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Aging in Place -- Can Universal Design Make It a Reality?

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Educational Objectives

1. Comprehend the principles of universal design
2. Understand the barriers to aging in place
3. Learn what resources are available to facilitate aging in place

Background

The population is aging at a rapid pace. By the year 2050, the number of people aged 65 and over will increase to over 80 million, according to the U.S. Census Bureau. Normal physiological changes, such as reduced muscle strength and declines in the ability to balance, may affect older adults' ability to function comfortably in their existing houses unless appropriate home modifications are made. Similarly, hearing doorbells or reading thermostats may be difficult because of declines in vision and hearing. In addition, recovering from temporary or acute events, such as heart attack, broken leg, hip fracture, or stroke, may be difficult for anyone, regardless of age, unless their homes have the features they need.

Multiple surveys have shown that older adults want to remain in their homes as they age, but this can be difficult because of the age and type of houses in which they live. Many older adults live in houses built over 30 years ago, and many live in houses of more than one story. Older houses were not designed with the features that facilitate aging in place.

Case Study

Irene is a 69 year old female, living alone. Her husband died two years ago. She lives in the house that she and her husband purchased 45 years ago located in the historic district of a small town. Although the heating and cooling systems have been updated over the years, the only bathroom is upstairs with four small bedrooms. The claw-foot bathtub is situated in the middle of the bathroom, and has been equipped with a shower. The rooms in the remainder of the house are small, the ceilings are high, and the doorways and passages are narrow. There are six steps from the sidewalk to the large front porch,

but there are no hand railings. Nevertheless, the house has been well maintained over the years, and a new roof was installed three years ago. The original charm of the historic home has been maintained, but the house has not been updated to reflect many of the conveniences available today.

Irene has a small savings account for emergencies, her house is paid for, and she receives Social Security and benefits from her husband's retirement. She rates her health as good and has always been socially active. Although her vision has been declining the past couple of years, she is still able to drive. However, she recently fell and broke her ankle while carrying groceries up the front steps. Treatment of the broken ankle revealed the early stages of osteoporosis. Irene is having difficulty navigating into and around her house, but she considers her situation temporary. Her two daughters who live in another state are concerned about her ability to manage in her existing house. They fear she will fall again and need assistance for a lengthy healing process because of the osteoporosis.

The Problem

Irene's daughters have suggested she sell her existing house and move to a condominium for older adults located on the outskirts of town. The occupational therapist working with Irene to rehabilitate her ankle has suggested she create a zero-step entrance to her back door, convert her downstairs library to a bedroom, and convert one of her closets to a small bathroom with a shower. Irene does not want to move away from the neighborhood where she has lived for the past 45 years. She wants to continue to be able to walk to church and to shop in the historic district. Likewise, she does not want to "spoil" the original features of her house by converting her library to a bedroom and a closet to a bathroom, resulting in having "handicap" features in her house. She does not think she needs to make any changes to her home because she believes her present condition is only temporary.

Irene is not aware that there are universally-designed products and features that look no different than standard products. For example, grab bars come in a variety of colors and shapes and can be used as part of the bathroom décor as towel bars. Integrating a zero-step entrance into the landscape design is another such example.

Barriers to Aging in Place

Physical and Financial Barriers

The age of the house can be a barrier. For example, if a bathroom is being completely remodeled, existing water pipes may need to be updated in addition to the renovations to be made inside the room. Similarly, wiring may need to be updated to comply with current code. Both of these conditions can affect the affordability of the remodeling job.

The design and architecture of the space to be remodeled can be barriers, such as small spaces. Creative solutions can be found, but the cost to remodel is likely the major barrier for most older adults. AARP's Fixing to Stay 2000 reported that the primary reasons survey respondents had not remodeled their homes or had not remodeled them as much as they would have liked were financial constraints and the inability to do the remodeling job themselves.

Psychological Barriers

Some older adults deny their aging and, as a result, deny that any home modifications are needed. If the modification implies that the person is older or disabled, some older adults refuse to have the work done. Products and features need to be aesthetically pleasing. Others may choose to "cope." For example, if a bathtub proves difficult to get into, some may "cope" by bathing in the sink. Some do not want to spend the money even when they have it. Still others may fear remodeling will be disruptive to their daily routines and choose not to have it done.

Immediacy of the Need

Irene's situation is similar to the situation many older adults face. When they encounter an acute condition that affects their ability to function, they view the condition as temporary and do not consider what may be an underlying contributor, in Irene's case, osteoporosis. Sometimes, the timing of the event may dictate modifications to be completed in a very short period of time. Finding a knowledgeable remodeler who can complete the work in a short timeframe is often difficult. It is not unusual for adult children to call service providers from their parent's hospital room to seek assistance in making home modifications.

Informational Barriers

Finding a family member, friend or remodeler to perform the home modification may be a problem, regardless of the timeframe. Older women living alone without family members in close geographic proximity may find remodeling particularly difficult. With the media frequently describing situations where unscrupulous contractors take advantage of older homeowners, the fear of being a victim may prevent some from remodeling. In addition, lack of knowledge by the remodeler, the older adult, and service provider about the products that add comfort and convenience can result in an unsuccessful remodeling project.

The Decision to Remodel or Move

If the older adult and family members have limited funds, the decision will likely be based on which option they can afford. In some cases, modifications to an existing house may not be cost effective in relation to the value of the property. Therefore, moving to another property may be a better choice. Whether the house is owned or rented will also be a consideration. Other considerations include the social connections of the older adult and accessibility to services.

Universal Design

The concept of universal design has been advocated as one way to maximize livability and to facilitate aging in place. Universal design, as defined by the Center for Universal Design, is: "... the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design."

To explain how the concept applies to the usability of products, Story (1998) discussed the seven principles of universal design.

Principle One: Equitable Use The design is useful and marketable to people with diverse abilities.

Principle Two: Flexibility in Use The design accommodates a wide range of individual preferences and abilities.

Principle Three: Simple and Intuitive Use Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

Principle Four: Perceptible Information The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Principle Five: Tolerance for Error The design minimizes hazards and the adverse consequences of accidental or unintended actions.

Principle Six: Low Physical Effort The design can be used efficiently and comfortably and with a minimum of fatigue.

Principle Seven: Size and Space for Approach and Use Appropriate size and space are provided for approach, reach, manipulation, and use regardless of the user's body size, posture, or mobility.

Resources

There are a number of professionals who have expertise in remodeling existing homes to meet the needs of older adults. Some occupational therapists specialize in working with home modifications for older adults; other health care professionals and the Occupational Therapists Association (OTA) can help identify them. In addition, there are architects, interior designers, and product designers who specialize in universal design. Information about them is generally available through their local professional associations.

Local chapters of the National Association of Home Builders and Remodelers Council can be a source of information on knowledgeable remodelers. In fact, the Home Builders Association has launched a new designation program for home modification remodelers, the Certified Aging in Place Specialist (CAPS). Knowledgeable professionals provide affordable product choices and understand how to use standard products and features in non-standard ways to provide the functionality many older adults need. Good sources about products and features are the National Center for Seniors' Housing Research, NAHB Research Center, The Center for Universal Design, the National Resource Center on Supportive Housing and Home Modification, and the Center for Inclusive Design and Universal Access. All of these organizations have a wealth of information on their web pages.

Conclusion

Aging in place can mean remaining in an existing house or moving to a new home, but the key is preserving independence in the home environment. Each case is unique, and the extent of the

involvement of the older adult, family member, occupational therapist, service provider, and remodeler will vary based upon the circumstances. Knowledge about the options and resources available is critical to a successful remodeling project, and understanding the principles of universal design is an important first step.

Study Questions

1. What factors should older adults consider in deciding to remodel an existing house or move to a new house?
2. How do product instructions affect the choice and usability of a product for older adults?
3. How can professionals work together in completing home modifications that are acceptable to their older clients?

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Author's Note: Ms. Eltzeroth was principal author of two white papers, "Certification of Products for the Mature Market," October 2000 and "Cost and Practicality of Home Modifications," July 2001, NAHB Research Center, and this case study is based in part on these white papers. Executive Summaries of these papers are available online at: www.nahbrc.org/seniors1.asp?TrackID=&CategoryID=1798&Type=