Falling and General Mobility Viewpoints of Survivors of Stroke and Spousal Caregivers: a Mixed Model Design

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FALLING AND GENERAL MOBILITY VIEWPOINTS OF SURVIVORS OF STROKE
AND SPOUSAL CAREGIVERS: A MIXED MODEL DESIGN

by

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A DISSERTATION

Submitted to the graduate faculty of The University of Alabama at Birmingham,
in partial fulfillment of the requirements for the degree of
Doctor of Science in Physical Therapy

BIRMINGHAM, ALABAMA

2008
FALLING AND GENERAL MOBILITY VIEWPOINTS OF SURVIVORS OF STROKE AND SPOUSAL CAREGIVERS: A MIXED MODEL DESIGN

CAROLYN JOYCE PAVELKA KELLEY

DOCTOR OF SCIENCE IN PHYSICAL THERAPY

ABSTRACT

Background: Approximately half of survivors of stroke (SSs) report falls, related to decreased functional mobility, depression, and other factors.

Objectives: The objectives were to explore the viewpoints of SSs and their spouses about falls and mobility and determine if the people who discussed these issues (expressers) were different from those who did not (non-expressers).

Design: Qualitative and quantitative methods were used to retrospectively analyze data from a larger study.

Methods: Transcriptions of expressers were analyzed using the phenomenological research tradition. Expressers and non-expressers were compared using the Universal Data System Functional Independence Measure (FIM)™, Stroke Impact Scale (SIS) combined physical function (phys), social participation (soc), and perceived recovery domains, and 15-item Geriatric Depression Scale (GDS-15) at baseline, six, and 12 months.

Results: Time, loss, and life changes emerged as themes in the qualitative analysis of expressers with “Keep stepping no matter what,” as the overarching theme. No significant differences existed between expressers (n=30) and non-expressers (n=103) using Mann-Whitney U-tests for the quantitative measures at each time period. Friedman multiple comparison tests showed expressing and non-expressing SSs to improve over time for the total FIM and SIS phys and soc domains. The ANCOVA displayed improvement with SIS.
recovery over time but no differences between groups. Only non-expressers improved in GDS-15 scores. Chi square tests showed no differences between the two groups in side and severity of stroke and fall-related adverse events.

**Conclusion:** Physical therapists can learn from the lived experiences of SSs and CGs related to falling and mobility for enhanced discharge planning.
ACKNOWLEDGMENTS

This study was supported in part by the National Institute for Nursing Research, NIH # R01 5316 (Sharon K Ostwald, PI). Kyler Godwin, MPH provided technical assistance with use of the qualitative software program. Mary Watson, PhD provided assistance with statistical analyses.
TABLE OF CONTENTS

ABSTRACT........................................................................................................................................ iii

ACKNOWLEDGMENTS..................................................................................................................... v

LIST OF TABLES............................................................................................................................ vii

LIST OF FIGURES.......................................................................................................................... viii

INTRODUCTION ........................................................................................................................... 1

METHOD ........................................................................................................................................ 5

Participants and Setting.................................................................................................................. 5
Design Overview ............................................................................................................................ 5
Qualitative Method ........................................................................................................................ 6
Quantitative Outcome Measures ................................................................................................. 6
Qualitative Data Analysis ............................................................................................................ 8
Quantitative Data Analysis .......................................................................................................... 9

RESULTS ....................................................................................................................................... 11

Qualitative Results....................................................................................................................... 11
Quantitative Results.................................................................................................................... 17

DISCUSSION................................................................................................................................. 21

Study Limitations......................................................................................................................... 23
Conclusions................................................................................................................................. 24

LIST OF REFERENCES................................................................................................................... 26

APPENDICES ............................................................................................................................... 30

A  BRIEF INTERVIEW .................................................................................................................. 30

B  INTERNAL REVIEW BOARD APPROVAL LETTERS ......................................................... 32

C  EXAMPLE OF ORGANIZATIONAL STRATEGY FOR CODED PHRASES RELATED TO BALANCE AND FALLING ............ 35
<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Participant Demographic Information</td>
<td>11</td>
</tr>
<tr>
<td>2 Number of Participants Who Expressed Viewpoints Over Time</td>
<td>16</td>
</tr>
<tr>
<td>3 Results of Post Hoc Testing for Determination of Periods of Significant Change</td>
<td>19</td>
</tr>
<tr>
<td>4 Side and Severity of Stroke, Adverse Events</td>
<td>20</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Schematic Diagram of Qualitative Themes</td>
<td>13</td>
</tr>
<tr>
<td>2. Graphs of Changes Over Time</td>
<td>18</td>
</tr>
</tbody>
</table>
INTRODUCTION

Survivors of stroke (SSs) have a high risk of falling, especially while walking or performing activities of daily living (ADL). This risk is related to the presence of hemiparesis with aberrant movement patterns, abnormal muscle tone, sensory and visual deficits, cognitive and emotional impairments, balance disturbances, or fatigue.\(^1\) A fall is “an event that results in a person coming to rest unintentionally on the ground or other lower level, not as a result of a major intrinsic event [stroke] or overwhelming hazard [ice patch].”\(^2\) A near fall is defined as a situation in which a person felt that he or she was close to falling, but a fall did not actually occur.\(^2\) The literature presents significant information about the incidence, severity, and circumstances of and factors contributing to falling in SSs. However, very few studies exist about SSs or caregivers’ (CGs) issues of falling and general mobility.

Up to 51% of individuals with acute or chronic stroke report falls\(^2,6\) and 78% of SSs report near falls.\(^2\) Of those reporting falls, up to 29% experienced multiple falls.\(^2,6\) Jorgensen et al.\(^7\) found 23% of the SSs fell at least once within four months, and the risk of falling more than once was three times higher for the SSs than for age and gender-matched controls. More than half of the falls sustained by SSs occurred while walking,\(^2,3,7,8\) and other falls occurred while transferring, transitioning from one position to another, or dressing.\(^6,7\) Participants who were unable to walk or transfer without significant assistance showed a lower risk of falling than some of the more mobile SSs.\(^5\) Additionally, SSs who fall are also more likely to have right hemispheric damage or depression.\(^2,4,7\) Of those who fell, as many as 41% reported injuries with numerous SSs requiring medical attention.\(^2,3,6,9,10\)
Impaired walking ability is one cause of falling after stroke. Perry et al.\textsuperscript{11} determined the average velocity in SSs who were unlimited community ambulators to be 48 meters per minute (m/min), as compared to normal gait velocity of 80 m/min.\textsuperscript{11} Chen and colleagues\textsuperscript{12} found SSs to display decreased velocity, cadence, stride length, and time spent in single support phase. They also demonstrated significantly less hip flexion, knee flexion, and ankle dorsiflexion during swing than the control participants.\textsuperscript{12}

Michael et al.\textsuperscript{13} found SSs to take approximately half the number of steps per day of sedentary older adults. A positive correlation existed between the number of steps per day, balance scores, and self-selected walking velocity.\textsuperscript{13} The problems with selective motor control of the more involved lower extremity require numerous energy expensive compensations for successful ambulation. If these compensations are insufficient, problems such as the foot dragging and fatigue can lead to falls.\textsuperscript{12,13}

Impaired balance is another contributing factor to falling in SSs, and postural control is one aspect of balance. In studies by Ikai et al.\textsuperscript{14} and Marigold et al.,\textsuperscript{15,16} SSs displayed increased postural sway and required more time and had weaker responses to external perturbations with the hemiparetic lower limb when compared to the less involved lower limb or to lower limbs of normal participants. Falling SSs demonstrated slower postural reflex onset latency and a longer time period between firing of distal and proximal muscles within the leg than non-falling individuals.\textsuperscript{14-16}

Many SSs use various assistive devices to increase function and safety because of the increased fall risk. Gitlin et al.\textsuperscript{17} qualitatively examined the comments of 52 SSs about use of assistive devices for mobility, ADL, and seating. They expressed positive comments about feeling more confident and independent with device use. However, they also expressed more
negative or mixed-type comments regarding use of mobility and seating devices, likely because of the increased visibility of these items in social situations and a concrete reminder of their experienced losses since the stroke.\textsuperscript{17}

Because of the sudden nature of a stroke and rapid changes in the SSs’ independence level, CGs experience dramatic role changes after the stroke, and they must quickly adjust to new responsibilities. A few qualitative studies have examined CGs’ concerns and problems. Pierce et al.\textsuperscript{18} found CGs to most frequently report problems of SSs’ decreased physical independence and increased depression and anger. There was no change in CGs’ concerns of dealing with the SSs’ physical limitations during the three-month study period, although improvement was noted with the other reported problems.\textsuperscript{18} King and Semik,\textsuperscript{19} in a study with qualitative and quantitative methods, found CGs to report the period of hospitalization and first few months after stroke to be the most difficult for them. During this time, they reported the lack of certainty, novel duties, and the SSs’ physical and emotional problems to be the most challenging issues. Later, a plateau in SS physical recovery and the CG physical and mental strain emerged as prominent themes.\textsuperscript{19}

Discrepancies exist in the literature about the relationship between falling and non-falling SSs in functional measures.\textsuperscript{2-4,6} No studies have explored issues of falling and mobility through the experiences of SSs and CGs and specifically addressed spouses as CGs. This study seeks to facilitate physical therapists (PTs) and other healthcare providers’ understanding of the complex issues of falling and mobility in SSs. This mixed model design study had dual purposes: (1) to explore SSs’ and spousal CGs’ viewpoints about falling and general mobility, and (2) to investigate if there were differences in the SS’s severity and side
of stroke, incidence of fall-related injury, functional status, perception of impact of stroke, and depression, between those who expressed these viewpoints and those who did not.

The research questions of the qualitative component of this study were: (1) What are the expressed viewpoints about falling and general mobility of SSs and spousal CGs? (2) How do these expressed viewpoints about falling and general mobility change from hospital discharge to one year post-baseline testing after stroke? The null hypothesis of the quantitative component of this study was: There is no difference between SSs and spousal CGs who express or do not express viewpoints about falling and general mobility in SSs’ functional status, perceived impact of the stroke, and depression as they change from baseline through 12 months, and (2) severity of stroke, incidence of fall-related adverse events, and side of brain injury due to stroke.
METHOD
Participants and Setting

I performed a retrospective study from data previously collected as part a larger funded study.\textsuperscript{20} The original study’s primary purpose was to determine the effectiveness of a multi-disciplinary home-based education and support intervention over mailed information after SS hospital discharge. Participant inclusion criteria for that study were that the SS was at least 50 years old, sustained a stroke of less than one year before start of participation, discharged home with a spouse, and required daily supervision or physical care. Exclusion criteria were that the participant was likely to die within thirty days or had another major disease, such as advanced cancer, that would interfere with the plan of care for the stroke. A masked assessor led a brief interview with semi-structured questions (Appendix A) that was audio recorded and transcribed verbatim. During the same visit, the assessor administered quantitative measures that included measurements of physical function, perceived disability, and emotional status of the SSs and spouses.\textsuperscript{20} One hundred fifty-nine couples participated in the original study, and audiotapes and quantitative measures were taken at baseline, and three, six, nine, and 12 months later. Of these couples, 133 completed the 12-month study. The most common reasons for not completing the study were death and report of being too busy.\textsuperscript{21}

Design Overview

This study used a mixed model design, with qualitative and quantitative components.\textsuperscript{22,23} The data from the 26 couples who did not complete all 12 months of the
study were excluded. The Internal Review Boards (IRBs) of The University of Alabama at Birmingham and Texas Woman’s University (TWU) approved this study. (See Appendix B.) The IRBs of The University of Texas Health Science Center at Houston, TWU, Baylor College of Medicine, and the Houston area clinical recruitment sites approved the original study.

Qualitative Method

I used the phenomenological approach as the research tradition for the qualitative component of this study. This tradition facilitated the study of the SS and spousal CG experiences in their own words and interpretations of those experiences, in order to provide a rich description of the viewpoints.\textsuperscript{22} ATLAS.ti\textsuperscript{*} was utilized to perform keyword searches of the approximate 1200 transcriptions of the participants’ interviews, for segments in which they expressed viewpoints about falling and general mobility, including walking, transferring, and use of wheelchairs or other assistive devices. If the SS, the spouse, or both expressed viewpoints about falling, this couple was named an “expresser” and those who did not, “non-expressers.” I analyzed the transcriptions of the expressers that included comments about falling and general mobility and did not review the transcriptions of non-expressers.

Quantitative Outcome Measures

In the original study, administration of the Universal Data System Functional Independence Measure\textsuperscript{TM} (FIM), Stroke Impact Scale (SIS) Version 2.0, 15-item Geriatric Depression Scale (GDS-15), and outcome measures occurred during the same visits as the

\*ATLAS.ti, Cleverbridge, 53 West Jackson Blvd., Suite 757, Chicago, IL 60604-3606
semi-structured interviews. The assessor administered the National Institutes of Health Stroke Scale (NIHSS) at baseline. The FIM is a commonly used 18-item scale that measures motor and cognitive items on an ordinal scale that extends from 1 (total dependence) to 7 (complete independence) for each item, with total scores ranging from 18 to 126. The FIM measures activity limitation or disability of many patient populations including stroke. It has also predicted amount or burden of care needed of patients with multiple sclerosis and traumatic brain injury.\textsuperscript{24-26}

The SIS is a quantitative measure of the stroke survivor’s perception of the impact of the stroke on his or her life in multiple areas and perception of amount of recovery. The person answers 64 questions from his or her perspective in the following domains: strength, mobility, hand function, ADL/instrumental ADL, emotion, memory, communication, and social participation, each on a five-point hierarchical scale. Lower scores represent activities that are unable to be or extremely difficult to perform, and higher scores represent activities that are performed with no difficulty. The perceived recovery is a mark placed by the stroke survivor on a visual analogue scale with 0 indicating no recovery and 100 a full recovery.\textsuperscript{24,27-30}

The GDS-15 is a commonly used measure to assess depressive symptoms in older adults. The participant answers either “yes” or “no” to the items, and the GDS-15 scores range from 0 to 15. Scores of 0 to 4 indicate no depression, and scores of 12-15 indicate severe depression.\textsuperscript{30-32}

The NIHSS is a 15-item tool that measures the following neurological impairments on a 0 to 3 or 4 scale: consciousness, vision, extraocular movements, facial palsy, extremity strength, ataxia, sensation, speech and language. Patients and research participants have been
classified into mild (0 to 7), moderate (8-19), and severe (20-42) stroke categories. The psychometric properties of the FIM, SIS, GDS-15, and NIHSS have been well-studied and reported in the literature.

An adverse event (AE) is “any undesirable sign, symptom or medical or psychological condition even if the event is not considered to be related to the investigational drug/device/intervention.” In the original study, falls-related AEs were those requiring emergent medical attention or hospitalization. Because of inconsistencies in the reporting of non-injurious falls in the original study, I included only the falls determined as AEs for data analysis.

Qualitative Data Analysis

To address the first research question about expressed viewpoints about falling and general mobility, open coding was performed of the relevant interview transcripts within ATLAS.ti. To ensure the truth value and consistency aspects of trustworthiness, two additional, qualitative researchers independently reviewed and coded the uncoded transcriptions of three participant couples. Investigator triangulation, or a systematic comparison, of the coding systems used by these two researchers and me occurred to promote accuracy and address my potential bias. I was the physical therapist who provided education and support interventions to the couples of the original study, and some of the participants’ comments were familiar to me, even though these transcriptions had participant code numbers rather than names. Remaining open to the reading and interpretation of these transcriptions and not allowing my preconceived ideas or memories tint the coding process were important in preserving credibility.
I moved the 861 code words and quotations of the 107 reviewed transcriptions of the 30 expressing couples into Microsoft Word. Each coded segment was labeled with participant number, SS or CG, and time period of expression for the audit trail as a way to check authenticity as the study progressed. After all the codes were transferred into Word, separated by SS and spouse, I clustered the coded segments into groups with related meanings to form the preliminary categories.

Next, the codes were chronologically ordered and color-highlighted, according to time of interview, with all baseline quotations together and in one color, all three month quotations next and in a different color, and so on (Appendix C). Commonalities and differences between the SSs and their spouses and how their comments changed over time were explored.

Quantitative Data Analysis

For the quantitative analyses, the 133 participant couples were divided into expressers (n=30) and non-expressers (n=103), as previously described. Since the brief interviews were non-specific to the issues of falling and mobility, SSs and CGs could have talked about anything that was important to them at the time. I assumed that falling and mobility were significant enough to those participants who expressed these issues and that they might represent a special sub-population of couples within the original study. The division of the participants in this way allowed qualitative and quantitative data triangulation between these two different components of the study.

†Microsoft Office XP Word, Excel, Microsoft Headquarters, 1 Microsoft Way, Redmond, WA 98052
I used Mann-Whitney $U$-tests to examine the differences of the total FIM scores, SIS physical function combined (includes the individual domain scores of strength, mobility, ADL and instrumental ADL, and arm function) and social participation domains, and GDS between the two independent sub-populations, expressers and non-expressers, at baseline, six, and 12 months after baseline. In terms of changes over time at baseline, six, and 12 months, for the total FIM, SIS physical function combined and social participation domains, and GDS-15, I performed Freidman multiple comparison tests. A split plot analysis of covariance (ANCOVA), with number of days between date of stroke and baseline testing as a covariate, was used to test the SIS percent perceived recovery scores between expressers and non-expressers at each of the above-stated time periods.\(^{39}\)

To test the second part of the hypothesis, I used the Fisher exact chi square tests to analyze the differences in the frequencies and proportions of expressers and non-expressers that clustered into the categories of mild, moderate, and severe stroke at the time of baseline testing, sustained a fall-related AE, and categories of right versus left-sided brain injury. Individuals that survived a bilateral or brainstem stroke were excluded from the chi square test of side of stroke, due to small numbers in the original study.\(^{39}\)

SPSS, version 14.0\(^{\ddagger}\) was used for statistical analysis. The alpha level for all tests combined was set at 0.05. However, because of the number of statistical tests performed, the alpha level was split for each individual test and set at 0.0025 to reduce the chance of committing a Type I error.\(^{39}\)

\(^{\ddagger}\)SPSS, version 14.0, SPSS Inc. Headquarters, 233 S. Wacker Drive, Chicago, IL 60606
RESULTS

Table 1 displays demographic information about the SSs and their spousal CGs. I performed independent t-tests of ages and number of days between dates of stroke onset and baseline testing, between those that completed and did not complete the original study and between the expressers and non-expressers. No significant differences existed between those that completed and did not complete the original study and between expressers and non-expressers in this study.

Table 1. Participant Demographic Information

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>SS</th>
<th>CG</th>
<th>Days stroke to baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>159</td>
<td>65.9* ( 9.1)</td>
<td>62.1* (10.7)</td>
<td>89.9 (77.7)</td>
</tr>
<tr>
<td>Non-completers</td>
<td>26</td>
<td>68.6* ( 9.3)</td>
<td>66.4* (10.6)</td>
<td>82.9 (52.6)</td>
</tr>
<tr>
<td>Completers</td>
<td>133</td>
<td>65.4* ( 9.0)</td>
<td>61.3* (10.6)</td>
<td>91.3 (81.8)</td>
</tr>
<tr>
<td>Non-expressers (77%)</td>
<td>103</td>
<td>64.9* ( 8.8)</td>
<td>60.4* (10.7)</td>
<td>88.5 (80.8)</td>
</tr>
<tr>
<td>Expressers (23%)</td>
<td>30</td>
<td>67.0* ( 9.7)</td>
<td>64.5* ( 9.9)</td>
<td>100.6 (86.2)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>104</td>
<td>(78%)</td>
<td>29</td>
<td>(22%)</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>24</td>
<td>(18%)</td>
<td>23</td>
<td>(17%)</td>
</tr>
<tr>
<td>Asian</td>
<td>5</td>
<td>( 4%)</td>
<td>5</td>
<td>( 4%)</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>23</td>
<td>(17%)</td>
<td>23</td>
<td>(17%)</td>
</tr>
<tr>
<td>White</td>
<td>77</td>
<td>(58%)</td>
<td>78</td>
<td>(59%)</td>
</tr>
<tr>
<td>Mixed race or other</td>
<td>4</td>
<td>( 3%)</td>
<td>4</td>
<td>( 3%)</td>
</tr>
</tbody>
</table>

Age and days stroke to baseline presented as mean (standard deviation)
SS = Survivor of stroke
CG = Spousal caregiver
* = age in years

Qualitative Results

For the first research question regarding the expressed viewpoints about falling and general mobility of SSs and spousal CGs, I have depicted the themes and categories that emerged from the qualitative data analysis in Figure 1. The overarching theme for the
qualitative component is based on “Keep stepping no matter what,” a quotation from a SS during the three-month assessment. The entire quotation from which this originates is:

Keep stepping no matter what. You fall down, you get up, and keep stepping. No matter how many times you fall down, you just go again. You’ll get it right eventually. (#1098)

This particular quotation kept “speaking” to me as I read the transcripts from both the SSs and CGs, first in the literal sense as falling and mobility are the emphases of this study. As the expressed comments clustered into categories, these categories shared consistent threads that seemed to be interwoven throughout. Viewpoints related to time, loss, and life changes emerged as the themes shared by both SSs and CGs. These themes allowed me to “hear” the overarching quotation in a different way, more figuratively. These participants talked about falling, but also other “stumbling blocks” to their recovery that required them to have patience and perseverance, keep trying, and find ways to cope or adapt.

The SS sub-theme of loss of independence emerged from the categories of “difficulty on my feet” and “as normal as we can.” The SSs expressed difficulties related to walking, balance, and falling (with and without injuries), as in this quotation:

I’m now walking around pretty freely with balance being a big, big issue. But then someone told me balance with old people was an issue anyway, but it’s not mine. Mine is more than that. (#1021)

The SSs also commented positively about their mobility, as seen in this quotation:

I could be walking with a walker, I could be in a wheelchair, but I’m on my own power. (#1159)
Figure 1. Schematic Diagram of Qualitative Themes
Diagram illustrating relationships between (1) overarching theme of “Keep stepping no matter what,” (2) combined SS and CG themes of time, loss, and “life has changed” (3) SS sub-theme of loss of independence and related categories, (4) CG sub-theme of “Time is constantly on my mind,” and related categories, and (5) combined SS and CG sub-theme of passage of time and related categories.
The SSs reported that the falls occurred while walking, dressing, and going to the bathroom. They also reported falls while stepping up onto a curb, into an unseen hole, and while walking into a store doorway. They discussed dragging and “uselessness” of the involved leg, the involved leg’s “grabbing onto whatever is in the way,” and how a loss of balance can be “rather unexpected.” Both SSs and CGs reported injurious falls, including fractured hip, toes, or humerus and ear or scalp lacerations.

As the SSs expressed issues related to the sub-theme of loss of independence and need for assistance, they commented on their confidence in their spouses’ ability to provide care for and encouragement to them. Some also recognized the “tremendous load on your spouse” that caregiving requires. These comments reflect their realization of the physical and temporal demands they placed on their spouses and how both of their lives had changed.

The CG sub-theme of “time is constantly on my mind” arose from the categories related to the amount of time and energy that is required for caregiving, other commitments such as work and home responsibilities, and the use of outside support or assistance. The following quotation is from a woman who was having difficulty meeting her husband’s care needs during the day, partly because of sleep deprivation at night.

I think the most … stressful, frustrating and stressful was when he came home and he, the biggest problem was for me anyways, was his having to go to the bathroom so many times. During the middle of the night when we were sleeping he had, at first he had to go to the bathroom like four times during the night. That meant putting his socks on, putting the brace on, putting the shoes on, putting the sling on, putting the belt on. And it just drove me crazy. (#1011)

The CGs discussed other physical demands of caregiving, such as helping with ADL and wheelchair management, as seen in this quotation:

…a lot of physical work, developed a new set of muscles. The [expletive] chair weighs 57 pounds, and I feel every one of them. (#1039)
They discussed fear of the SS falling, particularly related to the issue of the SS choosing to walk or move without using the prescribed assistive devices, as shown in this quotation:

I say the largest fear I guess I have is that he tries things that he shouldn't try and he'll sometimes fall, and then it's a problem for me to get him up, and I have not been able to impress on him that that's making more problems for me than his deciding that he wants to go across the room and do something without his walker or whatever. (#1051)

The CGs talked about returning to work and how it was a “break” from caregiving, but others discussed the levels of exhaustion with trying to work, providing care for the SS, keeping up with household chores, and related tasks. They talked about needing assistance from others, with some expressing gratefulness for the help and others apparently not having as strong of support systems in place as they would have liked.

The combined SS and CG sub-theme of passage of time emerged as they discussed their concerns about the future, the recovery (amount and length of time required), and the need for patience and perseverance to successfully get through the experience of having a stroke. As one SS said:

I thought I would just be just further along somehow, less dependent and that is going so slow. The inchworm aspect of this is, is getting to me. (#1039)

The CGs similarly talked about recovery with gratefulness for how much recovery had occurred, but also hope for continued improvement in the future.

He's made great progress, physical progress and also cognitive progress, but it certainly is not at the point where he could return to work and who knows whether it ever will be, but we're going to try. (#1011)
For the second research question related to how these expressed viewpoints about falling and general mobility change over time, I compiled the number of SS and CG transcripts that addressed these issues in Table 2. The SSs expressed numerous issues related to falling and mobility from three to 12 months and issues related to therapies and equipment more frequently from baseline to six months. The SSs mentioned recovery and its slowness starting at three months and consistently thereafter, including the need for a “keep trying” attitude, patience, and perseverance. The SSs discussed issues related to their spouses throughout the 12 months. The number of issues raised by CGs related to not having enough time and the need to keep trying increased sharply at the three month interview and continued through most of study period. The comments about personal physical issues and how these related to SS physical issues, other time commitments, falling, use of equipment and outside assistance, and returning to community activities arose at three months and continued to be expressed through 12 months, though less in subsequent interviews.

<table>
<thead>
<tr>
<th>Time (months)</th>
<th>SS falling</th>
<th>SS mobility</th>
<th>CG falling</th>
<th>CG mobility</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>17</td>
<td>10</td>
<td>16</td>
<td>30</td>
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<td>6</td>
<td>2</td>
<td>15</td>
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<td>10</td>
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<tr>
<td>9</td>
<td>4</td>
<td>15</td>
<td>3</td>
<td>7</td>
<td>29</td>
</tr>
<tr>
<td>12</td>
<td>6</td>
<td>13</td>
<td>6</td>
<td>13</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>63</td>
<td>23</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

SS = Survivor of stroke  
CG = Spousal caregiver

In summary, I combined similar viewpoints into categories with related sub-categories of SSs and CGs, determining which were shared and different between these two groups. The SS sub-theme of loss of independence, the CG sub-theme of time being constantly on the mind, and the shared sub-theme of time passage emerged from these
quantitative results. Each of these sub-themes has the themes of time, loss, and life changes woven throughout. When the themes are considered together, we return to the main message from these groups about the need to “keep stepping no matter what” the obstacles are that occur along the path to continued recovery from the stroke.

quantitative results

Using Mann-Whitney U-tests, no significant differences existed between expressers and non-expressers on the scores of the total FIM, SIS combined physical function domain and social participation domain, and GDS-15 of the SS at baseline, six, and 12 months. With the Freidman multiple comparison tests, both expresser and non-expresser groups showed significant differences in the total FIM, SIS combined physical function domain, and SIS social participation domain. However, only the non-expressers showed a significant change in the GDS-15. See Figure 2 for differences between expressers and non-expressers in each of these measures over time. I performed post hoc testing to determine where the changes over time occurred using this formula, with an alpha level of 0.0025:

\[
|\bar{R}_u - \bar{R}_n| \geq z_{\alpha(k-1)} \sqrt{\frac{k(k+1)}{6N}}
\]

Both groups significantly improved in the total FIM and SIS combined physical function domain between baseline and six months, and in the SIS social participation between baseline and 12 months. Additionally, the non-expressers showed significant change in total FIM and SIS combined physical function domain between baseline and 12 months, and in SIS social participation between baseline and six months. The non-expressers improved in depression scores between baseline and 12 months. See Table 3 for results.
Figure 2. Graphs of Changes Over Time
Line graphs of changes over time, from baseline (Base) to 6 and 12 months (mos), between expressers (exp) and non-expressers (non-exp). (A) Total FIM. (B) SIS combined physical (phys) function domain. (C) SIS social (soc) participation domain. (D) SIS perceived recovery (rec) domain. (E) GDS15.
Table 3. Results of Post Hoc Testing for Determination of Periods of Significant Change

<table>
<thead>
<tr>
<th>Time period (months)</th>
<th>Non-expressers post hoc value*</th>
<th>Expressers post hoc value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIM B – 6</td>
<td>1.08†</td>
<td>0.95†</td>
</tr>
<tr>
<td>FIM B – 12</td>
<td>1.38†</td>
<td>0.90†</td>
</tr>
<tr>
<td>FIM 6-12</td>
<td>0.30</td>
<td>0.05</td>
</tr>
<tr>
<td>SIS phys B – 6</td>
<td>1.10†</td>
<td>0.88†</td>
</tr>
<tr>
<td>SIS phys B – 12</td>
<td>1.22†</td>
<td>0.86</td>
</tr>
<tr>
<td>SIS phys 6-12</td>
<td>0.12</td>
<td>0.02</td>
</tr>
<tr>
<td>SIS soc B – 6</td>
<td>1.14†</td>
<td>0.73</td>
</tr>
<tr>
<td>SIS soc B – 12</td>
<td>0.87†</td>
<td>1.07†</td>
</tr>
<tr>
<td>SIS soc 6-12</td>
<td>0.27</td>
<td>0.34</td>
</tr>
<tr>
<td>GDS-15 B – 6</td>
<td>0.43</td>
<td>NA</td>
</tr>
<tr>
<td>GDS-15 B – 12</td>
<td>0.56†</td>
<td>NA</td>
</tr>
<tr>
<td>GDS-15 6-12</td>
<td>0.13</td>
<td>NA</td>
</tr>
</tbody>
</table>

* Average means difference
† Significant at 0.0025 level
SIS phys = SIS combined physical function domain
SIS soc = SIS social participation domain

The ANCOVA showed a significant change in SIS perceived recovery over time with no differences between expressers and non-expressers. I utilized Microsoft Excel⁶ to calculate $t$-distribution with “=TDIS(mean diff/std error,df,tails)” used as the formula with new alpha set at 0.0025/3 = 0.0008. Baseline to six months and baseline to 12 months were significant for both expressers and non-expressers. There was no difference between six and 12 months.

When testing for the second part of the hypothesis, there were a total of 97 SSs who were categorized with mild, 35 with moderate, and one with severe stroke following hospital discharge. I combined the moderate and severe categories for the purposes of statistical testing. The chi square test showed no significant difference between expressers and non-expressers related to stroke severity.
Sixteen SS sustained fall-related AEs, requiring emergency care or hospitalization, during the course of the 12-month original study. The chi square test showed no significant difference between expressers and non-expressers related to fall-related AEs. There were also no significant differences between expressers and non-expressers related to side of stroke. See Table 4 for distribution of stroke severity, AEs, and side of stroke between expressers and non-expressers.

Table 4. Side and Severity of Stroke; Number of Adverse Events

<table>
<thead>
<tr>
<th></th>
<th>L CVA (n)</th>
<th>R CVA (n)</th>
<th>Mild NIHSS (n)</th>
<th>Mod/sev NIHSS (n)</th>
<th>No fall AE (n)</th>
<th>Fall AE (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-expressers</td>
<td>43</td>
<td>51</td>
<td>74</td>
<td>29</td>
<td>92</td>
<td>11</td>
</tr>
<tr>
<td>Expressers</td>
<td>9</td>
<td>20</td>
<td>23</td>
<td>7</td>
<td>25</td>
<td>5</td>
</tr>
<tr>
<td>Totals</td>
<td>52</td>
<td>71</td>
<td>97</td>
<td>36</td>
<td>117</td>
<td>16</td>
</tr>
</tbody>
</table>

CVA = Cerebrovascular accident
AE = Adverse event
DISCUSSION

This study addressed the expressed viewpoints about falling and general mobility of SSs and their spouses, using both qualitative and quantitative methods. I used the quantitative measures and analyses to determine if the people who expressed these issues were different pathologically or functionally after the stroke than those who did not express these issues. Because the short semi-structured interviews were general in nature and not specific to the topics of falling and mobility, I thought the expressers could have represented a unique sub-population from the original study. These 30 expressing couples mentioned falling in addition to, or instead of, issues such as finances, work, and medications. These SSs and CGs candidly shared their positive and negative viewpoints about falling and mobility.

Although there were few significant differences in the quantitative outcomes between expressers and non-expressers, there were some interesting tendencies, illustrated in Figure 2. The expressers tended to be somewhat older, have more days between stroke onset and baseline testing, and showed slightly lower total FIM, SIS combined physical function, social participation, and perceived recovery means, medians, or both at 12 months, than non-expressers. Over time, both groups improved significantly in their total FIM, SIS combined physical function and social participation domains, and these are results compatible with typical recovery following stroke.

The mean GDS-15 of non-expressers improved more than that of the expressers, as shown in Figure 2, with the non-expressor improvement being a significant change. However, the medians of the non-expressers’ GDS-15 improved while those of the expressers worsened slightly. These patterns are consistent with the expressers commenting
about depression and disappointment from three through 12 months. Depression is important
to recognize as it may cause decreased attention to the environment, or alternatively, falling
may contribute to a more sedentary lifestyle with resultant depression. SSs who fall have
higher levels of depression. Falling can also add to the fear of falling, and both SSs and
their spouses discussed this fear. The CGs also discussed how fear led to their leaving the
house less, needing to supervise the SS, and both CGs and SSs reported how conflicts arose
related to the SSs wanting more independence and less supervision. The fear of falling can be
related to depression or anxiety in the SS and may again, lead to a less active lifestyle, which
can further contribute to a progressive functional decline and resultant increased
disability.

The original study included 53% SSs with right and 39% with left hemispheric
strokes. However, in this study, 67% of the expressers had right hemispheric strokes. SSs
with right hemispheric strokes tend to have problems with poor judgment and visual
perceptual deficits that can interfere with their ability to walk and perform ADL without
falling. Some of the CG comments addressed frustration when the SS walked without
needed assistance or equipment. In contrast, some of the SS comments did not seem to reflect
the potential seriousness of falling. These viewpoints may be related to the large percentage
of expressers with right hemispheric damage. The issues of depression, fear of falling, and
differences in SS and CG perceptions of need for equipment illustrate how the GDS-15 and
side of stroke data can be triangulated with the qualitative data and how each type of data can
complement the other in a mixed model design.

Few mixed model design studies exist in the literature, and none includes expressed
viewpoints about falling. The qualitative results about general mobility and circumstances
and mechanisms of falling in this study are consistent with other studies in the literature.\textsuperscript{2,3,6,8,17-19} However, the SSs and CGs in this study expressed more issues starting at three months, even though on average, this interview time was approximately six months after the stroke. The timing of these viewpoints is in contrast to King and Semik’s study,\textsuperscript{19} in which the CGs discussed how the initial hospitalization and first three months after discharge were the most difficult for them. The first few months are also problematic when the stroke-related deficits are most pronounced and caregiving demands are highest.\textsuperscript{1,19,41,42}

**Study Limitations**

One of the limitations of this study is that AEs are the only consistent fall-related data available from the original study, and this excludes non-injurious falls. Although not a significant difference, 17% of the expressers sustained fall-related AEs, as compared to 11% of the non-expressers. Baseline testing occurred immediately after enrollment to the original study, which could have been as early as 12 days or as late as 12 months post stroke, and any falls occurring prior to study enrollment were missed. NIHSS scores during acute hospitalization may have allowed more discrete categorization of stroke severity, as early scores were likely different than those recorded at baseline, usually soon after discharge from in-patient rehabilitation. Another limitation is that the original study’s outcome measures did not include specific functional balance or balance confidence measures.

Additionally, when studying the phenomenon of falling within the stroke experience, a qualitative researcher would typically develop in-depth interview questions related to falling and mobility, with probes to add further breadth of the information.\textsuperscript{22} This study analyzed data previously collected through an original study, and the questions asked of the
SSs and spouses were purposely general in nature. The non-expressers may not have mentioned issues related to falling and mobility because they were not specifically asked. They may have shared similar viewpoints as the expressers, but did not immediately think of them or ran out of time during the short recording.

Conclusions

In summary, falling and general mobility are significant issues of SSs and their spousal CGs. SSs and CGs discussed issues related to time, sense of loss, and life changes since the stroke. The SSs and spouses discussed how important it is to have a “keep on stepping” or “keep trying” attitude, the need for patience, and continued hope for physical and cognitive recovery. The expressers and non-expressers did not differ in their functional levels, perception of physical function, social participation, perceived recovery, and depression at baseline, six and 12 months. Both expressers and non-expressers improved over time in each of those areas, except for expressers not improving significantly in depression scores. The expressers and non-expressers also did not differ in the severity and side of stroke and number of fall-related adverse events.

This study can help PTs and other healthcare providers to develop increased insight into SS and spousal experiences after hospital discharge. With this knowledge, PTs involved in the more acute phases of rehabilitation can help better prepare CGs and SSs for potential issues that may arise after discharge, such as falling, fall prevention, and transferring from the floor. Others involved in the more sub-acute or wellness aspects of stroke recovery may be more likely to address fall risk and history in order to focus interventions more appropriately.
For future research, studies that triangulate qualitative comments about falling with quantitative measures of functional balance, balance confidence, and accurate number of falls are recommended. A more detailed qualitative study, including in-depth interviews, participant focus groups, and member checking, can add to this growing field of study. Larger sample sizes may allow noted tendencies to become statistically significant.
REFERENCES


20. Ostwald SK. Intervention for stroke survivors and spousal caregivers, Grant funded by National Institute for Nursing Research National Institutes of Health (R01 NR005316), funding period 2001-2006, with no cost extension 2007.


APPENDIX A

BRIEF INTERVIEW
APPENDIX A

BRIEF INTERVIEW

Baseline (same instructions provided to stroke survivor and spouse):

I’d like to hear your thoughts about (spouse’s name) in your own words and without interrupting you with any questions or comments. When I ask you to begin, I’d like you to speak for 5 minutes, telling me what kind of a person (spouse’s name) is and how the two of you get along together. After you have begun to speak, I prefer not to answer any questions. Are there any questions you would like to ask me before we begin?

3-month follow-up with stroke survivor (spouse in italics, when different):

I’d like for you to tell me how things are going for you now. Please tell me about your experiences recovering from a stroke *(as a caregiver during the last 3 months)*. What are the things that have been stressful for you and how do these things make you feel? How have you coped with difficulties? How has your life changed? Are there some lessons that you have learned that you would like to share with other stroke survivors who are just coming home from the hospital *(other spouses who are just bringing their spouses home from the hospital)*?

6 and 9-month follow-up with stroke survivors (spouse in italics):

I’d like for you to tell me how things are going for you now. Please tell me about your experiences recovering from a stroke *(experiences as a caregiver)* during the last 6/9 months. What are the things that have been stressful for you and how do these things make you feel? How have you coped with difficulties? How has your life changed? Are there some lessons that you have learned during the last 6/9 months that you would like to share with other stroke survivors *(spouses)*?

12-month follow-up with stroke survivors (spouse in italics):

I’d like for you to tell me how things are going for you now. Please tell me about your experiences recovering from a stroke *(experiences as a caregiver)* during the last year. What are the things that have been stressful for you and how do these things make you feel? How have you coped with difficulties? How is your life different than you thought it would be one year after the stroke? Are there some lessons that you have learned during the last year that you would like to share with other stroke survivors *(spouses)*?
APPENDIX B

INTERNAL REVIEW BOARD APPROVAL LETTERS
Form 4: IRB Approval Form
Identification and Certification of Research Projects Involving Human Subjects

UAB's Institutional Review Boards for Human Use (IRBs) have an approved Federalwide Assurance with the Office for Human Research Protections (OHRP). The UAB IRBs are also in compliance with 21 CFR Parts 50 and 56 and ICH GCP Guidelines. The Assurance became effective on November 24, 2003 and expires on February 14, 2009. The Assurance number is FWA000305960.

Principal Investigator: KELLEY, CAROLYN
Co-Investigator(s):
Protocol Number: X070608004
Protocol Title: Falling and General Mobility Viewpoints of Stroke Survivors and Spousal Caregivers

The IRB reviewed and approved the above named project on 6/15/07. The review was conducted in accordance with UAB's Assurance of Compliance approved by the Department of Health and Human Services. This Project will be subject to Annual continuing review as provided in that Assurance.

This project received EXPEDITED review.
IRB Approval Date: 6-15-07
Date IRB Approval Issued: 6/15/07

Marilyn Doss, M.A.
Vice Chair of the Institutional Review Board for Human Use (IRB)

Investigators please note:
The IRB approved consent form used in the study must contain the IRB approval date and expiration date.

IRB approval is given for one year unless otherwise noted. For projects subject to annual review research activities may not continue past the one year anniversary of the IRB approval date.

Any modifications in the study methodology, protocol and/or consent form must be submitted for review and approval to the IRB prior to implementation.

Adverse Events and/or unanticipated risks to subjects or others at UAB or other participating institutions must be reported promptly to the IRB.
MEMORANDUM

TO: Carolyn Kelley
FROM: IRB
DATE: June 26, 2007
SUBJECT: IRB Exempt Application
TITLE: “Falling and general mobility viewpoints of stroke survivors and spousal caregivers”

This application is approved.

Any changes in the study must receive review and approval prior to implementation unless the change is necessary for the safety of subjects. In addition, you must inform the IRB of adverse events encountered during the study or of any new and significant information that may impact a research participant’s safety or willingness to continue in your study.

William P. Hanlen, Ed.D.
Chairperson
APPENDIX C

EXAMPLE OF ORGANIZATIONAL STRATEGY FOR CODED PHRASES RELATED TO BALANCE AND FALLING
APPENDIX C

EXAMPLE OF ORGANIZATIONAL STRATEGY FOR CODED PHRASES RELATED TO BALANCE AND FALLING

Following each quotation is the participant number [4 digits], S (survivor of stroke) or C (spousal caregiver), and time of quotation (0=baseline, 3, 6, 9, or 12 months [mos]). I color highlighted the first few characters within each quotation in the original list of quotations, according to time, to enable me to subsequently put them into chronological order. The following highlights have been used: gray=baseline, green=3 mos, purple=6 mos, aqua=9 months, yellow=12 months. If an issue was expressed in more than one time period, the respective different colors were used within the same quotation. This method facilitated my organization of the qualitative data.

SS comments pertaining to balance
1. dizzy 1112s3
2. After the stroke you, you find that your balance is out of kilter, out whack, and that causes you to have some physical problems in walking, even in sitting. 1011s3
3. So one of the consequences is, is loss of balance, but also one doesn't normally think about how to, to recover from a loss of balance. That's not something that we do every day so it's, it happens to you and it's rather unexpected. 1011s3
4. balance is much greater 1084s3
5. dizziness, imbalance, uh, kind of foggy head 1112s3,9
6. continued lack of balance 1112s3
7. adding up to dizziness at times 1112s3
8. fogginess in my head 1112s3
9. I'm still a little unsteady on my feet and this has been present ever, ever since I've been here. 1017s3
10. balance problems coming along 1010s3
11. I prefer just to, walk behind the basket because the basket, just holding onto the basket is some support. 1028s6
12. in Tai Chi I developed the strength in my balance in way that the average people don't 1039s6
13. I am starting to stumble and I don't understand why I am doing that 1084s6
14. The main thing is my balance; I still have problems with my balance. Of course the leg is almost useless, I drag it more than I can lift it up. 1010s6
15. I'm now walking around, uh, uh pretty, pretty freely with balance being a big, big issue. But then someone told me balance with old people was an issue anyway, but it's not mine, mine is more than that. 1021s6
16. the dragging of the foot, my right foot where I had the stroke. Sometimes it seems to grab onto whatever is in the way and uh cause me to try to trip although fortunately to date I haven't fallen. 1021s6
17. been able to jump around or do something to keep my balance 1021s6
18. I feel safe, drunk…if I have to walk a straight line, I don't think I could 1159s9
19. well the most difficult I've had in the last 9 months in the recovery process is dealing with my left leg, the uh strength is not there. It's sometimes difficult for me to walk
and when I stand up it takes me a few minutes to regain my balance and be able to walk.

20. got to be careful that I don't lose my balance while I'm doing some stuff.

21. can lose balance.

22. You're gonna be holding me up all night long, because that's just the way I feel.

23. you're gonna have to hold me.

24. we might not need a shopping cart, but I need it to lean on.

25. need your good balance.

26. catch it or stumbling.

27. left foot doesn't work as good as my right, catch it or stumble.

28. not as steady as I think I am.

29. still have to be careful.

30. caught and ....my toe.

31. [reflecting back on therapy] What's your problem? I can't walk. Why aren't you walking? Oh, I don't know. Why don't you get up and walk? She used to grab me from the belt, and she said, Come on. I'm like, Oh, God. (laughs) You don't know what it fells like. (laughs) God, don't let me go. (laughs) She aid, I'm no gonna let you go. I said, I feel like you're a weakling.

32. I don't like it [therapy] at all. I'd rather walk with a cane or walk with a walker or something and then I could learn to walk. But I can't learn to walk the way they want me to walk. I don't have enough support. So consequently, I'm always thinking I'm going to fall.

33. you might get...fall into the stove [spouse told her].

34. bumping up against the walls and whatever, you know, 'cause-and I wasn't using the walker because I had fallen twice on it, and I knew that the walker was going wherever I was going. And I felt better walking close to the wall, and if I did, you know, I had something. And, uh, they would even run, if I got up, as soon as I got up, they'd run, Okay, Grandma, put your arms on my, put your hands on my shoulders. And they'd walk in front of me.

35. fell off edge of bed while dressing.

36. frustration – falling and not being able to get up.

37. got to get someone to come and help you maneuver in without losing your balance and striking your head on sharp objects like bathtubs.

38. haven't fell, I've come close to falling.

39. balance problems but, balance problems are coming along. Uh, you know I fell a couple of times when I first got home from the hospital, or from TIRR, I fell a couple times.

40. I just slid off that rock and fell to the ground.

41. It goes along [golfing] to grab my belt in case I start to fall.

42. started walking and they wouldn't, wouldn't bring me a cane or anything so I started walking by leaning, to go to the bathroom I would lean against the wall. That's you know your, your balance. Doing all right unless you fall. But the idea was I did want
to be on a cane all, most of the time. I'm on a cane yeah but I'm not, not married to that cane. 

43. cane in case SS falls

44. we were coming out of the car and I was walking on the street, coming up the curb, and I didn’t have my balance on the curb, but I had nothing to hold onto. So I fell backwards on the street. I thought I’d busted my elbow, but it was fine, it ended up being the humerus.

45. Keep stepping no matter what. You fall down you get up and keep stepping. No matter how many times you fall down, you just go again. You'll get it right eventually.

46. bout that fall, I think I'm all right, I had a fall about ... uh I stopped recuperating on this foot.

47. getting out of that chair into my wheelchair, and I missed it. (laughs) So I broke my hip.

48. But B helps me an awful lot and, and I'm pretty much on my own although the doctors have put fear in him that, that I'm going to fall. And so he still helps me at bath time because he's afraid that I'm gonna slip and its not a walk-in shower. It's a tub with a shower over it. We do have the, the transfer bench in there but he's still afraid that I'm gonna fall. So he, he goes in with me to shower because he doesn't want me to fall. They have somehow gotten it in his head that if I fall it would be fatal. So he's kind of on edge that way about falling.

49. lost my balance

50. bruising all over

51. bruises with blood thinners

52. I lost my balance. And I went to the side, I hit the wall. And it's padded, I mean, you know, whatever - (Speaks to Caregiver) Tell her how bruised I was, I had bruises all over my arm, my hand, my knees and whatever. And I told him, I said, and I was even on the recliner, so I didn't even fall full body, you know. And I said, But God dam, look at all the bruises I have, but I'm saying it's the blood thinners and whatever that keep my bruised, you know, but you would have thought T. knocked me against the wall and did whatever. And that was just, I said, he says, Are you okay? I said, Well, I was by myself, I said, I sat there for awhile 'cause it hurt. I says, But I was able to get up.

53. I'm scared to fall, I'm gonna break an arm or something and it's gonna be worse if I do. So whether he gets mad or not about, you know, he's gonna help me

54. split the back of my head

55. I hit the floor (Laughs) like somebody had just help me up here in the air and dropped me.

56. bruise on hip

57. every time I get to thinking I'm doing good, then I'll fall down

58. the most difficult part was getting over the uh fracture that I had from the fall that I had when I was, when I had a fall at Wal-Mart. I fractured my left side and my, my hip and so that was the most difficult thing. I had to make uh about a four-month recovery out of that and I'm just now getting over that, I don't feel the pain anymore.

59. liable to go slip and fall
I'm always scared that if I'm gonna fall, I'm gonna break something. And then I'm going to be in a worse condition. 

I stumbled and fell. 

could have been most easily hurt than I was, but I was minimally affected by it, physically. 

hadn't fell in a long time. I went to all-black, black, like that, close your eyes. 

They had great hope for me, and I screwed it up with the fall. (Laughs) 

Actually before the fall I had, I had, as I said I had adjusted to different defects that I had. But uh I hadn't uh stand as well as I should have. I hope that when I get well physically I will go back to where I was. I know my defects. We walk everyday, I'm trying to get back. 

I fell in the bedroom I was, my son wasn't here and I went there and I tripped over the bed, the part of the bed on the bottom. 

There was a hole there, but it was covered with grass so I couldn't see it. I tried to, I went to the side to go around it and I hit that hole and flipped and fell in the road. 

I let my knees down on the floor. And uh I didn't call her to help me and I finally walked around and I got back up in my chair over there. 

I know that it could be worse and I just go ahead and walk when I can and when I fall, I fall. I fell down at church Sunday morning (laughs) going in and uh there's some men that were already in the church uh went down, they were just in the hallway you know and looked out the doors. They ran out there you know to help me, we got back in they said are you all right, are you all right? Of course I am, I'm doing that on purpose, I want to see how many friends I've got. 

cut my hand, found my skin just peel right off. 

Fortunately didn't break my arm. 

try not to fall, guide yourself. 

CG reports of SS fall-related injuries

But I don't walk out of here and not let her know where I am. 'Cause she will try to help herself. That's how she got that scar...she got out of bed to help herself, and she fell and hit her head. And so I told her, Don't do that anymore. 

broke her hip, uh, trying to get from the chair to the wheelchair. 

get back into the routine of what she was before she broke her hip. 

When he fell it was like a car bomb going off and we jumped up and staggered around and went in there and he had fallen first up against his antique sugar bowl and busted the glass and then he fell back on the chest of drawer with sort of iron prong handles and ripped the top of his ear off and uh broke his [paralyzed] hand and he was laying there just blood was running out of him and we couldn't see because he was laying on that side of his head up against that chest of drawer. We thought his head was bleeding big time so the ambulance got there right away and we followed the ambulance and they, the coroner was on duty he stitched his ear up. 

quite done in, after cleaning up all the blood. 

called my doctor here and I said I need you to help me, he's fallen, he's hurt himself, I'm bringing him back. I need you to put him in the hospital.
I realize that sometimes it's two, two steps forward and one step back because like he had the fall and then that uh took us back a while and then also then he had the seizures uh from the scar tissue from the stroke and that took us back a while. So I guess um another thing is that we've learned not to be discouraged by setbacks and take sometimes the benefits that they've given us such as extra therapy in that and see the good in them.

CG comments of SS non-injurious falls

80. I don't want him to fall and get hurt and have to go back, backslide
81. always falls face up
82. the way he fell, it was, like smothering
83. He fell out of bed and, and I knew that would disturb my sleep and I couldn't get him up so we just made him comfortable on the floor and he slept on the floor until I could get him up that morning and then I couldn't get him up so with the rocker, so I came in here to feed the cats and he was up.
84. I stay there uh the largest fear I guess I have is that he tries things that he shouldn't try and he'll sometimes fall and then it's a problem for me to get him up and I have not been able to impress on him that that's making more problems for me then his deciding that he wants to go across the room and do something without his walker or whatever.
85. offered to stay with D. because at this point he is absolutely unsafe to leave alone. Um I don't mean to be insulting to him in anyway, but he overestimates sometimes his strength or his ability. He can make, he does all of his transfers himself unless he's extremely tired or in really excruciating pain (clears throat) but he needs somebody there to make sure that he doesn't fall forward. He cannot do those transfers without somebody there. Um in fact he did once and fell, so. It, it's been demonstrated that, to me that he can't be alone.
86. We had uh, few falls that scared, scared us and, but we weathered them together and things got better, he's not falling as much as he was. I think, I'm still a little unsure of myself when it's just him and me here (sniffs).
87. first night we got home he fell in the bathroom and I had to call a neighbor to help him up
88. fallen other times and needed to call neighbors to get him up
89. has not gotten hurt with falls
90. Then he fell twice the first few days so the therapist taught him how to get out of bed. And he never did it again because he was doing wrong to get up, out of bed.
91. fallen across that bench by the front door and I couldn't do anything there, so he [son-in-law] was home then and I got him to come over and pick him up.
92. Two other times he fell in here and he had to lay on the floor about 45 minutes because fortunately again it would be almost time for my son-in-law to get home from work so I would just take pillows and quilts and make him comfortable, let him wait there.
93. when E. takes a fall he just like goes completely apart and he decides he can't do anything, so that's a battle. Trying to keep him motivated to work harder.
94. as far as caregiving, he doesn't really require much, except I worry, you know, all the time, is he gonna fall
95. SS fell when tired on trip 1027c9
96. he does a lot more physically by himself, but he kind of defies it in walking without
    his walker and he takes his chances and he will tell you well I, I need to do this. No
    he doesn't need to do that, he can walk with his cane, he can walk with the walker,
    why take chances and he'll say well I know I'm going to fall sooner or later. Well you
    don't have to if you use your walker and you use your cane. Uh but other, you know
    other than that, and he's always been kind of strong willed and stubborn. 1051c9
97. few falls, you know, nothing major 1094c12
98. I'm not afraid anymore that he might fall or slip or hurt himself, he is very, uh, he's
    very, uh, careful how he walks, he gets in and out of the car, and out of the house, and
    sits outside and all. 1056c12
99. go to the bathroom and he fell 1041c12
100. has fallen about 9 times 1041c12
101. this fall set him back 1017c12, 1027c12
102. afraid of falling, just not real willing to even try to dress himself or put his shoes on
    1027c12