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Smoking Patterns Among Rural Elderly

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ABSTRACT

Health promotion among the elderly has been shown to produce positive outcomes despite widespread belief that the elderly will not benefit. Helping the elderly to quit smoking has immediate and significant health and economic benefits. This epidemiological study examined the tobacco use status of elderly living in rural areas primarily because of their reduced accessibility to group cessation programs and their relative isolation. The authors found that although a large proportion of rural elderly visited their primary care provider at least once during the previous year and had received advice to quit smoking, only about half of those receiving this advice had actually made a serious attempt to quit for at least one day. Persons living in this rural mid-south state also have higher point prevalence rates of smoking for both men and women as compared to national

data. Use of spit tobacco, cigars and pipes is also practiced on an occasional basis by some of the men in the sample. Future research should be focused on improving the cessation counseling methods used with the rural elderly tobacco user and on assisting them in their maintenance efforts.

Keywords: smoking, aged, rural, tobacco, health promotion, smoking cessation

Introduction

The elderly constitute about 12.4% of the U.S. population, a proportion that has changed little since 1990, although the absolute number of elderly has grown by 12%. This decade was the first time in U.S. history that the proportion of elderly did not increase, a reflection of the lower birth rate of the 1920s and 1930s. This trend will reverse when the baby boom generation begins turning 65 in 2011.¹ Although the proportion of elderly has not increased since 1965, the total number of elderly who smoke has gone up and will increase even more when the baby boomers hit retirement age.²⁻³ As some researchers have said, smoking is a geriatric health issue.³

Unfortunately, many elderly continue to smoke, even into their 70s and 80s, despite knowledge that it is damaging their health. Some elderly believe that quitting smoking will not improve their health which contravenes many research findings.⁴ Quitting smoking after the age 65 improves cardiovascular functioning, reduces pulmonary infections, and reduces the risk of lung and oropharyngeal cancers,⁴⁻⁸ hip fractures,⁹ osteoporosis,¹⁰⁻¹¹ and eye disease.¹²⁻¹⁴

Of the top 16 causes of death among the elderly, eight are caused by smoking.¹⁵ Smoking in the elderly has also been associated with functional decline among those living in the community, thus serving as a risk factor for institutionalization.¹⁶ Persons who continue smoking past 65 are twice

as likely to die at every year of life than their non-smoking counterparts¹⁷ and have increased risks of coronary heart disease, other cardiovascular disease, cancer,^{18, 19} and emphysema.²⁰ Depression is also more frequent among elderly smokers than their non-smoking counterparts,²¹ as is cognitive impairment.²² The World Health Organization has declared tobacco use to be the single most important modifiable factor for the prevention of non-communicable diseases among the elderly.²³

The elderly typically take several medications daily. Smoking can interfere with some of these drugs, causing lower serum levels than desired which in turn impairs the effectiveness of the drugs,²⁴ Drugs commonly taken by the elderly in which smoking is known to reduce serum levels include propranolol, antidepressants, phenothiazines, theophylline, and aminophylline.²⁵ ²⁶ Emergency use of lidocaine is also not as effective in smokers.²⁷

The benefits of quitting smoking in the elderly are many. Risks of stroke and coronary heart disease begin dropping almost

immediately.²⁸⁻³² Pulmonary function also improves, albeit slower.³³⁻³⁵ Patients who are classified “moderately ill” have improved survival rates after quitting smoking. The mechanism for these improvements appears to be improved pulmonary perfusion and increased blood circulation. Overall, quality of life improves significantly for elderly who quit smoking.³⁶ Life expectancy also increases; for men who quit smoking at age 65, their life expectancy increases 2.0 years and for women, 3.7 years.³⁷

Seniors who live in rural areas are at a disadvantage to their urban or suburban counterparts regarding smoking cessation. Group therapy, as offered by the volunteer health associations, or intensive behavioral therapy, is often only available in cities and often at night. The elderly have difficulty traveling long distances over country roads and into cities they may not be familiar with; nighttime travel is even more problematic due to visual difficulties. Of all rural residents the elderly are the most isolated because of their difficulty with driving, especially in unfamiliar areas, reduced reaction

times, and reduced vision.^{38,39} Despite difficulties in travel, however, elderly persons seek medical care to treat symptoms. Yet, the medical office remains a relatively untapped potential for smoking cessation programs.

Due to the rate and frequency of morbidity increasing with age, the elderly in general have more office visits to their primary care providers (PCP). Among smokers, older smokers are more likely to visit their PCP's office than younger smokers (84% vs. 69% in 1992).⁴⁰ These visits are "teachable moments" that are often not fully utilized.⁴¹ Among Medicare patients, it has been found that 25,000 smokers per year could be encouraged to quit if 90% of them were advised to quit by their PCP.⁴²

Many health care providers believe that they should not counsel their patients about quitting smoking because they do not have the large amount of time it takes to counsel, the patient does not want to hear about quitting smoking, and the provider does not feel qualified to do the counseling. All of these concerns have been found to be baseless, according to the most recent Clinical

Practice Guideline, "Treating Tobacco Use and Dependence."⁴³ According to this Guideline, minimal interventions, in the range of 3-5 minutes, have been found to be effective. Another finding was that the majority of smoking patients state that they would like to hear from their PCP about their need to quit and how to quit. Finally, the 5 As program is a very simple program that any PCP can use easily and effectively. The national panel that developed the Guideline conducted meta-analyses and found that it is clear that all PCPs should advise their patients to quit smoking, with an "A" level strength of evidence. This meta-analysis found that physicians can achieve an abstinence rate of 19.9% while other clinicians (including nurses) can achieve abstinence rates of 15.8%, with only the use of minimal interventions. More intensive interventions can yield even higher abstinence rates.

Helping the elderly to quit smoking is a responsibility for health care professionals and it is a service that elderly patients desire.⁴⁴ There are not many cessation programs or materials designed with the elderly

in mind. Most health care professionals have not received any significant training in smoking cessation counseling in general, much less geared toward the elderly.

No recent studies have focused on the problem of smoking among rural elderly. The conceptual basis for this study is based on the meta-analysis performed by the Clinical Practice Guideline Task Force on Treating Tobacco Use and Dependence. This document establishes the need to conduct more research on finding effective methods to motivate older smokers to make a quit attempt.⁴³ This meta-analysis presented the previous studies that helped determine the questions used in the present survey

The purpose of this study was to examine the smoking patterns of rural elderly with a particular emphasis on their quit attempts. The frequency and type of tobacco use will also be described.

Methods

This study used a population-based, stratified random sample of all rural areas of Arkansas. This state

is near the median in total population (33rd)⁴⁵ and is fairly typical of many other states in its percentage of elderly (14% vs. 12.4% nationally),¹ but its smoking rate among adults is among the highest (11th).⁴⁶ Of 75 counties, nine are part of a Standard Metropolitan Statistical Area, leaving 66 counties designated rural. In order to obtain a sample size sufficient to be representative of the rural areas of the state and analyze the data by the most important variables, we sampled a proportionate number of elderly from each of these 66 rural counties to provide an overall sample of 311. Each subject represents 695.6 elderly residents; this figure was used in the weighting of all analyses.

Names in each county were randomly selected from the phone exchanges assigned to that county. From a list of telephone subscribers in that county, each *n*th name was chosen based on the total number of subjects to be obtained in that county divided by the total number of phone subscribers. Approximately 88% of Arkansans have telephone service; no further data by age is available.

When a person answered the phone, they were asked whether an individual aged 65 or older lived in the home. If they responded affirmatively, the surveyor asked to speak to that person. If more than one elderly person resided there, the surveyor asked to speak to the one who was available for an interview. The surveyor then explained to that individual the intent of the phone call, following a script approved by the Investigational Review Board.

Subjects were asked about their demographic data and about various behaviors and attitudes toward smoking cessation. The following figure lists the questions pertinent to smoking behavior and their interaction with health care professionals (skip patterns were used but are not shown here). These questions were taken from the National Health Interview Survey.⁴⁷

Figure 1. Questions Used in the Telephone Survey

- Have you smoked at least 100 cigarettes in your entire life?
- Do you now smoke cigarettes?
- During the past 12 months, have you quit smoking for one day or longer?
- In the past 12 months, have you seen a doctor, nurse, or other health professional to get any kind of care for yourself?
- In the past 12 months, has a doctor, nurse, or other health professional advised you to quit smoking?

Results

Of the 329 households contacted in which at least one elderly person

lived, 18 refused to participate in the survey, yielding a final sample of 311 and a response rate of 94.5%. The

age range of the sample was 65-93 with a mean of 72.9. Females outnumbered males in most of the age cohorts. The following table shows the sample broken down by age cohort and percentage female.

Table 1. Age and gender distribution of sample

| Age Cohort | N | % of total | % Female |
|------------|-----|------------|----------|
| 65-69 | 125 | 40.2 | 52.0 |
| 70-79 | 112 | 36.0 | 50.0 |
| 80-89 | 67 | 21.5 | 67.2 |
| 90-93 | 7 | 2.3 | 85.7 |
| Total | 311 | 100.0 | 55.3 |

The ethnic distribution was skewed towards white respondents with 92.6% white, 6.1% African American, 1.0% Asian American, and 0.3% Native American. No Hispanics were surveyed. The small sample sizes in the non-white groups prevented data analysis by ethnicity. Statewide data of the elderly population indicate the state's elderly population is 88.3% white,

9.8% African American, 0.3% Asian American, 0.3% Native American, and 0.6% Hispanic, which approximates our study sample.

Among the current smokers (daily or some days), the data are shown for age cohorts. The majority of the study sample are younger, with almost half under the age of 70.

Table 2. Age distribution of smokers in study (n=43, Weighted n=216,322)

| Group | Smokers |
|-------|---------|
| 65-69 | 46.5 |
| 70-79 | 34.9 |
| 80-89 | 18.6 |
| 90-93 | 0 |
| Total | 100.0 |

The prevalence of smoking among rural elderly in this study is comparable to national figures. Table 3 indicates smoking history of this sample. Except for women aged 65-74, rural elderly have higher rates of smoking than their counterparts in other parts of the state and nation.

Table 3. Point Prevalence of Current Smoking Among Elderly in Study Sample Compared to Total State Data and National Data (95% Confidence Interval)

| Area | Men | | Women | | Total | |
|-------------------------------------|-------------|------------------|-------------|------------|-------------|-------------|
| | 65-74 yrs | 75+ yrs | 65-74 yrs | 75+ yrs | 65-74 yrs | 75+ yrs |
| Arkansas Rural Elderly [§] | 23.2 (±0.7) | 14.0 (±1.1) | 8.5 (±0.7) | 9.2 (±0.9) | 15.4 (±0.5) | 11.1 (±0.7) |
| Arkansas [£] | 15.6 (±4.8) | N/A [*] | 14.7 (±3.4) | 7.7 (±3.0) | 15.1 (±2.8) | 7.8 (±2.6) |
| National (medians) [£] | 13.9 | 8.0 | 12.9 | 6.3 | 13.3 | 6.8 |

[§]Weighted data.

[£]Compiled from the BRFSS 1995-97. 95% Confidence Intervals not provided for the national medians.⁴⁸

^{*}Sampling error was excessive.

Table 4. Smoking Status of Rural Elderly (Point Prevalence and 95% Confidence Interval)

| Smoking Status | Men | Women | Total |
|----------------|-------------|-------------|-------------|
| Daily | 19.5 (±0.6) | 7.6 (±0.5) | 12.9 (±0.4) |
| Some days | 0.7 (±0.6) | 1.2 (±3.4) | 1.0 (±0.4) |
| Former | 54.3 (±0.4) | 25.0 (±0.5) | 37.9 (±0.3) |
| Never | 25.4 (±0.5) | 66.3 (±0.3) | 48.2 (±0.3) |

Table 4 illustrates the current smoking status of the participants in this study. Elderly men are more than twice as likely to be daily smokers as women. Men are also twice as likely to be former smokers, while women are more than twice as likely to have never smoked regularly.

Only 35.7% (±1.6) of women and 28.6% (±1.2) of men reported having tried to quit for at least one day

during the previous year, although 69.2% (±1.1) of women and 62.5% (±0.8) of men reported that their PCP had advised them to do so. Of all current smokers, 66.7% (±1.1) of women and 53.6% (±0.7) of men report having seen their PCP during the previous 12 months.

For other forms of tobacco, spit tobacco use was somewhat prevalent among males. Approximately 7.2% reported daily use while 6.5%

reported occasional use. Among women, only 0.6% reported daily use and 2.3% reported occasional use. Occasional pipe tobacco use was claimed by 18.1% of males but none claimed daily use; no females reported any use of pipes. No respondents reported smoking cigars daily and no females reported any cigar use; 23.2% of males reported smoking a cigar occasionally.

Limitations of this study include a lack of data from rural elderly who do not own phones. However, most elderly who live alone are more likely to have phones due to their need to communicate with family and friends for assistance. Another limitation was the non-inclusion of Hispanic elderly. This was due to the very small proportion of Hispanic residents in Arkansas (<1%); those Hispanics who do live in the state tend to be young adults who have recently migrated to the state to seek employment.

Conclusions

Smoking among rural elderly, especially in this mid-south state, is higher than expected from the

national data of all elderly. Even among the very old (75+) smoking rates continue to be high, despite the prevalence of multiple chronic health problems in this population.

Although the literature shows that rural elderly are relatively isolated, they do visit their physician and nurse practitioner's offices. In other studies, approximately 84% of older smokers report that they visited their MD/NP office within the previous year, but this rate was somewhat lower in the present study. The primary care office visit is a prime opportunity for the elderly smoker to receive counseling about smoking cessation, although this study showed that less than half of those receiving advice to quit had actually attempted to quit for at least a day. Although the temporal relationships between counseling and attempts to quit have not been established by these data, the strong statistical correlation between these two variables would tend to indicate that such a relationship might exist.

Other channels of education have been attempted with some success in the elderly. Rimer and Orleans tested the use of a smoking cessation

brochure designed specifically for the elderly. In the three arms of the study, the control group received a brochure not specifically designed for the elderly, while the other two groups received the senior-focused brochure and either one or two follow-up phone counselings. The groups receiving the senior-focused brochure had higher quit rates than the control group but even that figure was only 20% at 12 months, compared to 15% for the generic brochure.⁴⁹ This study showed the effectiveness of a low-cost intervention and one that could be used among rural elderly; however, the quit rates are still very low.

Regardless of the fact that primary prevention of smoking among youth will yield the most

substantial returns in the future, more immediate cost savings will be found among older adults who quit smoking.³¹ Notwithstanding the age of the patient, nurses and other health care professionals should inquire about tobacco use status (including other forms of tobacco) and, if the patient is a user, follow the clinical practice guidelines⁴³ for helping the tobacco user to quit.⁵⁰

More research needs to be done on optimizing the effectiveness of office-based tobacco counseling of the elderly user and on maintenance strategies. How to improve the effectiveness of follow-up phone counselings and mailed educational and motivational materials should be carefully evaluated in this high-risk population.

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