

Falls in the Independent Living Glenaire Community

by

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Abstract

Falls are a major issue in the geriatric community and lead to premature incapacitation as well as direct and indirect loss of life. Glenaire is a continuing care retirement facility in Cary, North Carolina. Glenaire recently opened a state-of-the-art Balance Center in order to reduce the incidence of falls by their residents. This addition to the facility could be a great asset to the residents; however, they have not been taking advantage of the Balance Center. This project had two fundamental goals: assess Glenaire's independent living resident's understanding of their susceptibility to falls and the severity of the consequences of falls, and to identify ways to increase usage of the Balance Center. Data collected from 29 residents indicate that the independent living residents know their age group is susceptible to falling due to physical deterioration and mental complacency, among other things. They also recognize that falls can have severe consequences like bruises, broken bones and concussions. Even with this basis of knowledge, they do not think they are personally susceptible. Recommendations to Glenaire include a marketing plan to expand their resident's knowledge and awareness of fall prevention and to increase awareness of the benefits of the Balance Center. If independent living residents feel more susceptible to the threat of falling, perceive the threat as severe, and they see the Balance Center as a way to reduce the threat then they will be more likely to use it.

Falls in the Independent Living Glenaire Community

Introduction

Injuries resulting from falls can have a serious impact on the lives of older adults. Not only will they face pain and discomfort, but it can result in loss of confidence, limited activity and make it impossible to live by themselves. According to the Center for Disease Control and Prevention (2013a) falls are the number one cause of injury related deaths among older adults. Of all adults 65 and older, one in three will fall each year (Centers for Disease Control and Prevention (CDC), 2013a). Of those that do fall, twenty to thirty percent will suffer injuries that decrease independent living and mobility (CDC, 2013a). Implications vary from hematomas to a variety of fractures, head traumas and death. The fear of falling may lead to older adults limiting their physical activities, resulting in decreased mobility, which in turn will put them at a higher risk of falling (CDC, 2013a). Unintentional falls, however, are largely preventable (CDC, 2013a).

In 2011, almost sixty-three percent of all nonfatal injuries to people over 65 in the United States were due to unintentional falls (National Center for Injury Prevention and Control, 2011). Falls that cause injury are primary causes of morbidity among older populations (Tromp, et al., 2001). In 2010, 21,649 people older than 65 in the United States died from an unintentional fall (National Center for Injury Prevention and Control, 2010).

In 2010, \$30 billion was spent on direct costs of fall injuries among people over 65 (Centers for Disease Control and Prevention, 2013b). For those with Medicare, the costs of a fall averaged between \$9,113 and \$13,507 (Centers for Disease Control and Prevention, 2013b). When residents buy in to Glenaire, they are making an investment on the rest of their life. This

directly impacts the facility since residents are guaranteed healthcare until the end of life regardless of their personal financial situation. Glenaire will cover all room, board and healthcare costs even when the resident's money has been expended.

There are many reasons the elderly are more susceptible to falls. The National Institute of Health (2013) lists muscle weakness as one of the most important factors. Also listed are balance and gait problems, blood pressure fluctuations, poor vision, confusion and medications (National Institute of Health (NIH), 2013).

Glenaire is a continuing care retirement community (CCRC) for seniors located in Cary, North Carolina. Glenaire offers a full continuum of care on the premises featuring private accommodations for Independent Living, Assisted Living and Skilled Nursing. Glenaire offers a vital lifestyle for retirees. Recently they built a state of the art Balance Center to promote an independent lifestyle with sustainable and proficient mobility. It includes a SMART machine that tests and works to improve conditions such as vertigo and poor balance (Figure 1). The Balance Center at Glenaire has been open since March of 2011, and has not had the usage expected or wanted by Glenaire's administration. The purpose of this study is to determine why Independent Living residents at Glenaire are not using the Balance Center, and to identify ways to increase usage of it.

The Health Belief Model (HBM) was used as the theoretical framework for this project. It consists of six constructs: perceived susceptibility, perceived severity, perceived barriers, perceived benefits, cues to action and self-efficacy (Edberg, 2007). This theory was created in the 1950s to understand human drive and perceptions. The HBM was originally developed to determine why people were deciding not to use programs that were provided at virtually no inconvenience (National Cancer Institute [NCI], 2005).

A previous study was found using the Health belief model. It aimed to cultivate “culturally appropriate” weight-management programs for African-American women (James, Pobee, Oxidine, Brown, & Joshi, 2012). The publication utilized the Health Belief Model to determine why these overweight ladies have low participation and success rates involving weight-loss materials (James et al., 20120). It was used as a reference to develop survey materials because our study goals parallel one another.

The purpose of this study is to determine why the residents of Glenaire are not taking advantage of the Balance Center. It is a qualitative study utilizing one-on-one interviews since perceptions about fall risks cannot be adequately measured solely with surveys. Ideally, Glenaire employees concerned with the health of their residents will use the information gathered in this study to increase the utilization of the Balance Center.

Theoretically, increasing the use of the Balance Center will decrease the number of falls by residents living at Glenaire. Utilizing the SMART machine will increase physical activity and increase confidence in their mobility. This will help keep residents independent and healthy which will decrease direct and indirect costs due to falls for Glenaire. It will also increase morale of current residents and attract potential residents to the community.

Methods

After it was determined that usage of the Balance Center was something that needed to be rectified, the principal investigator, Katherine Reese, put together a team of three additional interns. A personal letter from the principal investigator for this study was distributed to each independent living resident (Attachment A). This was done so that residents would know that we would be contacting them, and what we would be asking them. It explained our goals and what we would expect from them should they choose to participate.

Personal phone calls were made to every independent living resident at Glenaire by one of three interns as a follow up of the letter. The study was explained to them, they were asked to participate, and given their answer, a meeting date and time was specified. The resident was able to pick from two interview days, as well as a time on that day. They also were able to specify a place on Glenaire's campus that was convenient to them.

A schedule was made for each interview day, and each resident was assigned an interviewer. The interviews were conducted by one of three interns following an interview guide that consisted of 33 questions (Attachment B), and each interviewer was responsible for recording answers and taking notes. The questions were developed by the principle investigator and followed the theoretical framework related to a specific construct of the Health Belief Model. A total of 29 independent living residents were interviewed. Thank you notes were distributed following each interview to express gratitude for their participation.

After the interviews were completed, data analysis took place. Each answer was recorded into a spreadsheet and then collective answers were coded. This was done by one person, the principal investigator, in Excel on a computer. The quantitative data was sorted using key words. Assumptions were made based on these gatherings.

Findings were used to identify ways to encourage residents to become more aware of the impending threat of falls. The data suggested things that influence residents' action or inaction in regard to their balance. Data that will help with implementation of programs that encourage use of the Balance Center will be shared with Glenaire.

Results

A total of 29 people were interviewed. Of them, 25 residents (86.2%) had heard of the Balance Center before, and 17 (41.4%) were familiar with it. Also, 10 (34.5%) residents have used the balance center, and 7 (70.0%) of those would use it again.

Perceived Susceptibility

Of the residents interviewed, 12 (41.4%) had fallen in the past three years and 26 (89.7%) knew someone that has fallen (Figure 2). The residents were asked how many times they had fallen in the past 3 years, and of the 12 that had fallen the mean was 1.3, and the median and mode were 1.

Glenaire offers balance classes and 10 (35.7%) residents have taken them. Also, 17 (58.6%) have taken a balance assessment. Of those interviewed, 12 residents commented on the results of their balance assessment and 11 (91.7%) reported that they were “Good.”

The residents were asked to rank their balance on a scale from “Very Poor” to “Very Good.” None of the residents reported that their balance was “Very Poor,” but 2 (6.90%) stated that their balance was “Poor.” The majority, 10 (34.5%), rated their balance as “Ok.” 9 (31.0%) and 8 (27.6%) ranked their balance as “Good” and “Very Good,” respectively. Also, 18 (62.1%) stated they think they are at risk of falling.

Residents were asked which populations are at risk of falling, and 28 responded sufficiently. The “elderly” was the sole response of 19 (67.9%) interviewees; however, 25 (89.3%) said “elderly” in conjunction with other populations. “Children,” “inactive people” and “everyone” were the only other cited answers (Figure 3).

Residents were asked how many falls they thought occurred in one year at Glenaire, 25 people answered (those who didn’t answer numerically, or gave a range were omitted). This

question generated a response with a range of 93 falls. The mode was 50 falls. The mean and median were 43.0 and 42.5 respectively.

Residents were asked to mention circumstances which increase their risk of falling. There were 28 responses recorded, one was omitted because he or she opted not to answer this question. They talked about a wide range of instances, which were coded into two categories. The most frequently cited category was personal ailments. This included things such as age, poor health, dizziness, muscular weakness, vision impairment, and knee problems. Medications, moving too fast and risky behavior were also stated. Next was environmental factors such as scatter rugs, uneven terrain, and trying to hold onto something.

Residents were asked whether or not they thought they were at risk of falling. Those that said no, 18 (62.1%), reasoned that they are careful or they keep up with their exercise. Those that said yes, 11 (37.9%), stated that they have fallen before or that all elderly are.

Perceived Severity

Residents were asked whether or not the thought of falling scared them, and 22 (75.9%) said no, while the other 7 (24.1%) said yes (Figure 4). A couple of questions, “Do you think falling will produce severe outcomes” and “What could happen should you fall” produced similar answers and will be regarded as one question. Answers spanned from “nothing,” “a bruise” and “get up under own power,” to “broken bones,” “hit head,” “paralysis” and “entrance into nursing home (Figure 5).”

When asked what he or she could do to lower his or her risk of falling, a variety of answers were given. The most common answers were, “slow down,” “be careful” and “pay attention.” Also, “exercise” and “use a cane or handrails” were shared responses.

Perceived Benefits

Residents were asked whether or not they thought using the balance center would lower their risk of falling and 15 (53.6%) said yes, 3 (10.7%) said no. Maybe/probably was the answer of 4 (14.3%), 4 people (14.3%) stated that they were not well enough informed and 2 (7.1%) stated that the balance classes help more than the balance center does.

When asked what the benefits of using the balance center were, 6 residents (21.4%) said none or did not know of the benefits. The other residents talked about increasing awareness and knowledge, lowering fall risk, turns the risk into a more tangible reality, helps them know how to handle certain situations where balance may be compromised, and shows a progression of balance (Figure 6).

Perceived Barriers

Of 27 residents, 22 (81.5%) said that the Balance Center was not intimidating, and the same number of people said that the Balance Center was not inconvenient (Figure 7). When asked about what keeps them from using the Balance Center, 6 people stated that they had no need and 2 people stated that nothing kept them from using it. Claustrophobia was cited by 1 person.

Cues to Action

Of 28 people, 12 (42.9%) say that the use of the Balance Center has been promoted or encouraged. 9 (36%) residents have friends that have benefited from the Balance Center (Figure 8). Four of the 29 residents were omitted because they stated that they didn't know. A single resident was omitted from answering because they stated that they did not know, but 27 (96.4%) residents stated that they did know someone that had been injured due to a fall.

Self -efficacy

The majority of the residents interviewed, 17 (60.7%) stated that they do have the motivation to use the Balance Center (Figure 9). Those that said they go to the classes, don't have a need to go, and don't want to pay for it. One response was omitted.

The residents also agreed, although not unanimously, that they do have the time, 17 (65.4%). Interestingly, some residents further stated that they would make the time if it was something that they needed to do. Three responses were omitted because they did not know and thought this question depended upon certain circumstances.

Most residents, 20 (69.0%), say that, yes, the Balance Center is worth using. In contrast, 4 (13.8%) say it is not worth using. 5 (17.2%) residents, were undecided or not sure whether it would be worth using.

Discussion

Perceived Susceptibility

The main contradiction in this study was one of the independent living resident's perception of susceptibility. Results from the study suggest that they know they are at risk. They directly stated so, and have also participated in a balance assessments and classes. In fact 41% of residents have fallen before, and nearly all of them know someone that has fallen. Despite these things, independent living residents at Glenaire do not feel personally susceptible to falling. The majority of them think that their balance is "OK" or better.

They know that personal ailments and environmental factors make people susceptible to falling. However, most residents do not feel that they are at risk of falling because they take measures to combat those factors.

Perceived Severity

Independent living residents at Glenaire know that falling can produce severe outcomes; however, they think it is more likely that falling will only produce minor problems. The thought of falling does not scare them. This may be because they know of things that may lower their risk of falling or devices that can help their balance.

If the threat of falling is not thought to produce severe negative outcomes, why should residents care? Resident's expectations of falling should be that they can be seriously hurt. Not only are independent living residents under the assumption that they will not fall, but they are also under the assumption that should they fall, their situation will entail severe consequences. This convention must be modified.

Perceived Benefits

Just over half of the residents think that using the Balance Center is or could be beneficial. The remaining residents think the opposite or do not know what to think. Those that do believe it has benefits understand that it could help them increase their knowledge of the risks of falling and knowledge of their personal deficits, resulting in a decreased risk of falling.

The fact that a large number of independent living residents could not identify any benefits designates a general lack of understanding of the Balance Center. Those that also indicates a positive association between increasing knowledge and usage of it. If Glenaire can find a way to get independent living residents to understand the wide range of benefits, they will be more likely to use it.

Perceived Barriers

Results have shown that independent living residents at Glenaire do not find the Balance Center to be inconvenient or intimidating. Their main explanations for not using the Balance Center were having no need, and having no reason.

Residents' inability to explain why they do not use the Balance Center implies, again, that there is a lack of knowledge of it. However, this also lends the explanation that the Balance Center gives negative social connotations. Independent living residents at Glenaire may not want to face the fact that their health may be declining. If this is the case, they certainly would not want their peers to know.

The fact that there are no barriers means that if independent residents were to notice their balance declining, they are likely to seek help using any of the means available to them. This can include the Balance Center or one of the balance classes.

Cues to Action

Just under half of the independent living residents at Glenaire say that the Balance Center has been promoted or encouraged for them. Less than 40% of them know someone that has benefitted from using the Balance Center.

These data suggest that independent living residents are not motivated by instances of peers falling. They may accept falling as inevitable, or a result of aging. Utilizing the experiences of others falling may not be the most effective way to encourage use of the Balance Center.

Independent living residents are, though, likely to act on good news. Cues to action may involve successful testimonies from peers who have used the Balance Center. Since not that many independent living residents know someone that has benefitted from the Balance Center, it may be important to locate patients of the Balance Center and the SMART Balance Machine to spread their story.

Self-Efficacy

Residents agreed, for the most part, that they do have the motivation and time to use the Balance Center. They also stated that even if they do not have those things now, they would

make sure to have them should the need to use the Balance Center arise. Residents also agree that the Balance Center is worth using.

Independent living residents at Glenaire believe that they have the will power to use the Balance Center. The study did not gauge whether they understand the scope of the commitment, but they do grasp that utilization will be worthwhile.

Conclusion

Results from the survey questions suggest that the independent living residents know their demographics make them at an increased risk for falling; however, they do not feel personally susceptible to falling. They see the benefit in using it, but they are not well informed about what it is and how to become involved using it. They have no real reasons for not using it, which insinuates that they do not think they need to, or they do not understand the benefit it could have. Some of them even stated one of these as the case.

They have not heard of the success stories from their peers using the Balance Center. It may be beneficial to find a way for residents who have had positive experiences using the Balance Center to share their opinions. Glenaire is a social community where everyone knows just about everything. Residents who do not know much about the Balance Center can learn from those who are very familiar with it.

One solution is to hold an open house. Those who are knowledgeable about the Balance Center and those who can offer insight about the patient's perspective could help other residents that do not know much about it. This seems like the most efficient solution. Independent living residents may be more likely to use the Balance Center if their friend or peer, someone they trust, endorses it.

Another way to successfully get residents to understand what the Balance Center is and how to use it is to create a brochure. It should be easy to read and tailored to Glenaire residents. In other words, it should not be a generic pamphlet that is distributed to all facilities with a Balance Center and SMART Balance Machine. If residents can get the information that is unique to them from Glenaire, they will be more likely to pay attention to it and understand it.

These informational tools should also include facts about the preventative nature of the Balance Center. Particularly social independent living residents at Glenaire need to understand that using it can correct even miniscule balance irregularities that may become bigger problems in their future.

Independent living residents at Glenaire should be encouraged to take annual balance assessments. They need to understand that they are at personal risk for declining mobility and falling. These assessments will allow them to see the change their balance has had since the prior year. Periodical assessments will also ensure that a professional who is well informed about their personal health is available for advice and recommendations should their balance decline.

If Glenaire enacted one or all of these recommendations, they will see a peak in interest of the Balance Center. They may be able to prevent falls in independent living residents, but are sure to increase the confidence and independence of them as well. The Balance Center and SMART Balance Machine are valuable assets to Glenaire and should be seen as such by the residents.

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Director of enCompass and all of the residents and faculty at Glenaire, as well as the three interns from Athens Drive High School, Alice Ojiambo, Amani Qasseem, and Lauren Mills.

Figures



Figure 1: SMART Balance Machine

Perceived Susceptibility	Yes n (%)	No n (%)
Have you heard of the Balance Center before?	25 (86.2%)	4 (13.8%)
Are you familiar with the Balace Center?	12 (42.4%)	17 (58.6%)
Have you used the Balance Center?	10 (34.5%)	19 (65.5%)
Would you use the Balance Center again?	7 (70.0%)	3 (30.0%)
Have you fallen in the past 3 years?	12 (42.4%)	17 (58.6%)
Do you know someone that has fallen?	26 (89.7%)	3 (10.3%)
Have you taken a balance assessment?	17 (58.6%)	12 (42.4%)
Have you attended any balance classes at Glenaire?	10 (35.7%)	18 (64.3%)
Do you think you are at risk of falling?	11 (37.9%)	18 (62.1%)

Figure 2: Quantitative Data related to Perceived Susceptibility

What Circumstances increase your risk of falling?	<u>Personal ailments:</u> age, poor health, dizziness, muscular weakness, visual impairment, knee pain	<u>Environmental factors:</u> scatter rugs, uneven terrain
What can you do to lower your risk of falling?	slow down, be careful, build muscle by walking, do balance exercises, use a cane or assistive device, wear good shoes, and exercise	

Figure 3: Qualitative Data related to Perceived Susceptibility

Perceived Severity	Yes n (%)	No n (%)
Does the thought of falling scare you?	7 (24.1%)	22 (75.9%)

Figure 4: Quantitative Data related to Perceived Severity

What could happen should you fall?	<u>Less severe:</u> bruise, get up under own power, nothing	<u>More severe:</u> Broken bones, hit head, paralysis, enter nursing home
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Figure 5: Qualitative Data related to Perceived Severity

What are the benefits of using the Balance center?	increase awareness and knowledge, lowers risk of falling, lean exercises and how to keep balance, decrease dizziness, gives sense of progression, gain control, and evaluate posture
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Figure 6: Qualitative Data related to Perceived Benefits

Perceived Barriers	Yes n (%)	No n (%)
Is the Balance Center intimidating?	5 (18.5%)	22 (81.5%)
Is the Balance Center inconvenient?	6 (21.4%)	22 (78.6%)

Figure 7: Quantitative Data related to Perceived Barriers

Cues to Action	Yes n (%)	No n (%)
Has the Balance Center been promoted?	12 (42.9%)	16 (57.1%)
Do you know someone that has been injured due to a fall?	27 (96.4%)	1 (3.6%)

Figure 8: Quantitative Data related to Cues to Action

Self-Efficacy	Yes n (%)	No n (%)
Do you have the motivation to use the balance center?	11 (39.3%)	17 (60.7%)

Figure 9: Quantitative Data related to Self-Efficacy

Attachment A

Hello! My name is Katherine Reese and I am interning at Glenaire this summer with Wendy and Mark. Some of you may have seen me, and some of you may have met me, but I've been buzzing around for the past few weeks. I will be a senior this fall at East Carolina University, and I am majoring in Public Health with a concentration in Pre Health Professions. I am also a member of the Honors College at ECU and as a part of that program I need to complete a capstone thesis before I graduate.

**I am asking for your help with this project!**

Within the next few days, you will receive a call from one of three interns who are working at the Wellness Center this summer: Amani, Qassem, Alice Ojiambo, Lauren Mills, or myself, Katherine Reese. They will ask you for your participation, as well as a time to set up an appointment on a Tuesday or Thursday to conduct an interview regarding the Balance Center.

I would greatly appreciate if you would participate in this project. It will only take about ten minutes and can be done wherever is convenient for you.

Thank you so much for your help! Without you this project would be impossible. I'm so happy and excited to be working with you this summer and I can't wait to meet everyone!

Sincerely,

Katherine Reese



Attachment B

GLENAIRE BALANCE CENTER SURVEY

Have you ever heard of the Balance Center at Glenaire and how familiar with it are you?

Have you ever used it? If so, did you like it and would you use it again? Why/Why not?

Have you fallen in the past 3 years? How many times? Do you know someone that has fallen recently?

How many people?

Have you taken a balance assessment? Were the results good or bad and what did you take away from it?

Have you attended any of the Balance Classes (Aqua/Land)?

SUSCEPTIBILITY

What populations are at risk of falling?

On average, how many falls do you think occur at Glenaire in one year?

What circumstances increase your risk of falling?

Do you think that you are at risk of falling? Why/Why not?

How would you rank your balance on a scale: Very Poor, Poor, OK, Good, Very Good

SEVERITY

What would happen should you fall? Best/Worst Case)

Does the thought of falling scare you?

Do you think falling will produce severe outcomes? What outcomes?

BENEFITS

What could you do to lower your risk of falling?

Do you think that using the Balance Center will decrease your chances of falling?

What are the benefits of using the balance center?

BARRIERS

What things keep you from using the Balance Center?

Is the Balance Center intimidating?

Is the Balance Center inconvenient?

CUES TO ACTION

Has the use of the Balance Center been promoted or encouraged?

Do you have friends that have benefitted from the Balance Center?

Do you know someone that has been injured due to a fall?

SELF-EFFICACY

Do you have the motivation to use the Balance Center regularly?

Do you have the time to use the Balance center?

Do you think it is worth it to use the Balance center?

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