Falls among older persons: A study in Thiruvananthapuram district of Kerala, India

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Outline

- Background
- Objectives
- Methodology
- Results
- Discussion
- Conclusion
Background

• Falls and consequent injuries in older people are a significant public health problem
• One out of every three older persons above the age of 65 years falls at least once every year
• In half of all the cases it results in serious injury
• Falls account for over 80 percent of injury-related admissions
• Fall induced injuries are a common cause for longstanding pain, functional impairment, disability and death
In India

- Falls are a public health problem in Indian older adults
- Incidence of falls varies from 14% to 61%
- 47.3% required medical attention
- Most of the falls occurred in the roads and in bathroom/toilet
In Kerala

• Aged in Kerala constitute 12.6%

• Falls and fractures are a significant issue among older adults in Kerala

• 45% of community dwelling participants suffered a fall in the previous year, compared to 64% of those in the Long Term Care settings

• 48% of the older women in the community required medical treatment as a result of falls
Rationale

Falls and subsequent injuries should be prevented because

• of their high frequency, high morbidity and high preventability
• High cost of care for injuries and the prolonged morbidity due to disability
• Challenge to health care system

Research in this area is required

• To formulate preventive measures
• To devise policies for a friendly environment to reduce a significant amount of injury burden
Objective

• To estimate the incidence of falls in older persons (adults 60 years of age and above) living in the community in a period of one year, in a rural setting of Kerala.
Methodology

• Study design: Cross sectional survey
• Study setting: Athiyannur Grama panchayat, Thiruvananthapuram district, Kerala
• Sample size : 178
• Sample frame: List of persons 60 years and above
• Data collection: Structured pretested interview schedule
• Inclusion and exclusion criteria
• Approval from IEC, SCTIMST
Results

- 202 participants, 48 percent men and 52 percent women.
- 26.7 percent of the older persons had at least one event of fall in the last 12 months.
- 74 events of falls for 54 individuals
- 20.4 percent fell twice, 7.4 percent fell thrice
- 42 percent injurious falls
- Falls increased with increase in number of risk factors
Immediate consequences of falls among older persons

- **no injuries**: 36.5%
- **pain**: 5.4%
- **bruises/contusion**: 24.3%
- **minor cuts and laceration**: 24.3%
- **fractures**: 9.5%
Time of fall

- Day: 42%
- Evening: 49%
- Night: 9%
## Cause of fall

<table>
<thead>
<tr>
<th>Cause of fall</th>
<th>Male (N=28)</th>
<th>Female (N=46)</th>
<th>Total (N=74)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slipping</td>
<td>8 (28.6%)</td>
<td>11 (23.9%)</td>
<td>19 (25.6%)</td>
</tr>
<tr>
<td>Fainting</td>
<td>8 (28.6%)</td>
<td>10 (21.8%)</td>
<td>18 (24.3%)</td>
</tr>
<tr>
<td>Tripping</td>
<td>5 (17.9%)</td>
<td>10 (21.8%)</td>
<td>15 (20.3%)</td>
</tr>
<tr>
<td>Lost balance while walking</td>
<td>3 (10.7%)</td>
<td>11 (23.9%)</td>
<td>15 (20.3%)</td>
</tr>
<tr>
<td>Legs gave way</td>
<td>2 (7.1%)</td>
<td>2 (4.3%)</td>
<td>4 (5.4%)</td>
</tr>
<tr>
<td>Don’t know/NS</td>
<td>2 (7.1%)</td>
<td>2 (4.3%)</td>
<td>3 (4.1%)</td>
</tr>
</tbody>
</table>
## Activity during fall

<table>
<thead>
<tr>
<th>Activity during fall</th>
<th>Male (N=28)</th>
<th>Female (N=46)</th>
<th>Total (N=74)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td>16 (57.1)</td>
<td>25 (54.4)</td>
<td>41 (55.4)</td>
</tr>
<tr>
<td>Sitting on a chair/cot</td>
<td>3 (10.7)</td>
<td>5 (10.9)</td>
<td>8 (10.8)</td>
</tr>
<tr>
<td>Working in a kitchen</td>
<td>2 (7.2)</td>
<td>5 (10.9)</td>
<td>7 (9.5)</td>
</tr>
<tr>
<td>Going to toilet</td>
<td>2 (7.2)</td>
<td>3 (6.5)</td>
<td>5 (6.8)</td>
</tr>
<tr>
<td>Taking bath</td>
<td>0 (0)</td>
<td>1 (2.2)</td>
<td>1 (1.4)</td>
</tr>
<tr>
<td>Climbing the stairs</td>
<td>1 (3.6)</td>
<td>0 (0)</td>
<td>1 (1.4)</td>
</tr>
<tr>
<td>Standing/talking</td>
<td>1 (3.6)</td>
<td>4 (8.7)</td>
<td>5 (6.7)</td>
</tr>
<tr>
<td>Others</td>
<td>3 (10.7)</td>
<td>3 (6.5)</td>
<td>6 (8.1)</td>
</tr>
</tbody>
</table>
Time taken to recover from fall

- **several months**: 19%
- **few days**: 35%
- **immediately after fall**: 28%
- **not back to normal**: 18%
Physical, mental & social changes

- 6% totally dependent
- 28% experience fear of fall
- 9% depressed
- 4 persons felt socially isolated
<table>
<thead>
<tr>
<th>Variables</th>
<th>Crude OR(95% CI)</th>
<th>Adjusted OR(95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three or more comorbidities</td>
<td>3.39 (1.26-9.12)</td>
<td>2.91 (1.03-8.19)</td>
</tr>
<tr>
<td>No formal education</td>
<td>2.31 (1.17-4.58)</td>
<td>2.45 (1.19-5.05)</td>
</tr>
<tr>
<td>History of previous fall</td>
<td>2.27 (1.19-4.3)</td>
<td>1.99 (1.02-3.93)</td>
</tr>
<tr>
<td>Self-reported Osteoporosis</td>
<td>3.29 (1.41-7.66)</td>
<td>2.53 (1.04-6.12)</td>
</tr>
</tbody>
</table>
Discussion

• Incidence of falls among older persons is comparable with other studies
• Age and sex did not have any association with falls
• Proportion of Injurious falls comparable with other studies
• Body part injured were mostly the lower limb
• Fall happened mostly during walking
Conclusion

• Incidence of falls among older persons is high
• Falls are multifactorial
• Intrinsic factors associated with falls are history of falls, history of three or more illness and reported osteoporosis
• Extrinsic factor associated with falls is lack of education
• Risk of fall increase with the number of risk factors
Acknowledgement

• NIH and ASCEND research network
Thank you