Elderly Persons' Attitudes Towards Footwear—a Factor in Preventing Falls

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Synopsis

Injuries from falls are the main cause of trauma morbidity that leads to mortality among the elderly. One prevention strategy is to wear sturdy shoes. This study was undertaken to determine the attitudes towards and use of sturdy shoes among older adults.

A random sample of persons ages 65 years and older was contacted by phone; 652 completed interviews. Sturdy shoes were worn by 26 percent of persons at the time of the call; more than two-thirds reported wearing such shoes at some time. Barriers to use of sturdy shoes included foot problems, difficulty putting them on, expense, style, and lack of knowledge about their importance.

There was no difference in shoe use by the respondents' history of previous falls. The results provide information useful in the development of a program to increase the use of sturdy shoes by this population.

The primary causes of morbidity and mortality from trauma in persons ages 65 and older are falls and fall-related injuries (*1*). Thirty percent of persons older than 65 are said to fall each year (*2,3*). Approximately 5 percent of falls by elderly persons result in a fracture (*4,5*), and an estimated 5 to 10 percent of falls result in other serious injuries. In addition, approximately 90 percent of falls not resulting in serious injury may have psychological and social consequences (*6*).

The increased tendency of old people to fall is no longer accepted as an inevitable aspect of aging. However, development of a single prevention strategy is hindered by unique risk factors associated with the aging person which include dementia, visual impairment, neurologic and musculoskeletal disabilities, postural hypotension, as well as medications and environmental hazards (*7*).

Most falls occur in the home when persons are engaged in their usual activities such as walking or changing position (*8*). Inappropriate footwear has been cited as a contributory factor in home falls (*6,9*). Because of the complex interplay between footwear, walking, and balance, some literature has focused on this relationship with recommendations for selecting shoes (*10–12*). Education programs have increased awareness of appropriate footwear (*13*) through seminars, the media, and educational materials (*14–16*). However, despite the knowledge that sturdy footwear reduces the risk of falling, even those elderly persons who have previously fallen appear reluctant to make changes (*8,17*).

We undertook a comprehensive assessment of habits of footgear worn at home by a community-dwelling elderly population to identify reasons for not wearing sturdy shoes, specific populations for

intervention, and to give insight into the type of sturdy shoe that might be more acceptable to this population.

Methods

A telephone survey of shoe use was conducted on a random sample of persons noted to be retired in the Polk Telemarketing Directory for the year 1989–90 for the city of Seattle, WA. That directory has been identified as an efficient method of identifying elderly respondents whose health behaviors and health status are comparable with those obtained by random digit dialing (*18*). The survey was conducted over a 2-month period; calls were made between 9 am and 9 pm weekdays and Saturdays. Questions were asked about the kind of footwear the person was wearing at the time of the call, use of sturdy shoes, and reasons for not wearing sturdy shoes.

Sturdy shoes were defined as shoes with laces and a nonskid sole, that is, walking or athletic shoes or men's dress shoes. Laced, canvas shoes were not considered sturdy shoes because they usually do not provide substantial lateral support, that is, support on the outside of the shoe to prevent inversion and the shoe's coming off. Demographic information included sex and age. Only persons ages 65 and older were eligible to participate.

Results

Of the 2,715 calls made, 1,300 persons were contacted and 652 (50 percent) survey questionnaires were completed. Twenty-six percent refused to participate, 18 percent of respondents did not meet age criterion, and 6 percent were unable to carry out the phone interview because of illness.

The characteristics of the study population are shown in the table. Seventy-five percent (492) of the respondents were women and 25 percent (160) were men. The highest number of respondents (87 percent) were persons between 65 and 84 years. Of the 13 percent of persons 85 years and older, 9 percent were between 85 and 89 years.

Of the respondents, 167 (25.6 percent) were wearing sturdy shoes at the time of the call. Persons barefoot or in socks were the next most frequent respondents ($N=131$, 20.1 percent), followed by house slippers ($N=119$, 18.3 percent), and laced, canvas shoes ($N=95$, 14.6 percent). Use of other types of shoes was less common; loafers or slip-on shoes were worn by 66 (10.1 percent), thongs by 50 (7.7 percent), and dress shoes by 20 (3.1 percent). There was little variation in the type of footgear persons were wearing and the time of day that the phone interview was conducted.

Despite the fact that only one-quarter of persons were wearing sturdy shoes at the time of the call, more than two-thirds (69 percent) reported wearing them at some time during the week with 64 percent wearing sturdy shoes daily, 14 percent wearing them four to six times a week, and 22 percent wearing them three times a week or less.

Six respondents believed that sturdy shoes were too expensive, 5.5 percent said they never thought of wearing them, 6 percent felt they were not stylish, 5.5 percent felt they were too hard to put on, and 12.5 percent felt that they could not wear them because they had foot problems. Nearly half of the respondents (47 percent) felt that their regular shoes, although not fitting our definition of sturdy shoes, were fine.

Similar to past studies in this age group, more than one-fourth (28 percent) of respondents had fallen within the previous year. They were as likely to be wearing sturdy shoes at the time of the call as were people who had not fallen (26 percent of both groups). Likewise, the proportion ever wearing sturdy shoes during the week were the same (69 percent) in both groups.

Shoe wearing and falls with age. As expected, the risk of falling increased with age. Twenty-three percent of those 65 to 74 had fallen in the previous year compared with 31 percent of those 75 and older. There was little difference by age in the type of footwear persons were wearing at the time of the call. An exception to this was for women's dress shoes worn by 9 percent of the 85 and older group at the time of the call compared with 2 percent of those 65 to 84 years. The proportion of persons who wore sturdy shoes during the week was the same for both age groups (26 percent). However, persons 85 years and older were less likely to ever wear sturdy shoes than persons younger than 85 years (53 percent versus 72 percent).

Differences by sex. Women had had slightly higher rates of falls during the previous year than men (29 percent and 23 percent). There was little difference by sex in the rate of wearing sturdy shoes at the time of the call. Sturdy shoes were the most common type worn by women at the time of the call; slightly more men were wearing laced, canvas shoes than sturdy shoes. Apart from shoes unique to

women, rates of wearing other types of shoes when interviewed were very similar among men and women. However, women more frequently used sturdy shoes at some time during the week than men (74 percent versus 53 percent).

Discussion

A number of factors combine to limit the functional status of older persons, making them more susceptible to falls. Many of these factors have proven difficult to change or require large and expensive interventions to alter. The possibility of altering type of shoes worn to prevent injuries from falls is attractive because of its simplicity, logic, and low cost. Strategies to change shoe use should be based on knowledge of attitudes among the elderly toward sturdy shoes and current shoe wearing behavior.

This study used a sample of persons noted as being retired in the Polk Telemarketing Directory. Other possible sources of respondents, such as members of a health maintenance organizations, residents of retirement centers, and attendees at community programs for the elderly, were rejected because of the inherent selection bias in these self-selected samples. The Polk Telemarketing Directory gives samples comparable with those from random digit dialing, but is much more efficient in identifying elderly subjects (*18*). The response rate for this study was 61.2 percent of those eligible and able to be contacted. While less than we had hoped, such response rates are common in research on the elderly (*19*).

This study indicated only one-quarter of persons were wearing sturdy shoes when interviewed. Although many elderly people do report wearing sturdy shoes at some time during the week, they do so inconsistently. Moreover, the "older" elderly were less likely to wear sturdy shoes than the "younger" elderly, and men wore sturdy shoes considerably less frequently than women.

The overriding reason given for not wearing sturdy shoes was that persons in this age group felt their regular shoes were adequate. Surprisingly, expense was not viewed as an important barrier to use. Shoes have been noted by many authors as a contributing factor to falls in the elderly (*6,7,10,12,14*). While substitution of a shoe that lessens risk of tripping may not prevent all falls, it may represent an important, feasible intervention in the complex risks of causes for falls in the elderly.

These results indicate that a campaign is needed to focus on educating this population about the contribution of unsturdy shoes to falls and on changing their behavior (*9–12*). The need to wear sturdy shoes throughout the day should be emphasized because falls occur at home when older persons are engaged in normal daily activities (*8*). The very elderly—85 years and older—who used sturdy shoes less frequently are an important group to address since they are at highest risk for falls and fall related injuries (*2,3*). Men may need to be targeted separately from women, addressing such issues as wearing sturdy shoes at home rather than men's dress shoes.

Our results showed that persons who had fallen in the previous year wore sturdy shoes at the same rate as persons who had not fallen. Despite the knowledge that sturdy footwear reduces the risk of falling, reluctance to make changes, even among those who have fallen, has been observed elsewhere (*8,17*).

Community-based programs appear to offer the best chance of changing behavior, that is, influencing people to adopt safety practices. Such programs have been effective in increasing bicycle helmet use among school-aged children, increasing seatbelt use, and lowering tap water temperatures. The modest costs of these programs would be easily recouped by the enormous cost savings gained from preventing even a small portion of falls among older adults.

Descriptive characteristics of 652 respondents

Characteristic	Number	Percent[1]
Sex:		
Men	160	24.5
Women	492	75.5
Age (years):		
65–69	138	21.2
70–74	157	24.1
75–79	158	24.2
80–84	114	17.5
85–89	61	9.4
90–94	20	3.1
95–99	4	0.6

[1] Percentages may not add to 100 percent because of rounding.

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Study of Road-Rail Crashes in Claremore, OK, and Allocation of Resources for Preventive Measures

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Synopsis

Road-rail crossings where a train and motor vehicle crashed were compared with the next crossing in the direction from which the train traveled at the same time of day and day of week of the crash. The odds of a crash were much lower at crossings with automatically lowered gates (odds ratio = 0.11). Average road traffic was much higher at crash sites; the presence of automatic gates was unrelated to the volume of road traffic. Federally funded modifications of road-rail crossings have substantially reduced deaths at such sites. The program would be more cost effective, however, if criteria for highest risk sites were applied more systematically, and funds were apportioned among the States according to their relative proportions of the problem.

In 1973, the U.S. Congress specified that a proportion of the Highway Trust Fund would be allocated to modifications of rail-highway crossings to reduce crashes of trains and motor vehicles (Public Law 93-87). During the next 15 years, more than $2.3 billion was apportioned among the States for the program. The apportionment of funds was based on a weighting of several factors—the State's area, rural population, mileage of rural delivery routes, and urban population. Number of rail crossings in the State was added as a factor for half of the apportionment in 1978 (Public Law 95-599).