A proactive programme for sleep and recovery in newly graduated nurses: can it promote safety? Results from a randomised control trial

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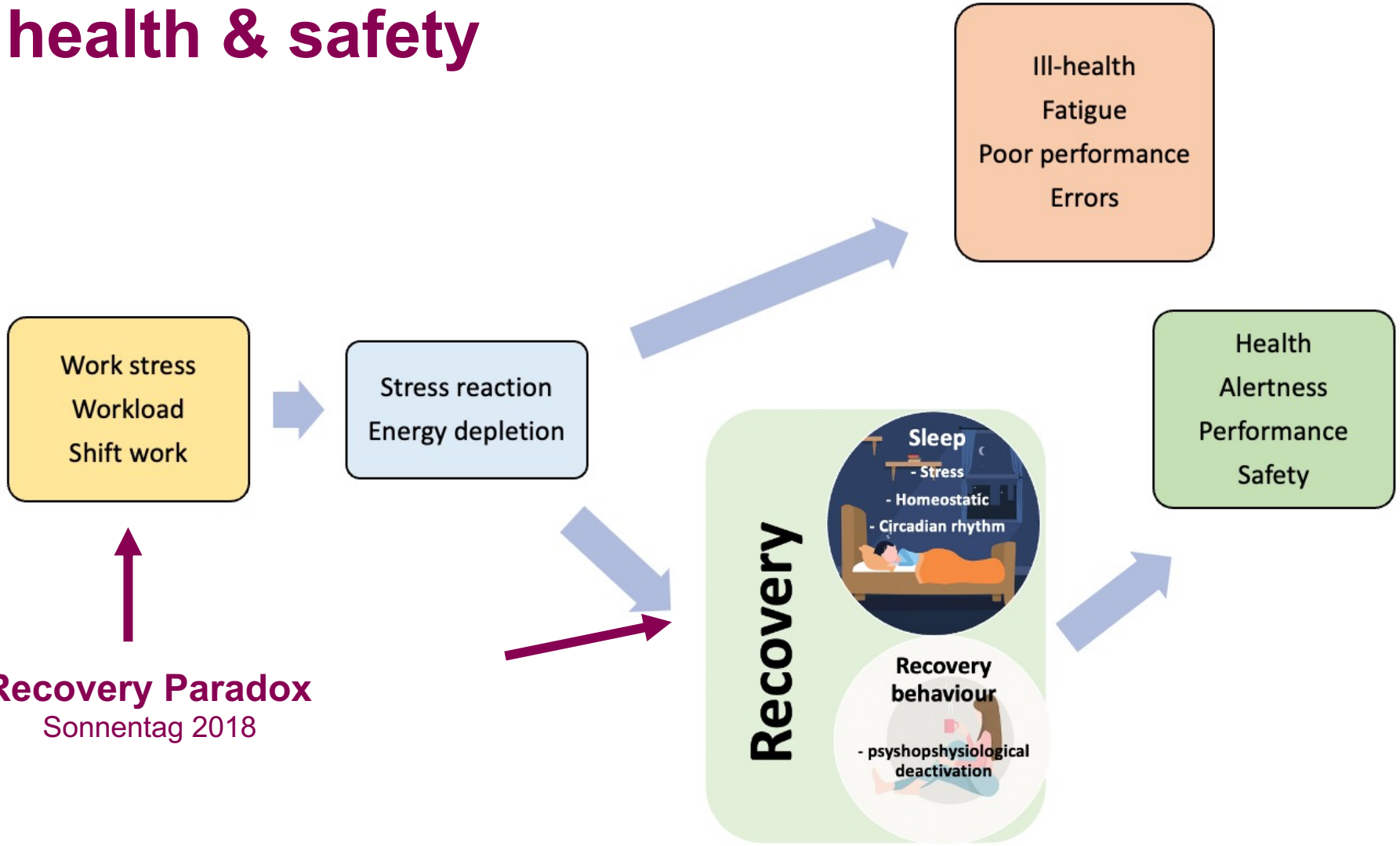
Recovery a key factor for health & safety

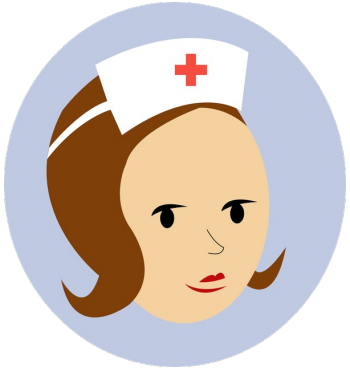


Recovery Paradox
Sonnentag 2018

Modified from Geurts and Sonnentag 2006

Starting work as a newly graduated nurse

- Reality chock for newly graduated nurses (Duchscher, 2009)
- 20% report high levels of burnout symptoms during the first 5 years as a nurse (Rudman & Gustavsson, 2011).
- Introduction to shift work
- Newly graduated nurses lack effective strategies for sleep and fatigue, and the strategies used are often counterproductive (Epstein et al, 2020)



Aim

- The aim was to evaluate the effect of a “recovery program” for newly graduated nurses with focus on strategies to promote sleep and recovery in relation to high workload and irregular working hours.

- Outcomes were measures of sleep, unwinding and detachment from work, cognition and ability to work in a safe way.

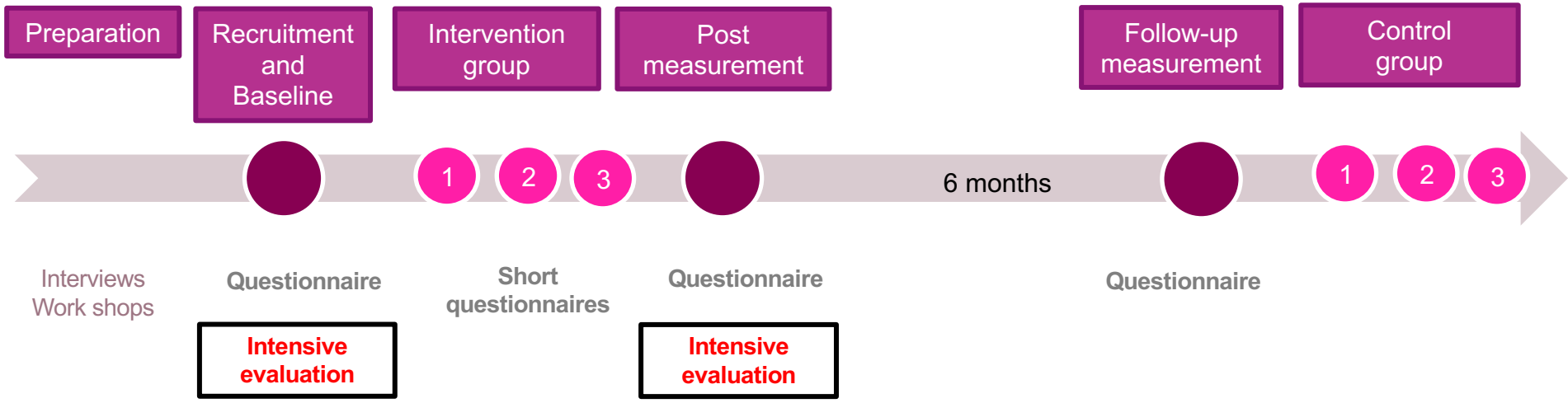
The Recovery Programme

Format & Content

- 3 group sessions (2h during work time)
- Based on cognitive behavioural therapy techniques for sleep (adapted for a preventive approach and for shift workers)
- Psychoeducation about sleep and recovery in relation to work related stress and irregular working hours.
- Tools and strategies
- Reflection in groups

- More info here: https://ki.se/media/89004/download
- Dahlgren A, et al. Randomised control trial of a proactive intervention supporting recovery in relation to stress and irregular work hours: effects on sleep, burn-out, fatigue and somatic symptoms. OEM 2022;79(7):460–8.

Design and Methods



Questionnaire

- Shirom Melamed Burnout Questionnaire (SMBQ)
- Insomnia Severity Index (ISI)
- Somatic Symptom Scale-8 (SSS8)
- Work Home Interference scale (WHI).

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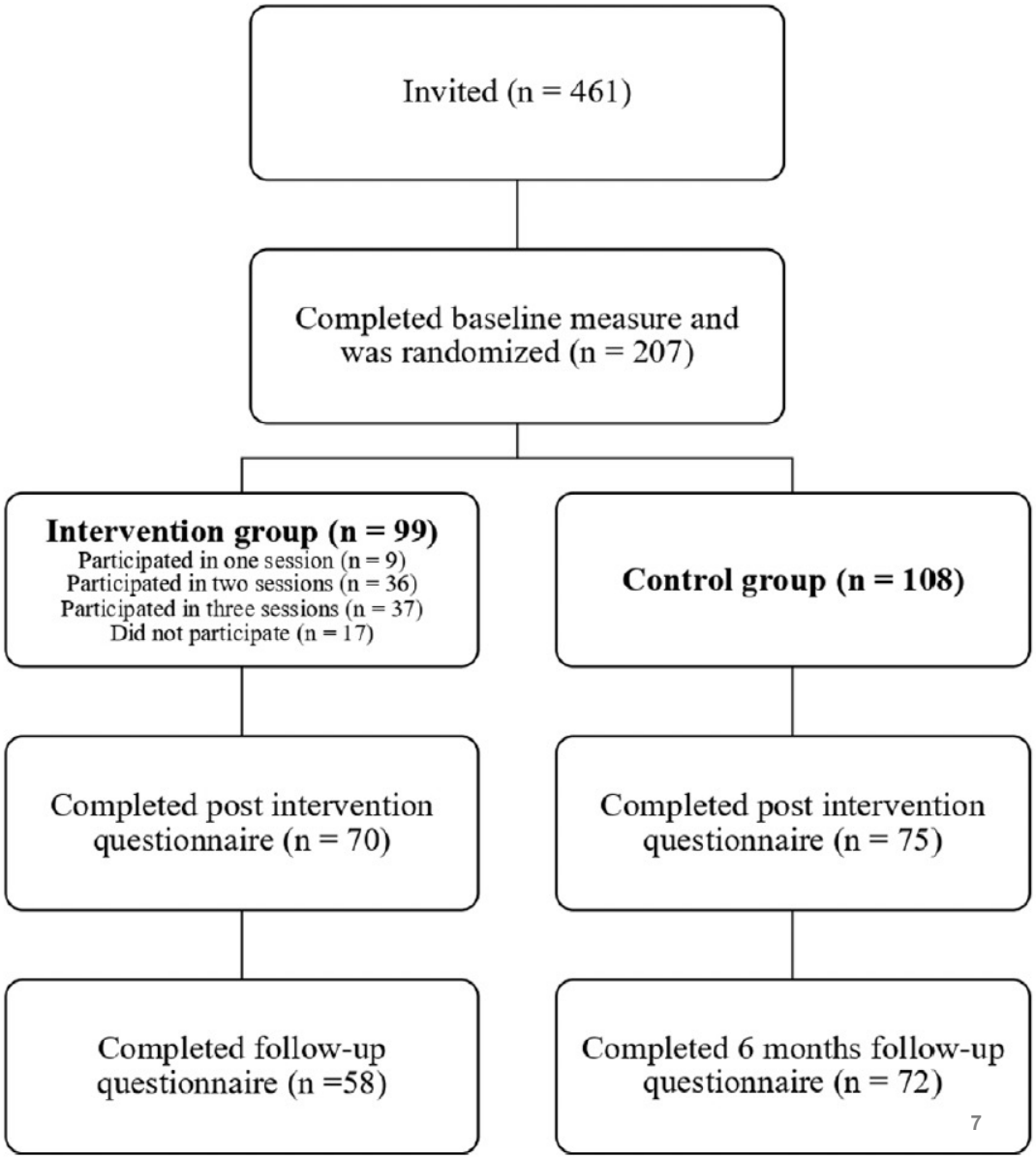
Intensive evaluation

- Diary for 7 days (Sleep, Stress, work, health and cognitive symptoms)
- Actigraphy

For 7 days starting on a work day after a day off

Recruitment

- Via introduction programmes
- Eligibly criteria: Nurses with <12 months' work experience
- Randomly assignment to intervention and control group



Participants & analysis

- Control group
  - 91% women
  - 3.3 months work experience
  - 26.9±0.5 years old
- Intervention group
  - 85% women
  - 2.9 months work experience.
  - 27.2±0.6 years old

- **Analysis**

Aggregated data was analysed with ANOVA (group, time, group*time)

Different shifts were explored using a linear regression with treatment as predictor controlling for ratings at baseline. A baysian modell was used for estimating the effects using flat priors.

The shifts examined were:

- Quick Returns, <11h between shifts (QR)
- Evening shifts
- Day shifts
- Days off

Aggregated data days off: Sleep & detachmen from work duing free time

	Days off		
	Intervention Mean±std	Control Mean±std	G*T
Diary			
Sleep Quality Index (1-5 high quality)			
Baseline	**3.8±0.7**	**4.0±0.5**	**6.87***
Post	**3.9=.6**	**3.7±0.8**	
Stress at bedtime (1-5 no stress)			
Baseline	**4.3±0.8**	**4.6±0.6**	**4.25***
Post	**4.4±0.8**	**4.3±0.9**	
Difficult to detach from work (1-5 difficult)			
Baseline	**2.1±1.0**	**1.9±1.0**	**4.58***
Post	**1.6±0.7**	**2.1±1.1**	
Actigraphy			
Sleep length			
Baseline	7.5±1.2	7.9±1.2	0.22
Post	7.3±1.1	7.6±1.2	
Fragmentation index			
Baseline	**23.7±8.7**	**20.7±7.5**	**6.41***
Post	**22.5±9.7**	**24.0±9.8**	

- Sleep quality
  - → Interventiongroup improved
  - → Control group got worse
- Stress at bed time
  - → Interventiongroup improved
  - → Control group got worse
- Detach from thoughts of work
  - → Interventiongroup improved
  - → Control group got worse
- Fragmented sleep
  - → Interventiongroup improved
  - → Control group got worse

Aggregated data work days: Sleep & detachmen from work during free time

	Work Days		
	Intervention Mean±std	Control Mean±std	G*T
Diary			
Sleep Quality Index (1-5 high quality)			
Baseline	3.5±0.4	3.5±0.5	0.34
Post	3.5±0.5	3.4±0.5	
Stress at bedtime (1-5 no stress)			
Baseline	**3.9±0.6**	**4.0±0.7**	**6.24***
Post	**4.1±0.7**	**4.0±0.8**	
Difficult to detach from work (1-5 difficult)			
Baseline	**2.6±0.9**	**2.5±1.0**	**10.80****
Post	**2.1±0.9**	**2.6±1.2**	
Actigraphy			
Sleep length			
Baseline	6.4±0.7	6.4±0.7	2.27
Post	6.2±0.7	6.4±0.8	
Fragmentation index			
Baseline	23.7±9.0	21.4±7.0	0.08
Post	24.5±8.0	22.5±7.0	

- Stress at bedtime
  - → Linterventiongroup improved
  - → No change in control group
- Detach from thought of work
  - → Interventiongroup improved
  - → Control group got worse
- No effects on objective measures of sleep

Aggregated data: Cognition and safety during work days

	Intervention Mean±std	Control Mean±std	G*T
Take decisions			
Baseline	**2.2±0.4**	**2.0±0.5**	**8.13****
Post	**1.9±0.5**	**2.0±0.5**	
Keep things in working memory			
Baseline	**2.4±0.7**	**2.2±0.5**	**4.30****
Post	**2.1±0.6**	**2.2±0.6**	
Overall picture			
Baseline	**2.4±0.5**	**2.2±0.6**	**3.98****
Post	**2.0±0.5**	**2.2±0.6**	
Work in a safe way			
Baseline	**2.1±0.5**	**1.9±0.4**	**6.54***
Post	**1.9±0.5**	**2.0±0.5**	
Being attentive adn present with others			
Baseline	**2.1±0.5**	**2.0±0.6**	**5.82***
Post	**2.0±0.6**	**2.1±0.6**	

All items 1-5 very difficult)

- Intervention group improved on all items
  - → Make decisions
  - → Keep things in working memory
  - → Have an overall picture of the situation
  - → Work in a safe way
  - → Being attentive and present with others
- Control group either got worse or reported no change

Conclusions

- A short, proactive, group-administered recovery programme was helpful in strengthening recovery for newly graduated RNs, by;
  - → Increased sleep quality and better detachment from work
  - → Improving executive cognitive function & ability to work safely
  - → The effects varied in relation to different shifts;
    - Better sleep quality during QR
    - More pronounced cognitive improvements during evening shifts – preventing accumulated fatigue?

- Overall, results are suggesting recovery as a key factor in the prevention of poor sleep quality and impaired cognition and safety.

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Group members & partners

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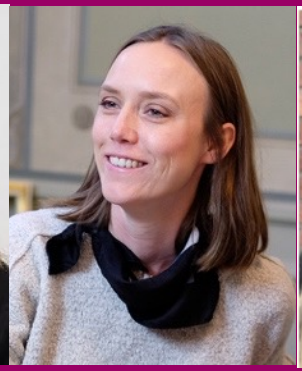

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Thank you for listening!

Other publications

Dahlgren A, et al. Randomised control trial of a proactive intervention supporting recovery in relation to stress and irregular work hours: effects on sleep, burn-out, fatigue and somatic symptoms. Occupational and environmental medicine (London, England). 2022;79(7):460–8.

Epstein M et al. Sleep and fatigue in newly graduated nurses—Experiences and strategies for handling shiftwork. Journal of clinical nursing. 2020;29(1-2):184–94.

Final report: https://ki.se/media/88984/download

More about the recovery program:

https://ki.se/media/89004/download