smoking behavior as an outcome variable. The search period was set from January 1990 to January 2010.

Study selection

The inclusion criteria used were based on studies that focused on factors that have direct relevance for socioeconomic status and that contributed to women's cigarette use and smoking behavior. The literature search generated citations for 414 studies. These citations were then scanned for irrelevant articles and duplicates. 58 articles were included in the analysis and were retrieved for more detailed evaluation. These articles were appraised for relevance, methodological rigor, and trustworthiness, and only those with significant findings were included. Nine quantitative studies were selected to specifically illuminate the complexities of socioeconomic status and how that influences women's smoking behavior.

Quality scores were applied to each study as well. Each study was appraised based on a modified set of Russell and Gregory's criteria for methodological soundness (Russell & Gregory, 2003). They recommend evaluating the validity of studies based on the following questions:

1. Is the research question clear and adequately substantiated?
2. Is the design appropriate for the research question?
3. Was the sampling method appropriate for the research question and design?
4. Were data collected and managed systematically?
5. Were the data analyzed appropriately?

Using these guidelines, each study was given a quality score ranging from 0 to 5, where 5 is the highest, based on whether they met each of the guidelines. Quality scoring is outlined in Table 1.

<Table 1 Insert Here>

Analysis

After extracting the raw findings from each study, thematically grouping similar findings and merging similar themes, three major socioeconomic themes related to women's smoking behavior emerged: (1) Education level, (2) Household income level, and (3) Marital status. Table 2 shows the detailed analysis of the nine selected studies.

<Table 2 Insert Here>

Theme 1: Subject education level

As shown in Table 2, five of the nine reviewed studies (56%) identified the relationship between an individual's educational attainment level and women's smoking behavior. The findings of these studies indicate that a low education level is a causal factor which has a significant relationship with smoking among women.

Baris *et al.* (2004) indicated in their study that educational attainment was inversely associated with risky behavior such as smoking. The chances for women to begin smoking were significantly elevated for subjects with less than a high school education, compared to the odds for those with a graduate or professional degree (Baris *et al.*, 2004). Martin *et al.* (2007) found that those with less than a high school education were approximately 6 times more likely to smoke than those with a college degree or higher (Martin *et al.*, 2007). Johnson and Novak (2009) discussed the onset of daily smoking behavior among women in their study, the results of which showed that lower levels of education increased the risk of becoming a daily smoker. Moreover, the risk of daily smoking onset associated with indicators of education level were larger for younger age groups (Johnson & Novak, 2009). Perreira and Cortes (2006) focused on pregnant women. They mentioned in their study that tobacco use during pregnancy was concentrated among less educated women (Perreira & Cortes, 2006). Two of the five studies discussed smoking

cessation among women. Watson *et al* (2003) found that women with a higher level of education were more likely to quit smoking (Watson *et al.*, 2003). Martin *et al* (2007) also supported this finding. Their study showed that women with a college education or higher were two and a half times more likely to quit smoking compared to those with less than a high school diploma (Martin *et al.*, 2007).

These studies provide evidence that, among women, there is a significant relationship between an individual's level of educational attainment and smoking behavior. The higher an individual woman's level of education was, the likelihood of her becoming a smoker was lower.

Theme 2: Household income level.

Six of the nine reviewed studies (67%) highlighted the major role of household income level in women's smoking behavior. Most of these research findings provide evidence that household income level is closely related to smoking behavior among women. Furthermore, household income level plays an important role in women's tobacco dependence.

Two of the six studies focused on the smoking behavior among pregnant women. Perreira and Cortes (2006) suggested that tobacco use during pregnancy was concentrated among women with low family incomes (Perreira & Cortes, 2006). Reitzel *et al* (2007) agreed that household income level was associated with a higher likelihood of tobacco dependence. Participants with lower household income levels were associated with a greater likelihood of smoking, lower levels of confidence, higher instances of situations in which they were tempted to begin smoking (Reitzel *et al.*, 2007). Ensminger *et al* (2009) discussed the relationship between childhood poverty level and adult smoking behavior among African American women. They proved in their study that women who had experienced poverty in childhood were more likely to become smokers. Poverty experienced in childhood was marginally related to adult smoking. Women who had experienced childhood poverty were not only more likely to be current smokers than those who had not experienced childhood poverty, but they were also more likely to be former smokers (Ensminger *et al.*, 2009). Martin *et al.* (2007) examined views related to smoking cessation. Their study suggested that women with annual incomes of \$20,000 or less and between \$20,001 and \$35,000 were about half as likely to quit smoking compared to those with an annual income of more than \$50,000 (Martin *et al.*, 2007). However, Kim and Clark (2006) indicated that smoking rates among school-aged females did not vary substantially across low, middle, and high-income groups (Kim & Clark, 2006). They also mentioned that the effects of positive tobacco control policy effects were strongest for female students from low-income families (Kim & Clark, 2006).

All of these studies found that household income level is closely associated with women's smoking behavior. Conversely, an increase in household income will significantly reduce smoking rates among women.

Theme 3: Marital status.

Two of the nine reviewed studies (22%) mentioned the influence of marital status. All of these studies indicated that marital status had a strong association with smoking behavior among women.

Martin *et al.* (2007) indicated that unmarried women were also more than 2 times more likely to smoke (Martin *et al.*, 2007). Their study also mentioned that women with more than one child were also about twice as likely to quit smoking, compared to women who had only one child (Martin *et al.*, 2007). Jun and Acevedo-Garcia (2007) not only concurred with this finding, but had detailed results related to the effects of children on women's smoking behaviors. They found that single mothers with children were more likely to smoke than single women without children. Married women with children were 20% less likely to smoke than married women without children. Single women were 58% more likely than married women to smoke (Jun & Acevedo-Garcia, 2007).

These studies support the claim that women's smoking behavior is related to their marital status.

3. Conclusion

First, women's smoking behavior is closely associated with level of educational attainment. Women who had attained less than a high school education were more likely to smoke than those who had earned a college degree or higher (Martin *et al.*, 2007). Tobacco use during pregnancy was concentrated among less educated women (Perreira & Cortes, 2006). Women with a college education or higher were more likely to quit smoking compared to those with less than a high school diploma (Martin *et al.*, 2007). Another conclusion that can be drawn from these studies is that household income level plays an important role in women's smoking behavior. Household income level was associated with a higher degree of tobacco dependence. Women with a lower household income level were associated with a greater likelihood of smoking, less confidence, and more temptation (Reitzel *et al.*, 2007). Women with lower levels of household income were less likely to quit smoking than those with higher levels of household income (Martin *et al.*, 2007). Finally, positive outcomes for tobacco control programs and

policies to prevent smoking were strongest for female students from low-income families (Kim & Clark, 2006). The other conclusion that can be reached from the studies reviewed is that marital status also had a strong association with smoking behavior among women. Unmarried women were more than 2 times more likely to smoke (Martin *et al.*, 2007), and women with children were less likely to smoke compared with those without children (Jun & Acevedo-Garcia, 2007).

4. Limitations and Recommendations

It is important to note that among the nine studies selected for this literature review, the majority of the results depended upon the validity of women's self-reports of smoking and assessments of risky situations. These studies took no precautions to ensure that the women respondents were providing honest and truthful answers and the degree to which underreporting occurred are unknown. The reviewed studies might not have captured all of the racial/ethnic differences in terms of the efficacy of smoking interventions among minority populations. Future smoking intervention studies involving multiple racial/ethnic groups should provide information on peer group structure by race/ethnicity. Despite the limitations of this literature review, as discussed above, this study contributes to the literature on smoking by providing insight into the defining socioeconomic status among women smokers. Identifying these socioeconomic statuses can help researchers develop long-term smoking prevention programs.

References

- Baris, D., Bell, E., Zheng, T., Zhang, Y., Holford, T. R., Leaderer, B., & Zahm, S. H. (2004). Socioeconomic Status, Smoking, Alcohol Use, and Obesity and Risk of Myeloma in Connecticut Women. *Annals of Epidemiology*, 14, 596-597.
- Centers for Disease Control. (2007). Cigarette Smoking Among Adults—United States, 2006. *Mortality and Morbidity Weekly Report*, 56, 1157-1161.
- Centers for Disease Control. (2008). Cigarette Smoking Among Adults—United States, 2007. *Mortality and Morbidity Weekly Report*, 57, 1221-1226.
- Dedobbeleer, N., Beland, F., Contandriopoulos, A-P., & Adrian, M. (2004). Gender and the social context of smoking behaviour. *Social science & Medicine*, 58, 1-12.
- Ensminger, M. E., Smith, K. C., & Juon, H-S., Pearson, J. L., & Robertson, J. A. (2009). Women, smoking, and social disadvantage over the life course: A longitudinal study of African American women. *Drug and Alcohol Dependence*, 104, 34-41.
- Fingerhut, L. A., Kleinman, J. C., & Kendrick, J. S. (1990). Smoking before, during, and after pregnancy. *American Journal of Public Health*, 80, 541-544.
- Johnson, E. O., & Novak, S. P. (2009). Onset and persistence of daily smoking: The interplay of socioeconomic status, gender, and psychiatric disorders. *Drug and Alcohol Dependence*, 104, 50-57.
- Jun, H-J., & Acevedo-Garcia, D. (2007). The effect of single motherhood on smoking by socioeconomic status and race/ethnicity. *Social Science and Medicine*, 65, 653-666.
- Kim, H., & Clark, P. I. (2006). Cigarette smoking transition in females of low socioeconomic status: impact of state, school, and individual factors. *Journal of Epidemiology and Community Health*, 60, 13-19.
- Martin, L. T., McNamara, M., Milot, A., Bloch, M., Hair, E. C., & Halle, T. (2008). Correlates of Smoking Before, During, and After Pregnancy. *American Journal of Health Behavior*, 32, 272-282.
- Mokdad, A., Marks, J., Stroup, D., & Gerberding, J. (2004). Actual causes of death in the United States, 2000. *Journal of American Medical Association*, 291, 1238-1245.
- Mohsin, M., Forero, R., Berthelsen, A., Bauman, A., Jalaludin, B., & Gyaneshwar, R. (2007). Social influences for smoking in pregnancy in south western Sydney antenatal clinic attendees. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 47, 207-212.
- Perreira, K. M., & Cortes, K. E. (2006). Race/Ethnicity and Nativity Differences in Alcohol and Tobacco Use During Pregnancy. *American Journal of Public Health*, 96, 1629-1636.
- Reitzel, L. R., Vidrine, J. I., Li, Y., Mullen, P. D., Velasquez, M. M., Cinciripini, P. M., Cofta-Woerpel, L., Greisinger, A., & Wetter, D. W. (2007). The Influence of Subjective Social Status on Vulnerability to Postpartum Smoking Among Young Pregnant Women. *American Journal of Public Health*, 97, 1476-1482.
- Russell C., & Gregory, D. (2003). Evaluation of qualitative research studies. *Evidence Based Nursing*, 6, 36-40.

Watson, J. M., Scarinci, I. C., Klesges, R. C., Murray, D. M., Weg, M. V., DeBon, M., Eck-Clemens, L. H., Slawson, D. L., & McClanahan, B. (2003). Relationships among smoking status, ethnicity, socioeconomic indicators, and lifestyle variables in a biracial sample of women. *Preventive Medicine*, 37, 138–147.

Table 1. Quality Assessment of the Reviewed Literature (studies)

	1. Is the research question clear and adequately substantiated?	2. Is the design appropriate for the research question?	3. Was the sampling method appropriate for the research question and design?	4. Were data collected and managed systematically?	5. Were the data analyzed appropriately?	Quality Score
Baris <i>et al.</i> , 2004	Yes	No	No	Yes	Yes	3
Kim & Clark, 2006	Yes	No	Yes	Yes	Yes	4
Ensminger <i>et al.</i> , 2009	Yes	Yes	No	Yes	Yes	4
Johnson & Novak, 2009	Yes	Yes	Yes	Yes	Yes	5
Jun & Acevedo-Garcia, 2007	Yes	Yes	Yes	Yes	Yes	5
Perreira & Cortes, 2006	Yes	Yes	Yes	No	Yes	4
Reitzel <i>et al.</i> , 2007	Yes	Yes	No	No	Yes	3
Martin <i>et al.</i> , 2007	Yes	Yes	No	No	Yes	3
Watson <i>et al.</i> , 2003	Yes	Yes	No	Yes	Yes	4

Table 2. Analysis of the five studies

Authors and Year	Study	Sample	Methods	Findings
Baris <i>et al.</i> , 2004	Socioeconomic Status, Smoking, Alcohol Use, and Obesity and Risk of Myeloma in Connecticut Women.	179 women aged 18 to 84	In-person interview	Educational attainment was inversely associated with risk behavior such as smoking. Risk was significantly elevated for subjects with less than a high school education, compared to individuals with a graduate or professional degree. Similarly, an increased risk was observed for those in the lowest annual income category (<\$10,000) compared with those in the highest (>\$75,000).
Kim & Clark, 2006	Cigarette smoking transition in females of low socioeconomic status: impact of state, school, and individual factors.	2,697 young females from grade 7 to 12	School based survey and in-home follow up interview	School level smoking rates did not vary substantially across low, middle, and high income groups. The positive tobacco control policy effects for initiation were strongest for females from low income families.
Ensminger <i>et al.</i> , 2009	Women, smoking, and social disadvantage over the life course: A longitudinal study of African American women.	457 African American women	In-person interview	Women who had experienced poverty in childhood were more likely to become smokers. Poverty level in childhood was marginally related to adult smoking. Women with a high level of childhood poverty were not only more likely to be current smokers than others, they were also more likely to be former smokers.
Johnson & Novak, 2009	Onset and persistence of daily smoking: The interplay of socioeconomic status, gender, and psychiatric disorders.	34,653 women aged 18 or older	In-person interview	For onset of daily smoking, the results showed that lower levels of education increased the risk of becoming a new daily smoker. The risk of daily smoking onset associated with indicators of education level were larger for younger age groups.
Jun & Acevedo-Garcia,	The effect of single motherhood on smoking	70,019 women	Self-administrated questionnaire	Marital status also had a strong association with smoking: While single mothers with

2007	by socioeconomic status and race/ethnicity.	aged 15 years and older		children were more likely to smoke than single women without children, married women with children were less likely to smoke than women without children. Single women were 58% more likely than married women to smoke. After controlling for other risk factors, women with children aged 0–4 were 20% less likely to smoke than women without children.
Perreira & Cortes, 2006	Race/Ethnicity and Nativity Differences in Alcohol and Tobacco Use During Pregnancy.	4,185 pregnant women	In-person interview	Tobacco use during pregnancy was concentrated among less educated women and those with a lower family income.
Reitzel <i>et al.</i> , 2007	The Influence of Subjective Social Status on Vulnerability to Postpartum Smoking Among Young Pregnant Women.	123 pregnant women aged 18-24 years	Staff- administrated questionnaire	Household income level was associated with higher tobacco dependence. Participants with lower household income level were associated with a greater likelihood of smoking, lower rates of confidence, and higher rates of temptation.
Martin <i>et al.</i> , 2007	Correlates of Smoking Before, During, and After Pregnancy.	7,780 mothers	In-person interview	Those with less than a high school education were approximately 6 times more likely to smoke than were those with a college degree or higher. Those with less than a high school diploma were about 2 and a half times more likely to relapse compared to those with a college education or higher. Individuals with a lower household income were also more likely to smoke, with those making \$20,000 or less about twice as likely to smoke as those whose annual income was \$50,000 or higher. Women with annual incomes of \$20,000 or less (OR=0.45) and between \$20,001 and \$35,000 (OR=0.53) were about half as likely to quit smoking compared to those with an annual income of more than \$50,000. Unmarried individuals were also over 2 times more likely to smoke.
Watson <i>et al.</i> , 2003	Relationships among smoking status, ethnicity, socioeconomic indicators, and lifestyle variables in a biracial sample of women.	715 women aged 18 to 39	Baseline laboratory, self-report and dietary intake measures.	Participants with higher education level were more likely to quit smoking.