The relationship of unit characteristics and safety climate with clinical outcomes in Swiss Nursing Homes

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Nursing home resident safety

- Older people in nursing homes are more vulnerable to adverse events due to
- their reduced functional status, polymorbidity and polypharmacy
- Less qualified personnel in nursing homes
- Physicians often not on site
- Typical adverse events: Adverse drug reactions, falls, pressure ulcers, symptomatic urinary tract infection, physical restraint use

Safety Climate

- Safety climate refers to the shared perceptions of employees about safety-relevant issues in their work environment
- Includes aspects like: teamwork, communication about errors, staffing and resources, leadership behaviour in relation to safety, organizational learning

Safety Climate and Clinical Outcomes

<table>
<thead>
<tr>
<th>Rating of resident safety climate by:</th>
<th>Physical restraint use</th>
<th>Pressure ulcers</th>
<th>Falls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse aides (Bischof, 2006)</td>
<td>Negative relationship</td>
<td>No relationship</td>
<td>Positive relationship</td>
</tr>
<tr>
<td>Upper management (Bischof, 2006)</td>
<td>Negative relationship</td>
<td>--</td>
<td>Negative relationship</td>
</tr>
</tbody>
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Goal

- To examine the relationship of unit characteristics and patient safety climate with six clinical outcomes in Swiss nursing homes:
- use of bedrails
- physical restraint use
- pressure ulcers stage 2 and higher, developed in the NH
- falls
- falls-related injuries (e.g. bruises, fractures)
- urinary tract infections

Results – unit characteristics and clinical outcomes
Unit characteristics and clinical outcomes

- No correlation of clinical outcomes with:
  - unit size
  - Percentage of registered nurses, licensed practical nurses, or nurse aides
  - mean length of stay of residents
  - percentage of female residents
  - mean age of residents

- Significant positive correlation of resident care dependency with the use of bedrails and physical restraints (<0.01), but not with other outcomes (pressure ulcers, falls, falls with injuries, urinary tract infection)

Results – Safety climate and clinical outcomes

Safety climate and bedrails / physical restraints

- No significant difference between units with high or low use of bedrails / physical restraints regarding the safety climate dimensions
  - Teamwork
  - Compliance with regulations
  - Training, skills & handoffs
  - Organizational learning
  - if care dependency is controlled for

Safety climate and fall-related injuries

<table>
<thead>
<tr>
<th></th>
<th>Mean % of agreement (SD)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units without residents with fall-related injuries (n=9)</td>
<td>89.5 (9.4)</td>
<td>72.3 (12.3)</td>
</tr>
<tr>
<td>Units with residents with fall-related injuries (n=11)</td>
<td>80.6 (12.5)</td>
<td>69.7 (11.7)</td>
</tr>
</tbody>
</table>

Teamwork

Compliance with regulations

Training, Skills, and Handoffs

AMOVA: dependent variable: safety climate dimensions

independent variable: units with / without residents with fall-related injuries
Conclusions

- Of the examined outcomes, only fall-related injuries are related with safety climate, especially with the dimensions teamwork and information flow.
- Not all aspects of safety climate are similar related to clinical outcomes.
- Open question: What differentiates clinical outcomes that are related to safety climate from those that are not? (e.g. fall-related injuries vs. pressure ulcers?) – theoretical models needed.
- Limitation of study: only 20 units

New representative study: Swiss Nursing Homes Human Resources Project (SHURP)

Questions?

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Bibliography


Appendix: Clinical outcomes

Clinical outcomes in 8 Swiss nursing homes (n=20 units)

- [Graph showing clinical outcomes in 8 Swiss nursing homes (n=20 units)]