Health, Work, and Safety of Farmers Ages 50 and Older

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Over half of America's 1.9 million farms are operated by persons over age 55. Farming is one of the most dangerous occupations in the nation; the oldest age group in farming suffers disproportionately high mortality and morbidity rates. Results from this study indicate that farmers may have unique perspectives of health and the role that work plays in their health outcomes. Despite the perceived positive attributes of farm work, the nature of the work performed by this sample of 725 farmers indicates the continued performance of tasks that place them at high risk for injury. Because of the contextual nature of farm life, work modification counseling may be more beneficial for the aging farmer than abstinence from work. Examples are provided. (*Geriatr Nurs* 2005;26:304-308)

There are more than 1 million farmers over age 55 in the United States,[1] and they rarely completely retire from this physically challenging and dangerous occupation. While the actual number of farms in the United States continues to decrease, the age of the farmers is increasing.[2,3] Persons ages 55 and older are the principal operators on 682,114 farms, which comprised 56% of all farms in 2002.[3] Persons over age 65 are the principal operators of 33% of farms in the United States. At least 3 explanations exist for the rapidly increasing age of the U.S. farmer—the exodus of younger people for higher-paying positions, the entry into farming as a second career in later life, and the emotional attachment to the land itself that psychologically ties the farmer to the farmstead.[4]

The culture of farming is unique; farmers have strong emotional ties to their land.[5] Multiple generations grow up on the family farm. They tend the soil together, battle nature, and build a family history based on the outcomes of their united efforts. Perhaps it is because of this heritage that farmers perform farm work until they are physically unable to continue.[4] Because of the multitude of daily tasks and number of people needed to operate a successful farm, the farm becomes the center of individual and family work, recreation, and life.

Most family farms determine their own farm safety practices because they are largely exempt from the Fair Labor Standards Act regulations.[6] Farm work is learned during childhood through on-site mentoring and intergenerational role models, so health and safety practices vary greatly among families. These practices can have profound effects on the short- and long-term health of the family unit.

Agriculture is one of the most dangerous occupations in the nation, with a fatality rate averaging 19 per 100,000 workers during the years 1980 to 1997.[7] Industry in general has a fatality rate of 3.2 per 100,000.[8] Agriculture ranked first or second in the years from 1998 to 2002 for the number of work-related deaths, and fourth among all industries for work-related injuries that resulted in lost work time.[9-13] The main causes of fatalities are tractor rollovers and road collisions involving farm equipment; nonfatal injuries most often occur with machinery or livestock, with livestock handling as the most frequently performed activity.[14] Older agricultural workers comprise a significant proportion of workers who suffer farm-related injuries, and the severity of injury is more pronounced than for younger workers.[15-19]

The purpose of this article is to highlight older male farmers' perceptions of their health, health conditions and injuries, their work, and how health affects their work. The intent is to add to the body of knowledge for those who provide direct care and health counsel to older adults so contextually appropriate messages can be designed. The results that follow are from a 5-year study currently being conducted by the University of Kentucky with a panel of farmers ages 50 and over.

Methods

Data Collection Procedure

This report is based on the initial survey of 1,423 farmers ages 50 and over and their spouses. A 30-minute investigator-designed sur-

vey was completed either by mail or telephone. Questionnaires included information on demographic variables, farm work, health conditions and injuries, mental health indicators, and items related to work organization. Respondents in selected geographic clusters were also invited to participate in focus groups to provide insight into issues that might not have been readily evident through survey methods. Findings presented here are based on qualitative and quantitative data collected during the initial survey and focus groups conducted in 2003. Because of the small amount of farm work reported by female respondents, only the results of the male respondents are included in this analysis.

Sample Selection

Farmers in Kentucky and South Carolina participated in the study. Kentucky farmers who had participated in a farm family study in the 1990s and who were aged ≥50 were asked to participate. A roster of African American farmers aged ≥50 in South Carolina who agreed to be contacted was generated by the South Carolina Agricultural Statistics Service. Spouses of all the farmers were also invited to participate to capture the work organization of the family unit.

Data Analysis

Data were analyzed using SAS software. Descriptive analysis was used to summarize the sample, including means, standard deviations, and frequency distributions. Qualitative data were analyzed through individual interpretation of the researchers who conducted the groups; the researchers then compared their interpretation and came to agreement.

Study Sample

A total of 725 male farmers from Kentucky (n = 609) and South Carolina (n = 116) completed the survey. Ethnicity composition included 76% Caucasian, 23% African American, and 0.4% American Indian. The average age of the participants was 67 years. The mean number of acres in the total farm operation was 157 acres, which is comparable to family farms in the southern United States. Most participants (63%) lived on "general" farms that raised a variety of livestock and crops; the remainder reported crop only (32%) or livestock only (5%).

Results

Although most of the participants were past the usual retirement age for U.S. workers, 42% stated that they were not retired from farm work. In addition, the majority of those who considered themselves retired also reported performing farm work, as illustrated by a focus group member who considered himself retired: "Well, I help my neighbors and son when they need it. [What do you do?] Plowing, seeding, baling hay, mowing. And I still do some custom work . . . we do some research plots for the seed companies."

Farmers had a different perspective from the general population on what constitutes work. If the task was a voluntary one, such as helping a neighbor or family member, it was not considered work. One participant noted that "There are differences in kinds of work. If you are doing it because you want to, then it's not work."

When asked about the level of personal satisfaction they gained from doing farm work, 70% percent of the respondents said they found a great deal of personal satisfaction from doing farm work. The mean number of hours worked on the farm in the week preceding the survey was 19.8 (SD = 17.9) with a range from zero to 120 hours. When asked if they would stop farm work in the next 5 years, half stated it was not at all likely. The farms had been in their families for an average of 49 years, and the individuals had personally farmed the land for an average of 33 years. Although three-quarters of the sample stated that less than 45% of their household income came from farming, many of the farmers could not envision a time when they would not farm. Results from the focus groups suggested that farmers prefer farm work to idleness and firmly link their life satisfaction to their sense of accomplishment from their work.

As illustrated in Table 1, the type of farm work performed by the participants in the past year was varied and hazardous. Only 3 of the top 10 tasks identified (ordering supplies, bookkeeping, and major purchasing) were primarily sedentary in nature. The remaining work involved close interface with machinery, transportation, or livestock. Few farmers reported working only in 1 or 2 areas; participants reported performing an average of 11.1 different tasks in the last 12 months.

Table 1.
Top Tasks Reported by Farmers since April 2003 (*n* = 725)

Task	n	%
Running errands	556	77
Mowing	553	76
Repairing equipment or farm machinery	548	76
Ordering supplies	518	71
Feeding animals	476	66
Bookkeeping	461	64
Operating equipment on highways	437	60
Climbing higher than 8 feet	430	59
Tilling ground	397	55
Made major farm supply purchases	391	54

Table 2.
Current Chronic Conditions (*n* = 725*)

Chronic Health Conditions	n	%
Arthritis/rheumatism (n = 719)	311	43
Hypertension (n = 716)	255	36
Hearing problems (n = 714)	240	34
Back problems (n = 713)	181	25
Vision problems (excluding cataracts) (n = 713)	134	19
Diabetes mellitus (n = 714)	106	15
Myocardial infarction or other heart condition (n = 711)	112	16
Prostate problems (n = 713)	101	14
Cataracts (n = 13)	68	10
Bronchitis/emphysema (n = 710)	48	7

**n varies because of response rates for individual questions.*

Health Perception and Conditions

The link between health and work for these farmers was evident. Forty-three percent of the sample defined good health as the ability to work, and 32% rated their health as excellent or very good. Only 9% rated their health as poor. Study participants noted that they felt work and health were strongly related, as evidenced by comments such as, "When you quit and sit down doing nothing, the truth is you haven't got long." The mean number of chronic health conditions reported was 2.3 (SD = 2.0). The top 3 chronic conditions found in this sample were arthritis or rheumatism, hypertension, and hearing problems (see Table 2). A significant number also reported having back problems, diabetes, skin cancer, cataracts, and previous heart attacks or strokes. Despite the presence of comorbidities, farmers noted that "no matter how sick you get . . . you just do what you have to do."

Injury

In addition to chronic health conditions, 21% of the sample reported an injury in the past year, with about half of all injuries directly related to their farm work. The types of injuries reported were not minor. Seven percent (n = 47) had a cut that required stitches, and 3% (n = 21) reported a broken bone. Two farmers had experienced an amputation in the past year. Four percent (n = 27) of the sample suffered burns, and 1% (n = 7) had a reaction to chemicals. Sixteen percent (n = 116) reported suffering musculoskeletal injuries such as sprains and strains within the past year.

Discussion

Older farmers continue to perform work that places them at increased risk for injury and negative health outcomes. While the number of hours worked varied within the sample, more than one-fifth of the sample reported receiving an injury severe enough to prevent doing farm work. Not all of these injuries were sustained while actually performing farm work; however, it could be that the injured farmer's health was compromised by any number of consequences of farm work. Financial pressures, off-farm employment, musculoskeletal injuries, and even the side effects of an underlying health condition or medication could have contributed to the injury.[20] More detailed information about injury causation would be needed to support these hypotheses, but they are plausible, especially for older adults.

The type and number of physical farm-work tasks, especially tractor driving, mowing fields, and working with livestock, are known to result in high mortality and morbidity in agriculture.[14-18] Another study found that the majority of injuries in farmers over age 50 were incurred while handling livestock.[10] Animals are unpre-

dictable, and the mass and energy of the animal can culminate in injury when animal and worker collide. Myers[21] reported that more than 25% of injuries sustained by farmers over age 70 were related to machine maintenance. Three-quarters of the sample in our study reported performing machinery repair. Mowing fields, operating equipment, and tilling ground all involve heavy machinery. Tractor operation is the leading cause of death among older farmers.[14] Farmers seldom relinquish tractor driving and often deny their declining ability to safely operate the machine.[4]

The role of health and perceived health status of farmers are linked with work performance. In this sample of farmers, work may be thought of as a proxy indicator of health. Study participants reported that as long as they could function at all, they would not stop farming. They often did not perceive the labor they performed as "work." They expressed fear of idleness, indicating that they felt they would soon die if they did not work. Work continued even in the presence of chronic health conditions and was not perceived as compromising their health or increasing their risk for injury. The chronic health conditions reported by this sample mirror those of the general older population over age 70 in the United States.[22] Although most of the general population over age 70 is retired, farmers enrolled in this study continued their work and may represent only the healthiest of the older farmer cohort. This would underestimate the true magnitude of the disease burden.

The interface between the health conditions reported by this sample—injury and risk for poor outcomes—is apparent. The top 3 causes of external injury are related to farm machinery, equipment, and livestock.[14] These are consistent with farm work performed by this sample of older farmers. A farmer with arthritis or back pain may have increased pain when sitting in a stationary position on the tractor for extended periods. There may be increased difficulty holding tools to perform machine repairs, resulting in muscle strain. Farmers with hearing or vision problems might not be cognizant of dangerous environmental situations while mowing the fields. These health deficits may result in overturning tractors or running over coworkers. A diabetic farmer who sustains a laceration while repairing equipment is at increased risk for infection and delayed healing.

Few farmers ever completely retire. A substantial percentage of this sample defined health as the ability to work. These farmers plan to continue working even though they acknowledge a number of health impairments and acute injuries. What remains is to design a system that will support them in their decisions to remain active in their occupation and will promote their health and safety.

Implications

Older farmers enjoy their work. It gives them a sense of accomplishment and cannot be extricated from their heritage and culture. The responsibility of the nurse to provide care within the context of the client is of utmost importance when caring for farmers. Nurses should ask farmers what they do on a daily basis to gather information about the work they perform. Simply asking whether they work will not elicit accurate data from farmers. Farmers in this study who reported that they were retired also provided evidence to the contrary when specifically queried about farm tasks. Counseling about work modification and reorganization may be more readily accepted by the farm client than insistence on stopping work altogether. For example, suggesting that the patient who is diabetic take snacks along to the field may prevent hypoglycemic episodes.

Wearing proper protective clothing and checking the fit of work boots can lessen the sequelae of poor circulation, such as ulcerations and skin breakdown. The farmer with arthritis or back problems could benefit from extra mirrors or a swivel seat for the tractor that would allow him to pivot and look at trailing equipment rather than twisting his body. Hearing loss can be prevented by encouraging the use of hearing protective devices and demonstrating proper use of this protection. Wide-brimmed hats and sunglasses can reduce the risks of cataracts and skin cancer. Perhaps the most important intervention is to acknowledge the importance of work and advise the farmer to pace himself, include frequent rest and hydration periods, and avoid working alone. Myers stated that nurses who understand the cultural context of farming are better equipped to render effective care that can promote healthy outcomes and prevent injury to these older workers.[21]

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