Falls in older patients with cancer

Schroder Sattar\textsuperscript{a}, RN, PhD, Shabbir Alibhai\textsuperscript{b}, MD, MSc., Sandra Spoelstra\textsuperscript{c}, RN, PhD, Martine Puts\textsuperscript{d}, RN, PhD

\textsuperscript{a} College of Nursing, University of Saskatchewan, Regina, Canada
\textsuperscript{b} Department of Medicine and Institute of Health Policy, Management, and Evaluation, University Health Network and University of Toronto, Toronto, Canada
\textsuperscript{c} Kirkhof College of Nursing, Grand Valley State University, Michigan, U.S.A.
\textsuperscript{d} Lawrence S. Bloomberg Faculty of Nursing, University of Toronto, Toronto, Canada
Disclosure

I do not have any conflict of interest to declare.
Falls are a major issue among older adults (OA)

- 1/3 of community-dwelling OA fall each year
- Leading cause of hip fractures, nursing home placement
- Lead to functional decline and further falls
- 6th leading cause of death in OA

CDC (2014); Ensrud et al. (2009); PHAC (2005)
Falls in older patients with cancer are of added concern due to cancer and its treatments

- Bone malignancies and bone metastases
- Radiation therapy
- Aromatase inhibitors & ADT
- Mucositis & volume depletion
- Myelosuppression
- Sarcopenia
- Peripheral neuropathy

Ward et al. (2014); Luciani et al. (2012); Elliott et al. (2011); Hadji et al. (2009)
SO WHAT

- Population is aging
- Cancer is an age-associated disease
- With aging of population and increasing of older patients, oncology teams will be increasingly confronted with issues related to falls
LITERATURE REVIEW

• Fall rates up to 78% over 3 months
• Few data on circumstances of falls
• No data on how falls impact cancer treatment in OA

Sattar et al. (2016)
RESEARCH QUESTIONS

1. What is the impact on cancer treatment in community-dwelling older cancer patients?
2. How do oncologists assess and manage falls?
3. What are the circumstances of falls in this population?
4. How do older adults with cancer report falls?
5. What is the level of fear of falling (FOF) in this population?
6. What are the perspectives of oncologists in terms of older patients’ fall reporting?
METHODS

• A cross-sectional, mixed-methods study using convergent parallel design

• Data collection included:
  • Patient self-reported survey with embedded open-ended-interview
  • Chart review
  • Oncologist interview
METHODS

- Research questions
  - Quantitative data collection
    - Quantitative data analysis
      - Descriptive statistics
  - Qualitative data collection
    - Qualitative data analysis
      - Thematic analysis
- Merging/convergence of both sets of results
- Interpretation of the converged results
SAMPLE SIZE AND INCLUSION AREA

- n=100
- Community-dwelling
- Age ≥ 65
- Hematological malignancies or solid tumours – EXCEPT brain tumours/brain metastases
- Experienced at least one fall in the past 12 months (while receiving treatment)
- Estimated life expectancy of at least 6 months
- Able to communicate in English
- No significant cognitive impairment (as per oncologist)
PATIENT SELF-REPORT SURVEY AND OPEN ENDED INTERVIEW

- Socio-demographic information
- Fall history & circumstances – based on American Geriatrics Society (AGS) Fall Assessment Guideline
- Injuries and impact on treatment
- How falls are reported
- Use of walking aid
- Number of medications
- Functional status – Older Americans’ Resources & Services (OARS) Instrumental Activities of Daily Living Scale (IADL)
- Fear of falling – Fall Efficacy Scale - International

Yardley (2006); Fillenbaum & Smyer (1981)
CHART REVIEW

- Cancer and past cancer treatment
- Comorbidities
- Presence of depression
- Treatment-related peripheral neuropathy
- Documentation of fall assessment/fall reported/actions by oncologists in response to falls
ONCOLOGIST OPEN-ENDED INTERVIEW

• Impact on treatment (if applicable)
• How falls are assessed during oncology clinic appointments
• How falls are managed by oncologists (when reported to oncologist)
• Oncologist’s perspective on older patients’ fall reporting during clinic visits
DATA ANALYSIS

Quantitative data

• Descriptive statistics (means, frequencies, and proportions) to examine sample characteristics, impact of falls, circumstances of falls, FOF, fall assessment, management and reporting. Analyses were conducted utilizing SPSS version 23

Qualitative data

• Older adult and oncologist interviews were analyzed using thematic analysis following the 6-phase step-by-step guide as outlined by Braun & Clarke (2006)
RESULTS
## Participants Characteristics

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<table>
<thead>
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<tbody>
<tr>
<td><strong>n=100 (response rate 92%)</strong></td>
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<tr>
<td>Median age</td>
<td>76 (range 62-95, SD 7.5)</td>
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<tr>
<td>% male</td>
<td>62%</td>
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<tr>
<td>Years of education &gt;13</td>
<td>57%</td>
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<tr>
<td>Living alone</td>
<td>18%</td>
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<tr>
<td>Have at least one functional limitation</td>
<td>66%</td>
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<tr>
<td>Cancer stages</td>
<td>Stage III &amp; IV predominated (81%)</td>
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<tr>
<td>Most common cancer site</td>
<td>Prostate (34%)</td>
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</table>
FALLS AND INJURIES

- A total of 168 falls were recounted and described by the 100 participants
- Injurious fall rate: 45%
- Serious injuries (e.g. bone fracture and head injury): 13%
- ≥ 2 falls: 56% recurrent fallers
## TYPES OF INJURIES

<table>
<thead>
<tr>
<th>Injury type</th>
<th>Out of a total of 76 injurious falls</th>
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</thead>
<tbody>
<tr>
<td>Bruise</td>
<td>24 (32%)</td>
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<tr>
<td>Bone fracture</td>
<td>19 (25%)</td>
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<tr>
<td>Laceration</td>
<td>12 (16%)</td>
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<tr>
<td>Open wound bleeding</td>
<td>8 (11%)</td>
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<tr>
<td>Abrasion</td>
<td>6 (8%)</td>
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<tr>
<td>Sprain</td>
<td>4 (5%)</td>
</tr>
<tr>
<td>Retinal tear</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>Cranial bleed</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>Broken tooth</td>
<td>1 (1%)</td>
</tr>
</tbody>
</table>
Q.1 IMPACT OF FALLS ON CANCER TREATMENT

Five patients (7%) experienced impact on cancer treatment

• Interruption of treatment n=3 (4%)
• Stopping of treatment n=1 (1%)
• Dose reduction n=1 (1%)
Q.1 IMPACT OF FALLS ON CANCER TREATMENT

• The 5 cases of impacted treatment involved 4 oncologists
• 2 did not participate
• → Input from 2 oncologists
  • Falls led to interruptions in treatments
  • However, subsequent impact/effect on the patient’s disease trajectory and prognosis was minimal
Q.2 HOW FALLS ARE ASSESSED AND MANAGED IN ONCOLOGY CLINICS

• 13/14 oncologists do not routinely ask about falls
• Corroborated by chart review:
  • Only 11% of participants’ charts had documentation of assessment of falls
  • Out of the 72 falls reported to oncologists by patients, only 46 (64%) were documented on their chart
• Key theme: Necessity and feasibility
• However, when a falls is reported:
  • 37 (56%) asking circumstances of falls.
  • 10 (15%) performing physical examination
  • 9 (14%) making referrals

“The issue is having the time to ask about so many different possible symptoms.” (Oncologist X)
Location and timing:

- 61 (36%) of the falls occurred at home
- The majority of the falls (47%) occurred in the afternoon

<table>
<thead>
<tr>
<th>Location</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Bedroom</td>
<td>10%</td>
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<tr>
<td>Bathroom</td>
<td>12%</td>
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<tr>
<td>Staircase</td>
<td>9%</td>
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<tr>
<td>Living Room</td>
<td>14%</td>
</tr>
<tr>
<td>Sidewalk curb</td>
<td>10%</td>
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</tbody>
</table>
Q.3 CIRCUMSTANCES OF FALLS

Most common activities:

• Walking (31%)
• Negotiating curb/step (10%)
• Going up/down stairs (9%)
• Changing position (getting up from sitting or from standing to sitting) (8%)
• Turning (4%)

• Among those whom use of walking aid was normally indicated (n=50), 19 of the falls (38%) involved not using walking aid
CIRCUMSTANCES OF FALLS

Physical sensations:

• Many of the falls (45%) were not accompanied by any particular physical sensations.

• Most common unusual sensations prior to falling:
  • Feeling weak (16%)
  • Dizzy (12%)
  • Unsteady/difficulty balancing (11%)
CIRCUMSTANCES OF FALLS

Example of other activities:

• Carrying large, bulky objects going up/down stairs (e.g. suitcase, sewing machine) (n=2)
• Bicycling despite feeling dizzy during active chemotherapy treatment (n=1)
• Chasing after one’s runaway cat (n=1)
• Venturing out to feed birds in icy conditions (n=1)
• Climbing up a ladder outdoors (n=1)
• Climbing on a stool to reach high shelf (n=1)
CIRCUMSTANCES OF FALLS

Key themes:
• Cognitive appraisal of fall
• Opportunity for health-teaching re. fall safety

“I thought it was a stupid thing on my part too.”
(Female, 88, breast cancer)

Caregiver: “…..five weeks ago, he wanted to go feed the birds, he wanted to walk out, and I told him, “look, it’s icy out there, but no he had to feed the birds…… and so he fell on the ice. He took two steps from the door and fell on the ice. So a lot of stuff he doesn’t reason and doesn’t, um, you know, sort of think things through.”
(Male, 71, pancreatic cancer)
Q.4 PATIENTS’ FALL REPORTING TO CONCOLOGIST

Patient survey: 72 out of 168 falls (43%) were not reported to oncologists.

Key Themes: Perception of Fall; Communication

- Belief that falls are something that comes with aging/no big deal
- Not the cancer specialist’s job to hear about falls
Q.5 FEAR OF FALLING IN THIS POPULATION (POST-FALL CONTEXT)

• 55 participants (55%) reported a high level of FOF (mean score 26.41 ± 10.44) based on the FES-I cut-off.

• Many remained active, and described being extra careful or taking up strategies (e.g. enlisting work-out buddy, moving furniture out of the way) since the falls.
Q.6 ONCOLOGISTS’ PERSPECTIVE: OLDER PATIENTS’ FALL REPORTING

Key Themes

“Not forthcoming”
Older patients rarely mention their falls unless directly asked.

“They wouldn’t report it unless we ask.” (Oncologist X)

“They often minimize it.” (Oncologist Y)

“Downplaying falls”
Minimize their falls when subject does come up.
SUMMARY OF FINDINGS

Falls.....

- Were not commonly reported by older patients to oncologists
- Were rarely assessed by oncologists
- Could potentially impact cancer treatment regimen
- Many reported falls were not documented
- Circumstances seemed similar to those in general geriatric population
- High FOF ≠ activity restriction
- Older patients often did not see their family physicians regularly or had not visited their family physician since their cancer diagnoses
LIMITATIONS

- Referral bias
- Recall bias
- Cross-sectional assessment of FOF
- Single centred recruitment
- Small sample size
- Certain fall risk factors not explored
IMPLICATIONS FOR FUTURE RESEARCH

• Further examination of impact of falls using multi-site recruitment and larger sample sizes
• Capture patients of more diverse health states, education, race, and socioeconomic levels
• Prospective studies to more adequately capture circumstances of falls, physical sensations prior to falls, evolution of FOF
• Studies to explore risk factors unique to cancer (e.g. peripheral neuropathy, cancer pain).
IMPLICATIONS FOR CLINICAL PRACTICE

• Ask about falls at each appointment
• Health teachings
  • Normal and relatively riskier activities within the context of cancer treatment and side effects
  • Techniques to “fall safely”
  • Exercise promotion
• Be mindful of language
• Simple tests can be administered while patients waiting to be seen
THANK YOU
THE FALL EFFICACY SCALE-INTERNATIONAL (FES-I)

- Measures fear of falling when undertaking easy AND more challenging physical and social activities
- 16-items, rated on a 4-point Likert scale (from 1 = not at all concerned to 4 = very concerned)
- Scores >23 indicate high concern about falling
- Demonstrated excellent internal consistency (Cronbach’s alpha 0.96) and test-retest reliability (ICC = 0.96) in community dwelling population
- Has been used on different samples in various countries including in older cancer populations in Canada (84).
- More socially acceptable - older individuals are more likely to disclose

Schwenk (2016); Delbaere et al. (2010); Kempen (2007); Yardley (2005)
## CONSOLIDATED CRITERIA FOR REPORTING QUALITATIVE RESEARCH (COEQ)

### COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

<table>
<thead>
<tr>
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<tr>
<td>Domain 1: Research team and reflexivity</td>
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<tr>
<td>Personal characteristics</td>
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<td>Interviewer/facilitator</td>
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<td>Which author/s conducted the interview or focus group?</td>
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<td>Credentials</td>
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<td>What were the researcher’s credentials? E.g. PhD, MD</td>
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<tr>
<td>Occupation</td>
<td>3</td>
<td>What was their occupation at the time of the study?</td>
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<tr>
<td>Gender</td>
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<td>Was the researcher male or female?</td>
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<td>Experience and training</td>
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<td>What experience or training did the researcher have?</td>
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<td>Relationship with participants</td>
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<tr>
<td>Relationship established</td>
<td>6</td>
<td>Was a relationship established prior to study commencement?</td>
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<tr>
<td>Participant knowledge of</td>
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<td>What did the participants know about the researcher? E.g. personal</td>
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Booth et al. (2014)
**GRAMMS- FRAMEWORK USED TO GUIDE THIS STUDY**

**Good Reporting of A Mixed Methods Study (GRAMMS)**

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Section: page</th>
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<tbody>
<tr>
<td>Describe the justification for using a mixed methods approach to the research question</td>
<td>Design: p8-9</td>
</tr>
<tr>
<td>Describe the design in terms of the purpose, priority and sequence of methods</td>
<td>Design: p10-14</td>
</tr>
<tr>
<td>Describe each method in terms of sampling, data collection and analysis</td>
<td>Data collection: p11-22</td>
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<tr>
<td></td>
<td>Data analysis: p23-26</td>
</tr>
<tr>
<td>Describe where integration has occurred, how it has occurred and who has participated in it</td>
<td>Design: p12</td>
</tr>
<tr>
<td>Describe any limitation of one method associated with the present of the other method</td>
<td>Strengths and limitations: p23-24</td>
</tr>
<tr>
<td>Describe any insights gained from mixing or integrating methods</td>
<td>Discussion: p157</td>
</tr>
</tbody>
</table>
QUALITATIVE ANALYSIS TREE - OLDER PATIENTS AND THEIR FALLS

Older patients and their falls

Perception of fall
- Funny (light-hearted attitude)
- Not a fall
- Accepting that oneself is aging
- Extra cautions
- They didn’t ask

Communication
- Not oncologists’ job
- Not seeing family doctor
- Minor thing not worth bringing up
QUALITATIVE ANALYSIS TREE - CIRCUMSTANCES OF FALLS

- Circumstances of falls
  - Cognitive appraisal of falls
    - Self-blaming: chastise oneself for causing falls; did not talk about one's physical capacities
  - Opportunity for health teaching re. fall safety
  - Mobility-related fall reasons
    - Tripping
    - Bad turns
    - Not using walking aid
QUALITATIVE ANALYSIS TREE- ONCOLOGISTS’ PERSPECTIVES

Oncologists’ perspectives

- Fall assessment
  - Not feasible
- Older patients’ fall reporting
  - Not forthcoming
- Lack of resources for follow up/referrals. (e.g. unsure where to refer/long wait times/lack of outpatient resources)
  - Downplay falls
- Not priority
## Univariate Logistic Regression for FOF

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<th>Variables</th>
<th>OR</th>
<th>95% CI</th>
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<td></td>
<td></td>
<td>Lower</td>
<td>Upper</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.97</td>
<td>0.92</td>
<td>1.02</td>
<td>0.26</td>
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<td>Female gender</td>
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<td>0.47</td>
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<td>Living alone</td>
<td>1.29</td>
<td>0.50</td>
<td>3.34</td>
<td>0.59</td>
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<td>IADL(^\text{a}) impairment</td>
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<td>0.65</td>
<td>3.53</td>
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<tr>
<td>Depression</td>
<td>0.37</td>
<td>0.09</td>
<td>1.44</td>
<td>0.15</td>
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</table>

\(^\text{a}\) IADL – Instrumental activities of daily living
ROLE OF ONCOLOGY NURSES

• Oncology nurses are well-positioned to ask patients about falls, perform proper assessments, and communicate pertinent findings to treating physicians if indicated.

• Play a key role in reducing risk of falls (e.g. information provision, advocacy, support in pain and fatigue management, promotion of physical activity)
Matrix 1. Impact of fall on cancer treatment

<table>
<thead>
<tr>
<th>ID</th>
<th>Impact on treatment based on patient self-report survey</th>
<th>Impact on treatment based on chart review</th>
<th>Impact on treatment based on oncologist interview</th>
</tr>
</thead>
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<tr>
<td>1</td>
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<td>No</td>
<td>N/A</td>
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<tr>
<td>10</td>
<td>No</td>
<td>Yes Hormone therapy stopped due to hip fracture</td>
<td>No interview</td>
</tr>
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<td>21</td>
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</table>
RECRUITMENT PROCEDURE

• Approached staff of medical, radiation, and Older Adults with Cancer (OACC) clinics on daily basis
  • Patients who agreed were approached while waiting to be seen/after being seen by oncologist
• Flyers in waiting areas (oncology clinics; chemo daycare)
QUALITY AND RIGOR OF STUDY

• The Good Reporting of a Mixed Methods Study (GRAMMS) framework was used to guide this study at every stage of its development and execution.
• Peer debriefing for qualitative data and analysis
• The Consolidated Criteria for Reporting Qualitative Research (COREQ) Checklist.
  • A 32-item checklist for interviews and focus groups

Booth (2014); O’Cathain (2008)