



# What do nurse anaesthetists know about pain?

Psychometric testing: «Nurses Knowledge & Attitudes Survey Regarding Pain Anaesthesia (NKAS-ANÄ)»

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- Surgery is associated with acute postoperative pain
- Acute pain is a relevant problem for the patients within the first 48 hours after surgery and affects up to 83%
- Acute postoperative pain is associated with
  - extended convalescence and work disability
  - prolonged hospitalisations
  - increased healthcare costs
- Acute postoperative pain is a risk factor for chronic pain



(Wilder-Smith, 2011; Lorentzen, Hermansen, & Botti, 2011;  
Crawford, Armstrong, Boardman, & Coulthard, 2011; IASP, 2010)



# Background





# Background





# Background

- Nurse anaesthetists require up-to-date expertise in pain management
- In the perioperative setting, they need to know how to appropriately treat different stages of pain
- If knowledge in the field of pain management is lacking, it can adversely effect further treatment and recovery



# Background

## Aim of postoperative pain management

- Alleviate acute pain
- Affect the healing process positively
- Prevent complications:
  - Adverse cardiovascular
  - respiratory effects
  - Delirium
  - Chronic pain
- Reduce economic burden



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# Background

- In Switzerland, nurse anaesthetists and anaesthesiologists are responsible for perioperative pain management
- Nurse anaesthetists administer and prescribe pain medication in delegation of anaesthesiologists
- Independent risk factors have to be considered: exposure, surgery, gender, age and maybe existing preoperative pain



## Goal for this study

Lack of evidence regarding nurse anaesthetist's knowledge of post-operative pain management





# Aim of this study



Validation of the German version of the “Nurses Knowledge & Attitudes Survey Regarding Pain Anaesthesia (NKAS-ANÄ)”

Testing different forms of validity and reliability



## Adaptation of the pre-existing questionnaire NKAS-A

- Evaluation, revision of questionnaire according to relevance by independent anaesthesia experts (n=10); *Jun-Jul 2013*
- Revision, restructuring of questions by experts in anaesthesia, oncology (n=5); *Sep-Oct 2013*

## Psychometric testing new NKAS-ANÄ (Step 1)

- Evaluation of face validity: medical doctor, associate professor of anaesthesiology and chronic pain (n=1); *Dec 2013*
- Testing item content validity, scale content validity/ave: nurses/medical doctors in anaesthesia (n=10); *Dec 2013-Mar 2014*
- Testing readability of questionnaire: anaesthesia, emergency & critical care experts (n=3); *Mar 2014*

## Psychometric testing NKAS-ANÄ (Step 2)

Testing of final version of the questionnaire for nurse anaesthetists of all levels of education (testing convergence validity, testing reliability KR 20) (n=209); *Aug-Sep 2014*

(Portney & Watkins, 2009; LoBiondo-Wood & Haber, 2005; Polit, Beck, & Owen, 2007; Polit & Beck, 2008)



# Variables & measurement

Questionnaires	Content/extent
<p><b>Scale 1 (Items 1-19)</b></p> <p>Binary questions</p>	<ul style="list-style-type: none"> <li>• Sociodemographic data</li> <li>• Self-assessment of own expertise</li> <li>• General expertise in pain</li> </ul>
<p><b>Scale 2 (Items 20-34)</b></p> <p>Multiple-choice questions</p>	<ul style="list-style-type: none"> <li>• Specialised knowledge of perioperative pain management</li> <li>• Specialised knowledge of post-operative pain management</li> </ul>



## Design/Setting final testing





# Results

Variable		Participants (number)	%
Gender	male	33	30
	female	75	69
	not specified	1	1
Age (years)	20- 40	54	49
	41- 50	25	23
	51≥60	24	22
	not specified	6	6
Employment (%)	≤40	4	4
	41- 80	30	27
	81-100	71	65
	not specified	4	4



# Results

## Validity

- Item Content Validity: 0.4-1.0
- Scale Content Validity/Ave: 0.85
- Convergence Validity according to Pearson's  $r$  ( $\alpha = 0.05$ ) was weak:  $r = .017$  and not significant

## Reliability

- KR 20 (Cronbach's alpha) = 0.52 for the instrument
  - Scale 1: 0.45
  - Scale 2: 0.73



## Discussion

- The German version of the NKAS-ANÄ has satisfactory content validity, and part two has sufficient reliability
- Before using the entire instrument to assess knowledge of the nurse anaesthetists, the usefulness of the items of first part should be reconsidered
- Rewording of certain items is recommended, psychometric properties (e.g. construct validity) have to be tested in a larger sample



## Conclusion

- The NKAS-ANÄ is a promising instrument to determine expertise in anaesthesiological-pharmacological pain on a single-item level
- It seems that nurse anaesthetists need to have more knowledge and expertise in general perioperative pain management
- Further research is needed in order to define summary scores and evidence based on construct validity





# Limitations

- Not all areas of anaesthesia nursing were included
- Certain items were misleading
- No comparison between trained nurse anaesthetist and nurse anaesthetist in training was possible





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# Thank you for your attention!

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