



# The use of physical restraints in nursing home residents with dementia

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**'When I'm old and admitted to a nursing home, hopefully the nurse will decide to apply physical restraints, when she/he thinks that is appropriate.'**

**AGREE / DISAGREE**

# Physical restraints

**Any limitation on an individual's freedom of movement**

**(e.g., bedrails, belts, special sheets, chair with a table, sensor mats, infrared devices)**

# Physical restraint usage: facts

- Use of restraints in nursing homes is common practice
  - Prevalence 41-63%
- Physical restraint as routine measure
  - 90% longer than 3 months
  - 91% standard procedure
  - 85% falls prevention
- Negative consequences of restraint use
  - Physical, e.g. pressure sores, incontinence
  - Psychological, e.g. depression, agitation

# Determinants of restraint use

- Predictors of restraint use are residents' characteristics
  - Poor mobility
  - Impaired cognitive status
  - High levels of care dependency
- Risk of falls according to opinion of nursing staff
- The use of restraints is not determined by staff shortages, workload or sickness absence

# Bivariate relations

## Restrains – Job & Ward characteristics

Variables	Restrained (n=206)	Unrestrained (n=165)	p-value
<i>Job characteristics</i>			
Workload	3.1 (0.3)	3.1 (0.3)	0.997
Autonomy	3.0 (0.3)	2.9 (0.3)	0.458
Social support	3.1 (0.2)	3.1 (0.2)	0.484
<i>Ward characteristics</i>			
FTE ratio	0.58 (0.12)	0.57 (0.12)	0.323
Percentage RNs	7.7 (4.4)	7.6 (4.8)	0.474
Percentage sickness absence	4.1 (2.1)	4.3 (2.3)	0.547

## Determinants of restraint use based on a logistic multilevel analysis (n=371)

<i>Variables</i>	<b>Estimate</b>	<b>SE</b>	<b>p-value</b>	<b>Odds ratio</b>	<b>95% CI</b>
Fixed effects					
<b><i>Residents' characteristics</i></b>					
Gender (0=male)	-0.839	0.416	0.043	0.432	0.19-0.98
Cognitive status	0.221	0.110	0.044	1.247	1.01-1.55
Mobility	1.327	0.135	<0.001	3.770	2.89-4.91
<b><i>Job characteristics</i></b>					
Job autonomy	1,669	0.757	0.027	5.307	1.20-23.40
<b><i>Ward characteristics</i></b>					
FTE ratio	3.348	1.853	0.070	28.446	0.75-1074.79
Random effects					
Variation random intercept	0.116	0.193	0.274		

# Effective measure?

- The use of physical restraints is an inadequate safety measure
  - To prevent falls (and serious injuries) in 85%
  - But stopping restraints does not lead to an increase in the number of falls with serious injuries!
  - 'Vicious circle'
- Restraint use does not per se improve the patient's safety!
  - Every year (severe) accidents, sometimes resulting in the patient's death

# How can we reduce the use of physical restraints?

- Determinants of restraint use
  - Emphasize on patient's characteristics and nurses' decision-making, not organizational characteristics
- Educational interventions
  - Educational program + nurse specialist
  - e.g. USA, Norway, Germany, Netherlands
- Does it work?

# Aim of the Dutch intervention study

- To investigate the effects of an educational intervention, consisting of an educational program combined with a nurse specialist's consultation, on the use of physical restraints in psychogeriatric nursing home residents.

# Educational program

- Basic principle
  - Individualized (restraint free) care (Strumpf et al., 1998)
- Topics
  - Ineffectiveness, consequences, decision-making process, risk behavior, alternatives, cases and home work
- Teacher is nurse specialist
- Organization
  - 5 meetings carried out over a two-month period, each lasting 2 hours, 7 nurses per ward (including charge nurse)
  - Each group consisted of nursing staff from different experimental wards
  - 1 plenary session per ward, each lasting 90 minutes, all nursing staff per ward

# Consultation

- Nurse specialist (RN level)
- Tasks
  - Consultation (28 hours per week)
  - Visiting wards once a week
  - Attending multidisciplinary meetings
  - Stimulating the use of alternatives to restraints
- 8 month period

# Hypotheses

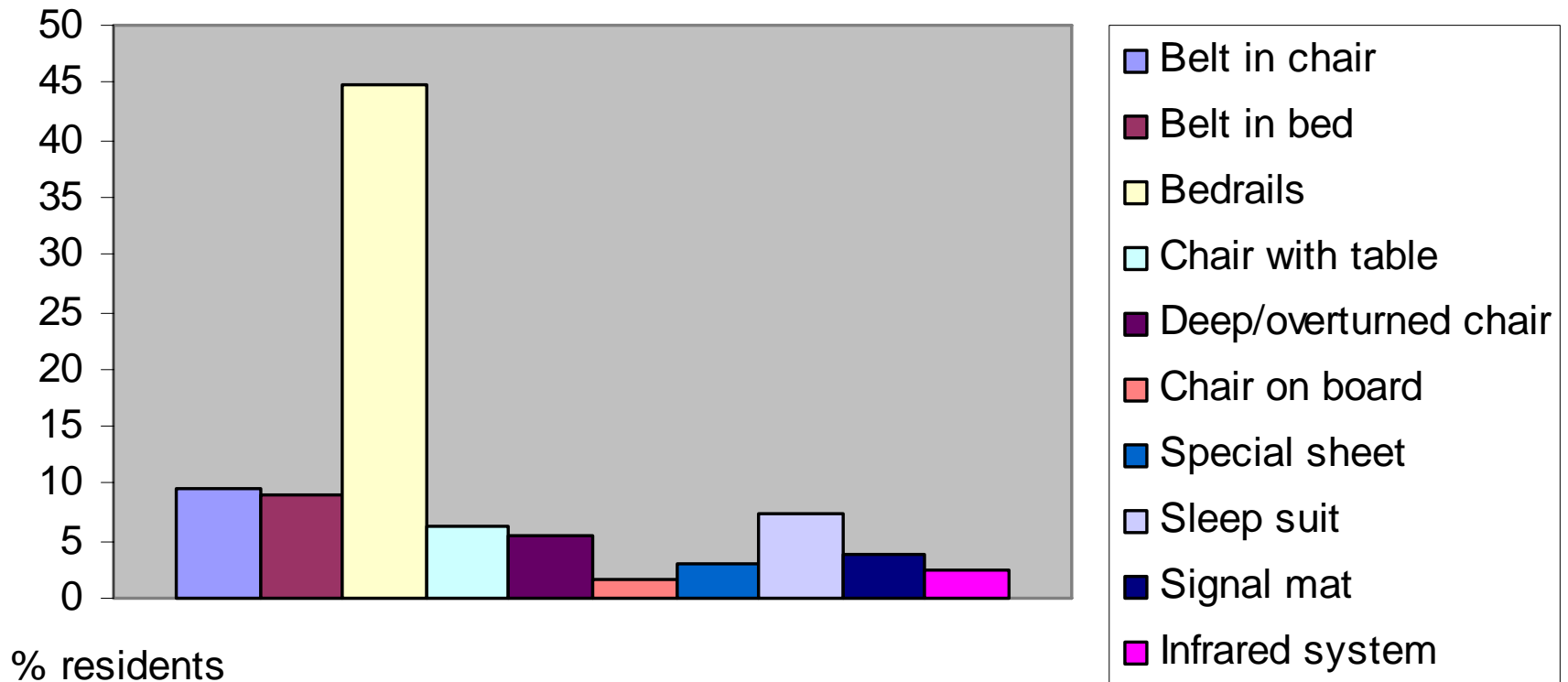
The educational intervention will:

1. decrease the use of restraints
2. change the types of restraints used
3. decrease the number of times of being restrained
4. decrease the number of different types of restraints use

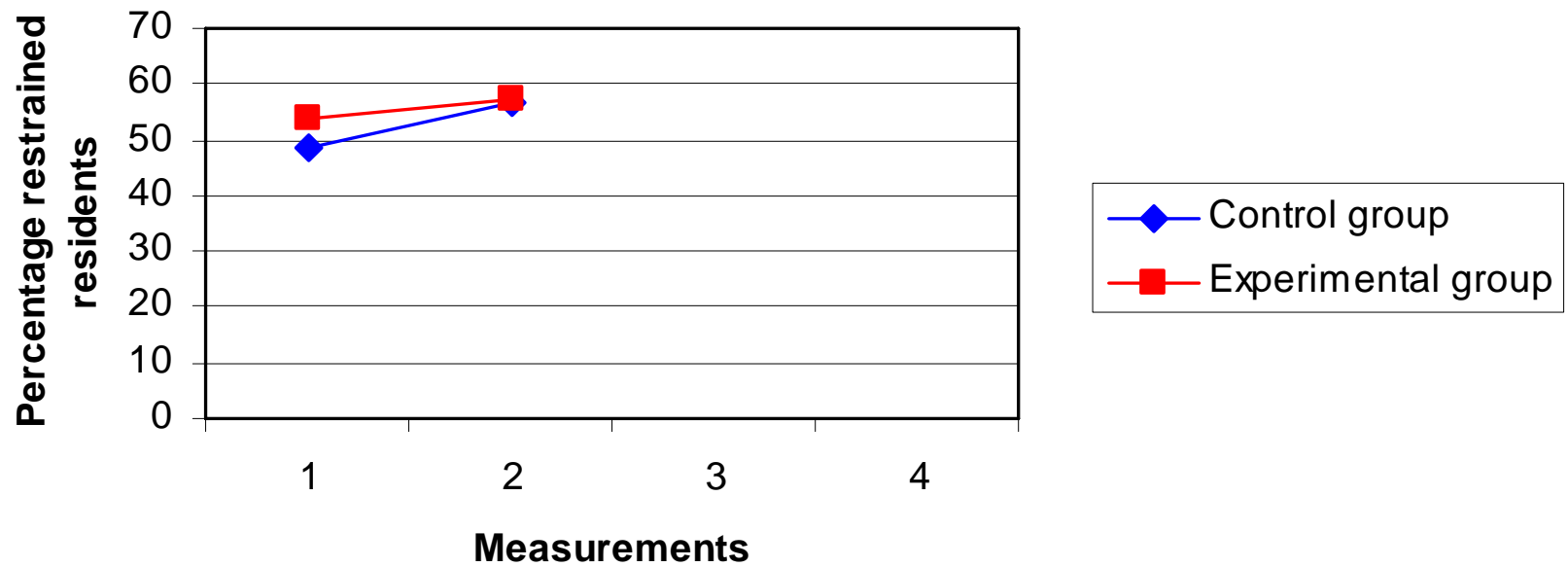
# Cluster randomized trial

- 15 nursing home wards, 432 residents
- Educational intervention (8 wards) versus control status (7 wards)
- Pretest and 3 posttests (1, 4 & 8 months)
- Measurements
  - Use of physical restraints (+ type, number & intensity) by blinded, trained observers on 4 separate occasions over a 24-hour period
  - Other resident characteristics (e.g., ADL status, mobility status, depression and social engagement) via MDS

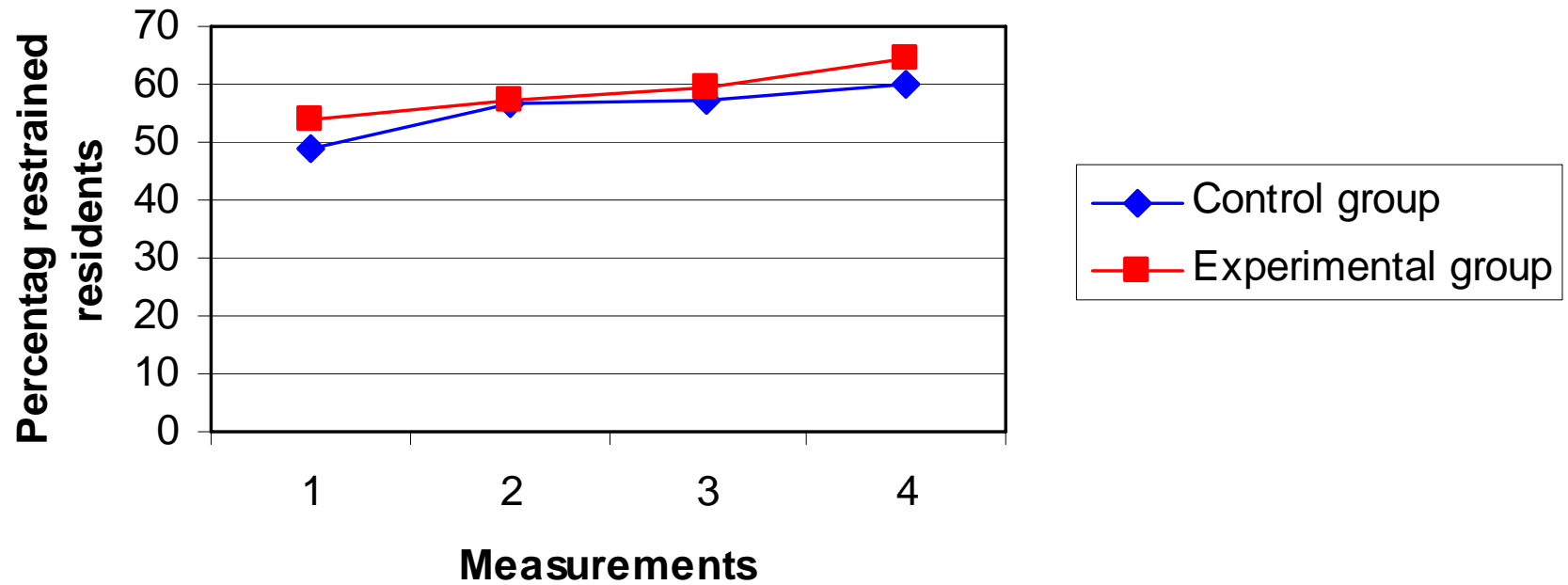
## Restraint use



## Restraint use



## Restraint use



<b>Comparison of two studies investigating effect of educational intervention</b>		
<b>Components</b>	<b>Huizing et al. (The Netherlands)</b>	<b>Evans et al. (USA)</b>
<i>Intervention</i>		
Duration	10 months	6 months
Commitment	Yes	Yes
<i>Educational program</i>		
Basic principle	Individualized care (Strumpf et al. 1998)	Individualized care (Strumpf et al., 1998)
Duration	- 11.5 hours - five 2-hours small scale meetings & one 90-minute plenary session per ward	- 5-8 hours - ten 30-45-minutes sessions
Attendees	Selection (30%) of total nursing staff attended 4 or all sessions	78% of total nursing staff one ore more sessions; 39% at least half
Teacher	Nurses specialist, Level: RN	Nurse specialist, Level: MSN
<i>Consultation</i>		
Organization	- 28 hours per week over 10 month period - 15 nursing home wards	- 12 hours per week over 6 month period - 3 nursing homes
Task specialist	- Visiting wards once a week - Multidisciplinary meetings residents	- Focus on residents that posed clinical challenges

## Comparison of two studies investigating effect of educational intervention

	Huizing et al. (Netherlands)	Evans et al. (USA)
<i>Design</i>		
Definition physical Restraints	Including bedrails	Excluding bedrails
Cluster randomization	Nursing home ward level (n=15)	Nursing home level (n=3)
Determining restraint Status	<ul style="list-style-type: none"> <li>- Observation blinded trained observers</li> <li>- 4 separate occasions over 24-hour period</li> </ul>	<ul style="list-style-type: none"> <li>- Observation by team of blinded trained nurses</li> <li>- 18 separate occasions over 72-hour period</li> </ul>
Period of data collection	Baseline, 1, 4 & 8 months post intervention	Baseline, completion intervention, 3 & 6 months post intervention

# Conclusion

- An educational program for nursing staff combined with the consultation of a nurse specialist was not effective in reducing the use of physical restraints with psychogeriatric nursing home residents
- Family, colleagues, other careproviders, alternative interventions not available
- 'Country tailored' interventions?
- Nursing staff attitudes
  - In our practice appropriate
  - What are physical restraints?

# Attitudes regarding restraint use

- 608 German, Swiss and Dutch nursing staff
- Maastricht Attitude Questionnaire (MAQ)
  - Reason, consequences and appropriateness
  - Physical restraints
    - Restrictiveness of measures
    - Discomfort in applying measures

# Results reason, consequences and appropriateness

- Nursing staff have neutral attitudes regarding reason and consequences, but do have a positive attitude regarding appropriateness in own clinical practice
  - ‘in our nursing home restraint usage is always appropriate’
- Experienced nursing staff and charge nurses do have more negative attitudes
- Differences between countries
  - E.g., Dutch nurses assess the measures as less restrictive than both German and Swiss nurses and do experience less discomfort in applying restraints

# Results opinion regarding measures

Measure	Restrictiveness	Discomfort
Wrist belt	2.87 (0.4)	2.90 (0.4)
Ankle belt	2.80 (0.5)	2.83 (0.5)
Belt in bed	2.67 (0.5)	2.59 (0.6)
Bedroom door locked	2.58 (0.7)	2.51 (0.7)
Special sheet	2.53 (0.6)	2.53 (0.6)
Belt in chair	2.28 (0.6)	2.14 (0.7)
Ward door locked	2.17 (0.7)	2.07 (0.8)
Deep chair	2.12 (0.7)	1.93 (0.7)
Chair with a table	2.09 (0.6)	1.85 (0.7)
Bilateral bedrails	1.96 (0.6)	1.82 (0.7)
Sleep suit	1.72 (0.7)	1.73 (0.7)
Infrared system	1.42 (0.6)	1.41 (0.6)
Unilateral bedrail	1.38 (0.5)	1.33 (0.6)
Sensor mat	1.35 (0.6)	1.32 (0.5)

# Conclusions

- The use of physical restraints must be reduced!
- Educational intervention unsufficiently effective
- Influence of attitude
- Cultural changes are necessary
  - Commitment caregivers
  - Active participation management
    - Policy changes
    - Offering sufficient resources
- Pilot project 'STOP the belt!'

# Pilotproject 'Stop the belt!'

- Policy change via board of directors nursing home organisation: usage of belts will be prohibited
- Information family, staff
- Responsibility in applying appropriate alternatives: nursing staff
  - Consultation 2 specialized nurses
  - Alternatives (e.g., beds, infrared measures, hip protectors)
- Supervision Dutch Inspectorate for Health Care
- Ward with highest prevalence number (n=10)

# Tentative results

- Start June 2007 → 10 belts
- August 2007 → 0 belts!
- No increase use of chairs with table, deep geriatric chairs
- Increase infrared systems, signal mats
- More ' low beds'
- Increase in number of falls, but no increase in number of serious injuries

**'A miracle has occurred:  
I can walk!'**

**(Resident, 81 years old, when the use of a belt was  
stopped)**



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