PHILOSOPHISCH-THEOLOGISCHE HOCHSCHULE VALLENDAR

Kirchlich und staatlich anerkannte Wissenschaftliche Hochschule in freier Trägerschaft

Pflegewissenschaftliche Fakultät

KATHOLISCHE HOCHSCHULE FREIBURG

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The association between nursing home staff mix, residents' quality of life and employees' strain

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Overview

1. Background
2. Methods
3. Results: descriptive
4. Results: Mixed-effect-models
5. Conclusion

1. Background

Context

- Different approaches to staff mix in care settings have been discussed recently with the underlying question „what is a good nursing home“.
- Rising interest in models for interprofessional staff mix for different reasons
  - conceptional (adressing the needs of the residents)
  - cost aspects
  - shortness of skilled nurses
- Rising amount of structural regulations (ward size, staff-to-resident-quotas, quotas for skilled staff)
  - but lack of evidence regarding the effects of these characteristics

Existing evidence

- Main research focus is on quality of care, rather than on quality of live (QoL)
- In our umbrella review we identified…
  - no conclusive associations between staff-related characteristics of the nursing home facitily and QoL
  - no systematic review or meta analysis regarding associations between staff mix and strain (of the employees)
- most studies deal with nursing grade mix rather than interprofessional staff mix

2. Methods

Research Questions

- Description of nursing home staff mix:
  - Which professions are employed in nursing homes and to which amount?
- To what extend are staff-related chracteristics of nursing homes associated with:
  - employees‘ strain?
  - residents‘ quality of life?

Design

- Two Online Surveys
  - managers of the nursing home (structural data)
  - employees (outcome, including proxy- rating of residents‘ QoL)

- Random selecton of 874 nursing homes in Baden-Wurttemberg invited for participation

- N=63 facilities participated in the managers‘ survey
- N=21 delivered outcome data for strain (staff)
- N=16 delivered outcome data for QoL (residents)

Measures: strain of staff

- *Beanspruchungsscreening bei Humandienstleitungen* (BHD) (Hacker & Rheinhold, 1999)
  - emotional exhaustion
  - intrinsic motivation
  - (dis-) satisfaction
  - client-related aversion
- covariates at individual level (examples)
  - resilience (Schumacher, Leppert, Gunzelmann, Strauß & Brähler, 2004)
  - organisational commitment (affective) (Feffe, Six, Schmook & Knorz , 2014)
  - impaired health
  - external strain
  - profession
  - job experience
  - volume of employment
  - sex
  - age

Theoretical framework: Quality of life

Person-Environment-Fit (Lawton 1999, Lawton 1991), using Kane & Kane's dimensions of QoL (Kane & Kane 2003):

- Sense of Safety, Security, and Order
- Physical Comfort
- Enjoyment
- Meaningful Activity
- Relationships
- Functional Competence
- Dignity
- Privacy
- Autonomy/Choice
- Spiritual Well-Being

Measures: QoL

- Proxy- rating of the 10 dimensions by the staff
  - grade of QoL in the respective dimension
  - weighted by the grade of significance for the specific resident
- Scale
  - Score: -100 to +100
  - previously untested instrument
  - unidimensional, Cronbach‘s alpha 0.889
- Covariates (examples)
  - level of care
  - age
  - 9 functional and cognitive competencies

Modeling effects

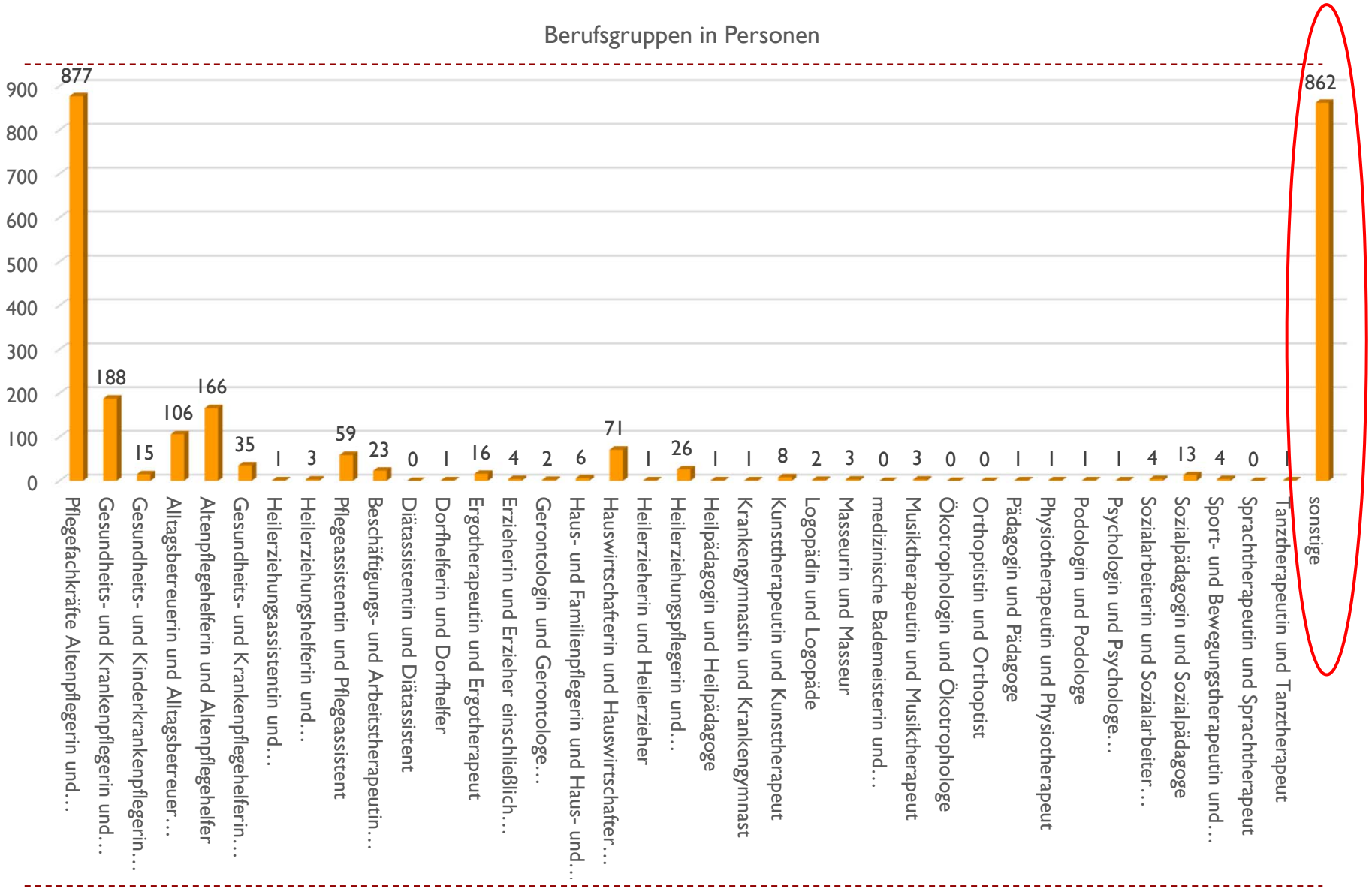
- Linear mixed-effects models (multi-level modeling)
- Assessing the hierarchical structure (null models)
  - 2 or 3 levels?
- Inclusion of covariates
  - pre- selection using variable importance analysis:
    - gradient boosting machine (Friedman 2001, Ridgeway 2017) with 1000 regression trees, seperately modeled for covariates at individual and (aggregated) facility level
  - best subset analysis:
    - using the dredge function for lmer- models; packages *lmer* (Bates et al. 2018) and *MuMIn* (Barton 2018) in R)
- Criteria for goodness of fit:
  - AICc (selection criterion), conditional R^2, cross-validated R^2 (5- fold)

4. Results: Descriptive

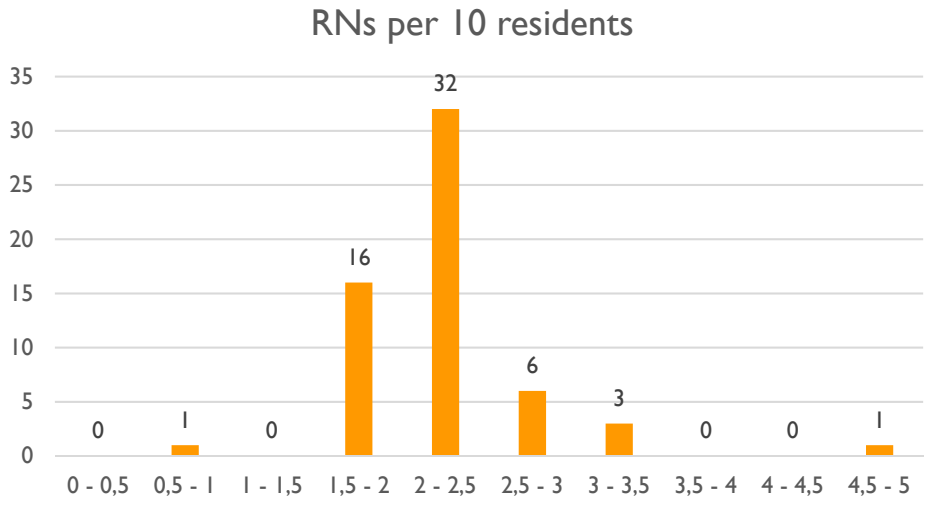
Professions

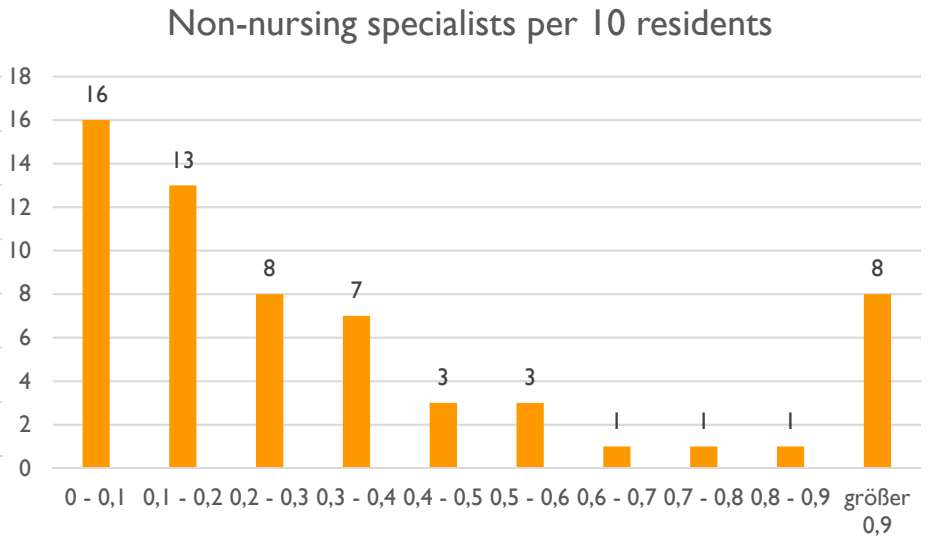
- data for 2502 persons
- we asked for formal qualification, not for job description!
- most frequent (single) profession:
  - Elderly care nurses (35%)
- clusters of qualification
  - RNs (43,17%)
  - Other qualified professions (7,59%)
  - Assistent staff (14,79%)
  - Not qualified/ aides (34,45%)

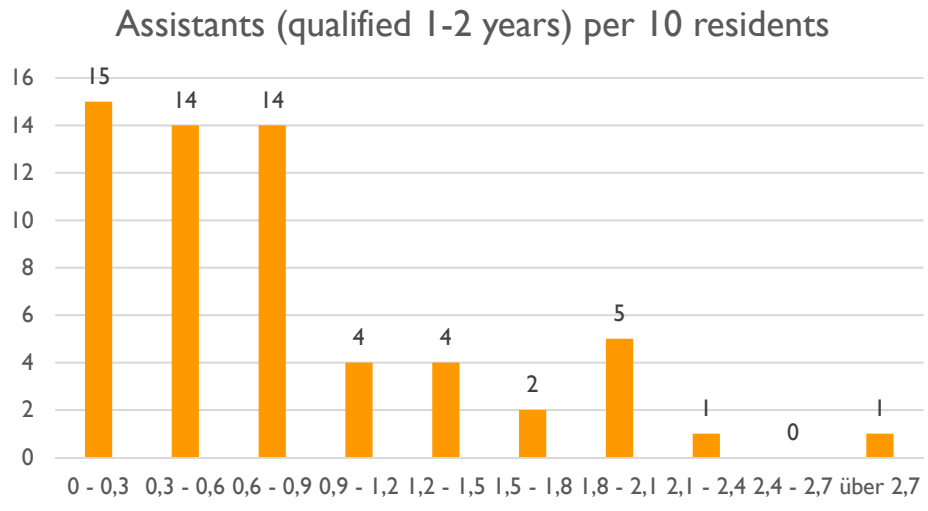
(non-) Professions in absolute persons

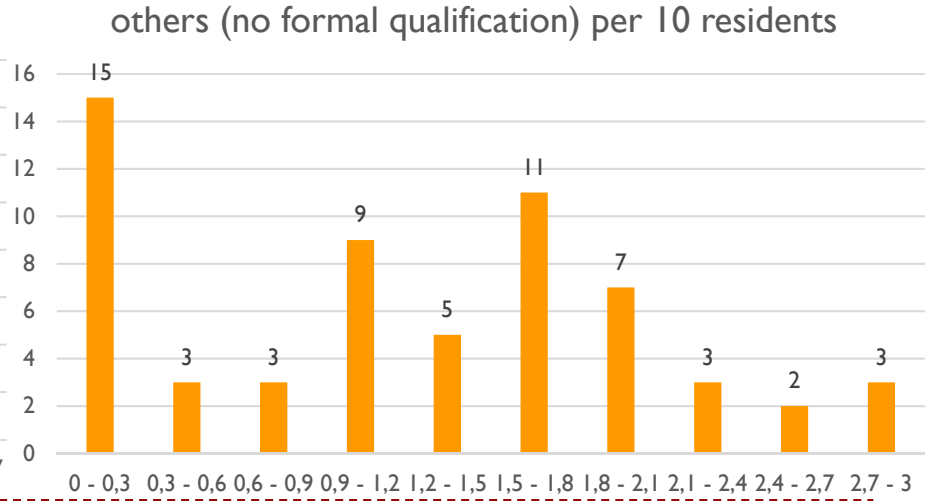


Ratios: qualification cluster per 10 residents (full-time equivalent)

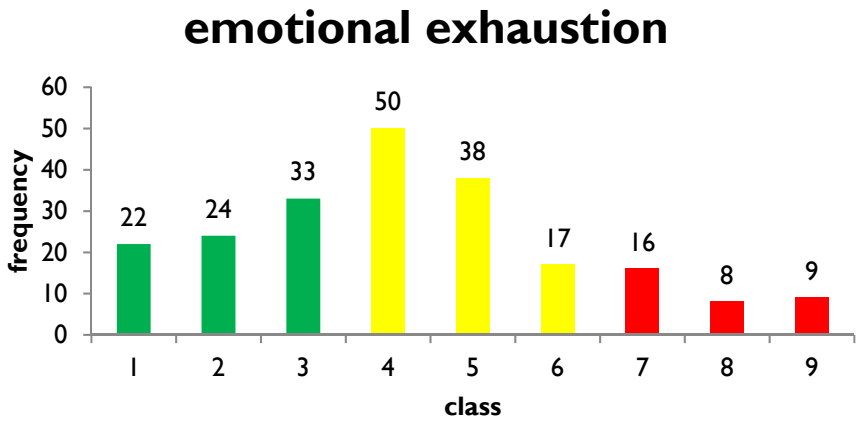


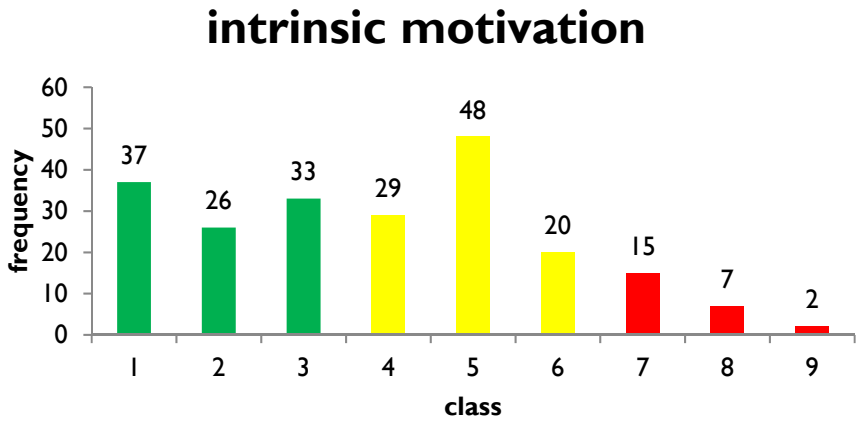


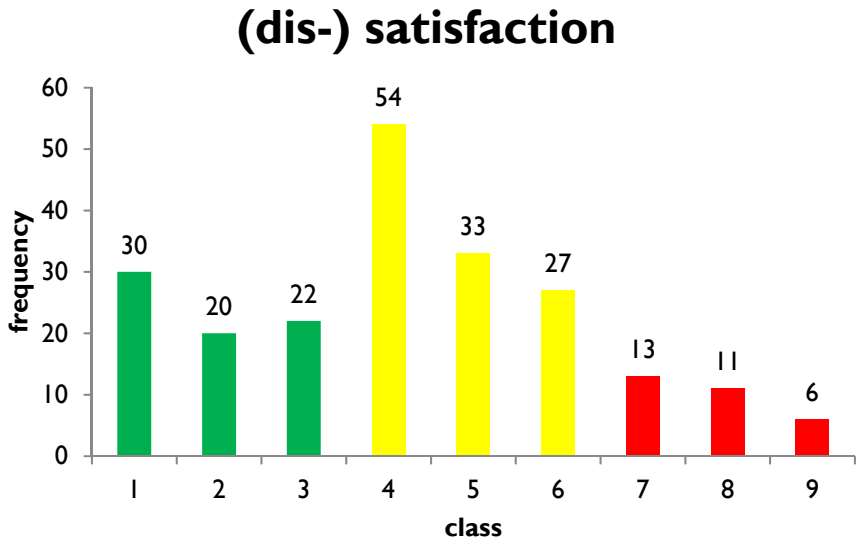


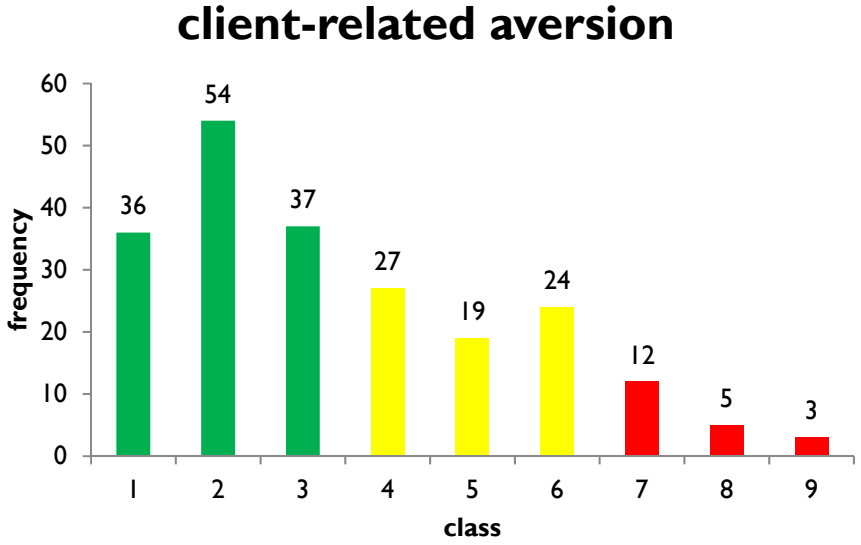


Stafff: Strain (N=217)

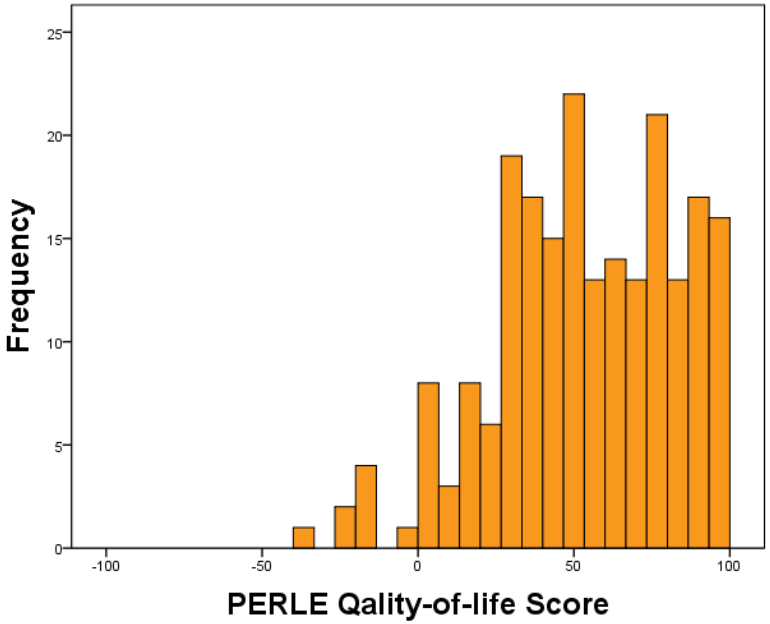


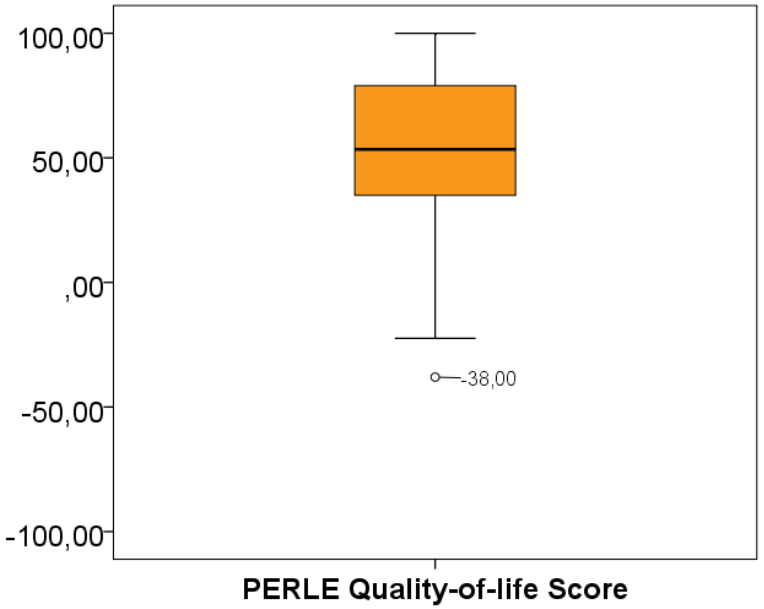






Residents: Quality-of-life



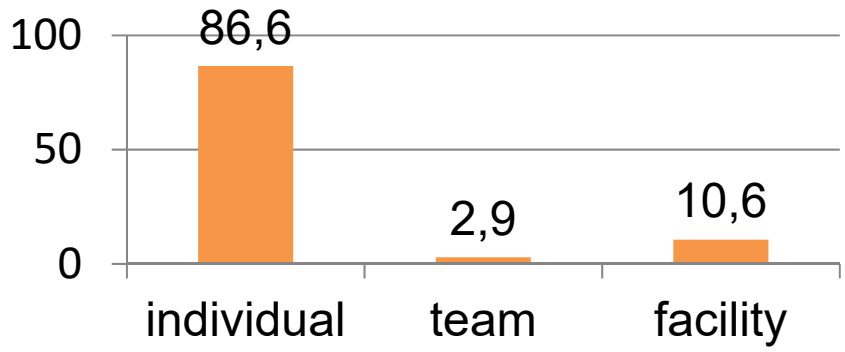


- N= 213
- Mean: 53,95 ± 29,383

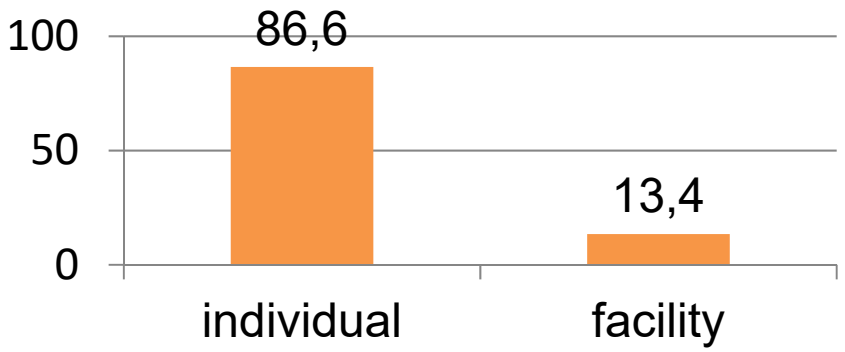
5. Results: Mixed-effects models

Hierarchical structure: Strain (1)

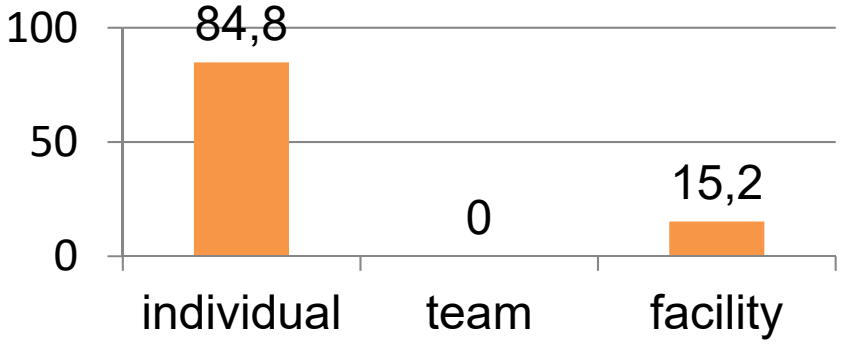
3 levels: emotional exhaustion



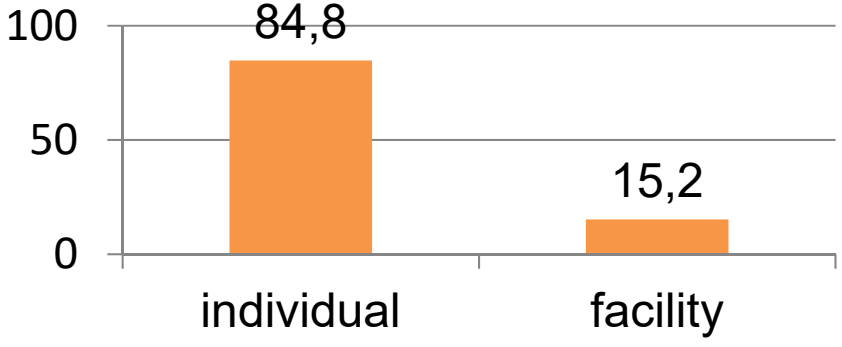
2 levels: emotional exhaustion



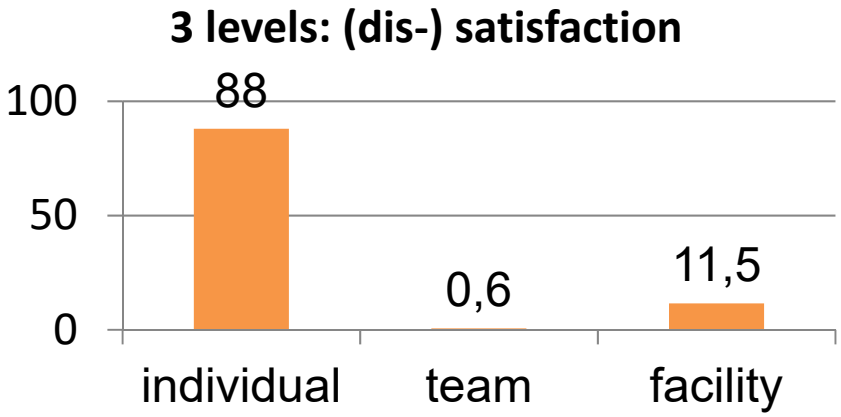
3 levels: intrinsic motivation

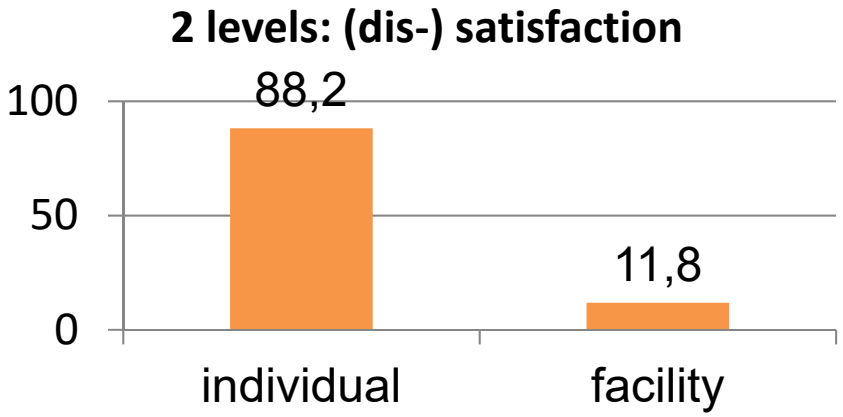


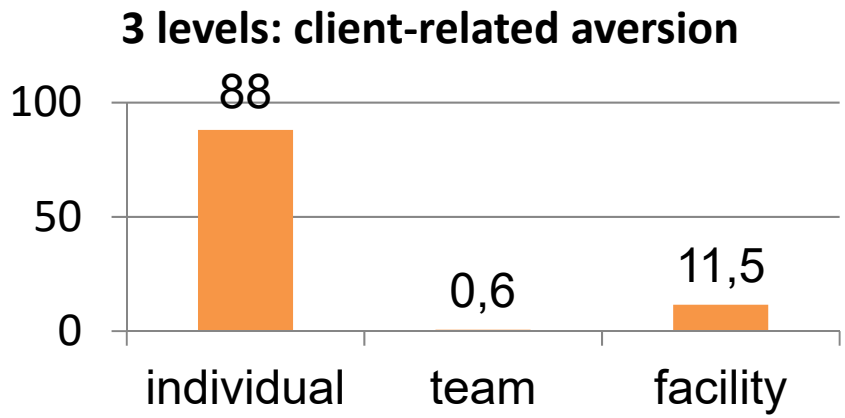
2 levels: intrinsic motivation

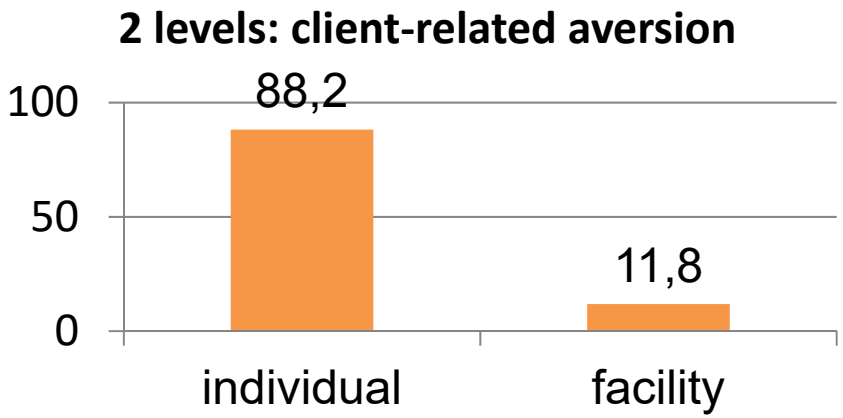


Hierarchical structure: Strain (2)

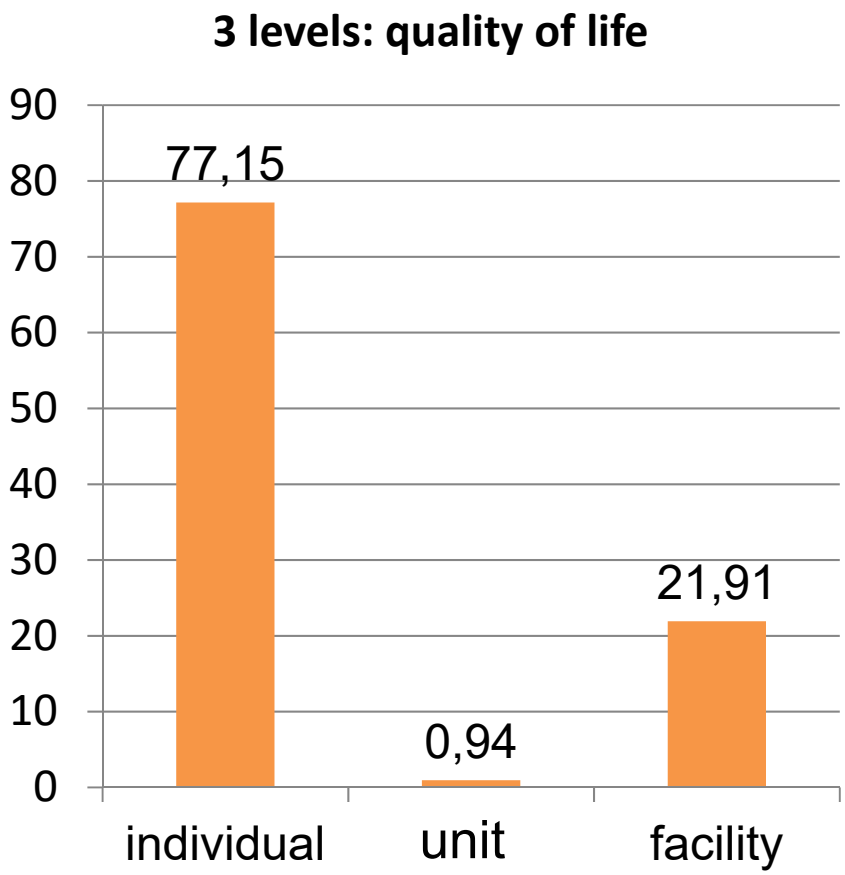


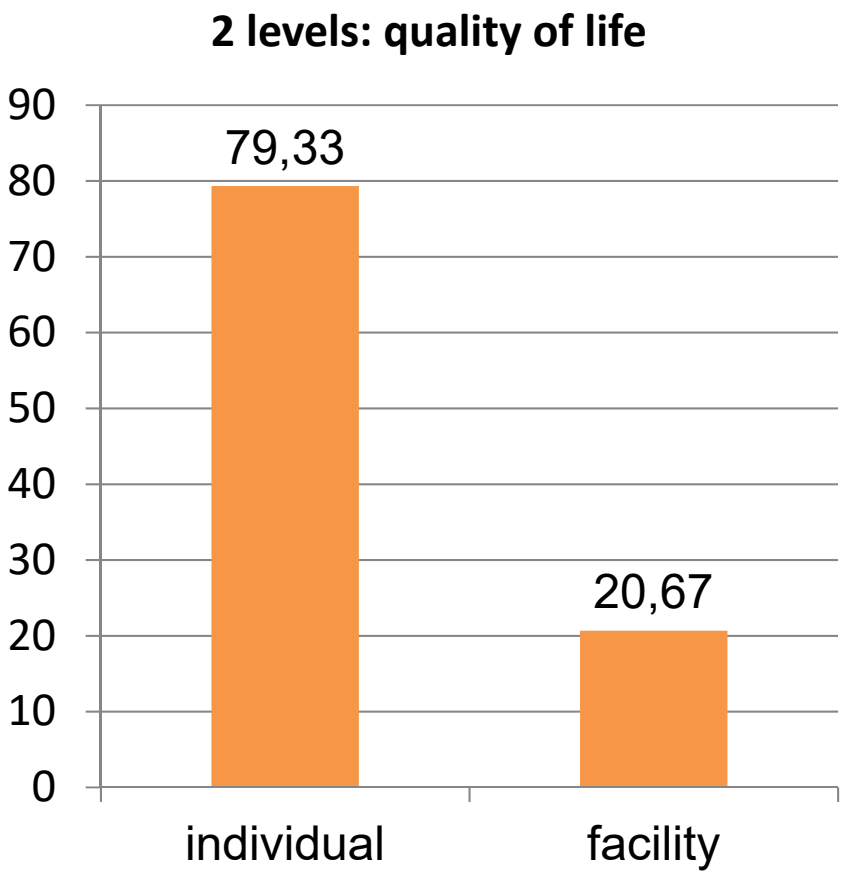






Hierarchical structure: Residents‘ quality of life





Null models – 2 levels

Outcome	ICC individual level	ICC facility level
emotional exhaustion	.866	.134
intrinsic motivation	.848	.152
(dis-) satisfaction	.770	.230
client-related aversion	.882	.118
quality of life	.793	.207

Models with covariates

Outcome	individual level only		with facility level	
	R^2c	R^2xval	R^2c	R^2xval
emotional exhaustion	resilience, organisational commitment, impaired health, external strain		*no additional covariates at facility level*	
	33.8	20.5	**33.8**	20.5
intrinsic motivation	resilience, organisational commitment, perceived management behaviour		manager‘s job experience, dual role of manager and head nurse	
	36.7	24.1	**40.7**	28.2
(dis-) satisfaction	resilience, organisational commitment		manager‘s academically qualified	
	37.1	17.3	**38.1**	18.1
client-related aversion	resilience, organisational commitment, profession		manager‘s job experience, amount of cognitive impaired residents	
	21.8	0.01	**23.6**	5.1
quality of life	memory, recognize risks, personal hygiene (sink)		head nurse‘s job experience, amount of residents with highest level of care, homogenity of FTE between professions	
	24.0	14.7	**28.0**	22.0

8. Conclusion

shortcomings of this study

- too low participation on facility level
  - For stable models with several facility-level covarites higher numbers of nursing homes are needed
- likely postive selection of nursing homes in the sample
- untested measure for quality-of-life, based on proxy ratings

Conclusions

- organizational characteristics contribute to variance explanation of QoL and strain, but 77-88% (strain) and 79% (QoL) are explained on the individual level
- To reduce, strain these findings imply that interventions should focus on the individual staff member/ the individual resident, e.g.
  - systematic identifikation of
    - staff members with critical levels of strain (use of appropriate tools for screening and assessment)
    - resident‘s needs related to the dimensions of QoL
  - resilience-focussed interventions
- Addressing the individual seems to be more important than structural changes at facility level

Thanks for your attention!

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