

psychological predictors of acute and chronic post-operative pain and recovery

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BACKGROUND

- ❑ CPSP major problem after surgery
- ❑ Little knowledge on role of psychological factors
- ❑ Need for prospective studies with pre-operative assessment of psychological variables

PROSPECTIVE STUDIES 2002 – 2009



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pre-op - acute post-op - 6-month FU - 12 month FU


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- ❑ ongoing same-day admission patients
pre-op - acute post-op - 12 months follow-up

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pre-op - acute post-op - 12 months follow-up
- 217 E-N-T patients*
- 

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PRE-OPERATIVE PSYCHOLOGICAL ASSESSMENT

- surgical anxiety
- pain catastrophizing
- trait anxiety
- optimism
- self-efficacy

BIOMEDICAL AND CONTROL VARIABLES

- demographics: sex, age, education
- pre-operative pain, ASA grade
- type of operation: minor, intermediate, major
- anatomical site
- type of anesthesia (general, locoregional, both)

SHORT-TERM OUTCOMES

- pain intensity (VAS 0 – 100 mm)
day of operation until 4 days post-op
3 x / day
- functional recovery at day 4
self-report of ADL limitations

PAIN INTENSITY > 40 mm

| Predictor | Same-day N=648 | In-patients N=1490 | E-N-T N=217 |
|--------------------------|-------------------|-----------------------|----------------|
| More extensive operation | ✓ | ✓ | |
| Pre-operative pain | ✓ | ✓ | |
| Surgical fear | ✓ | ✓ | |
| Pain catastrophizing | | ✓ | ✓ |

Gramke, H. F., et al., *European Journal of Pain*, in press

Sommer, M. et al., *European Journal of Anaesthesiology*, 2008; 25: 267

Sommer et al., *Archives of Otolaryngology: Head and Neck Surgery*, 2009; 135: 124

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|--------------------------|-------------------|-----------------------|----------------|
| More extensive operation | ✓ | ✓ | |
| Pre-operative pain | ✓ | ✓ | |
| Surgical fear | 1.7 – 2.2 | 1.4 – 1.6 | |
| Pain catastrophizing | | 1.5 – 1.8 | 2.1 – 2.8 |

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FUNCTIONAL RECOVERY

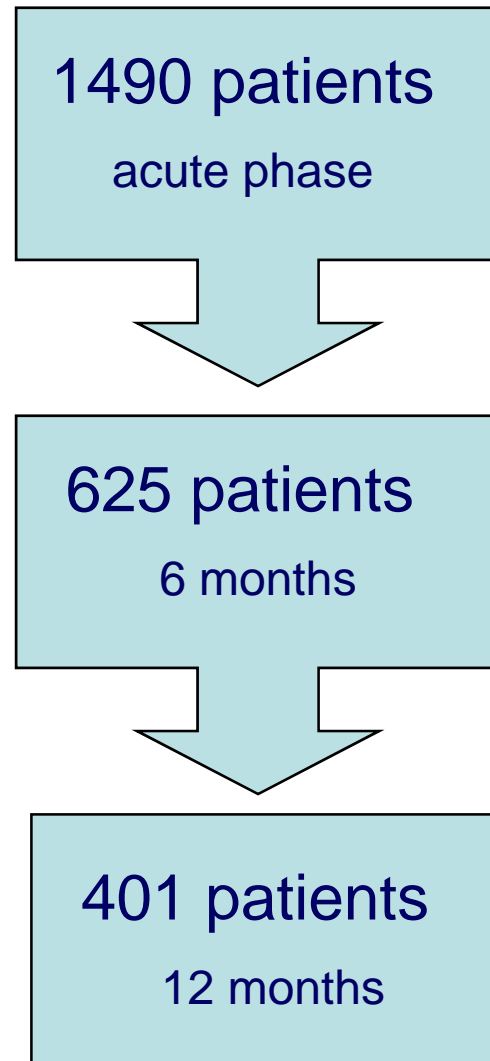
| Predictor | In-patients N= 1490 |
|---------------------------|------------------------|
| More extensive operations | ✓ |
| Type of operations | ✓ |
| Female | ✓ |
| Optimism | ✓ |
| Self-efficacy | ✓ |

FUNCTIONAL RECOVERY

| Predictor | In-patients N= 1490 |
|---------------------------|------------------------|
| More extensive operations | ✓ |
| Type of operations | ✓ |
| Female | ✓ |
| Optimism | 0.7 |
| Self-efficacy | 0.7 |

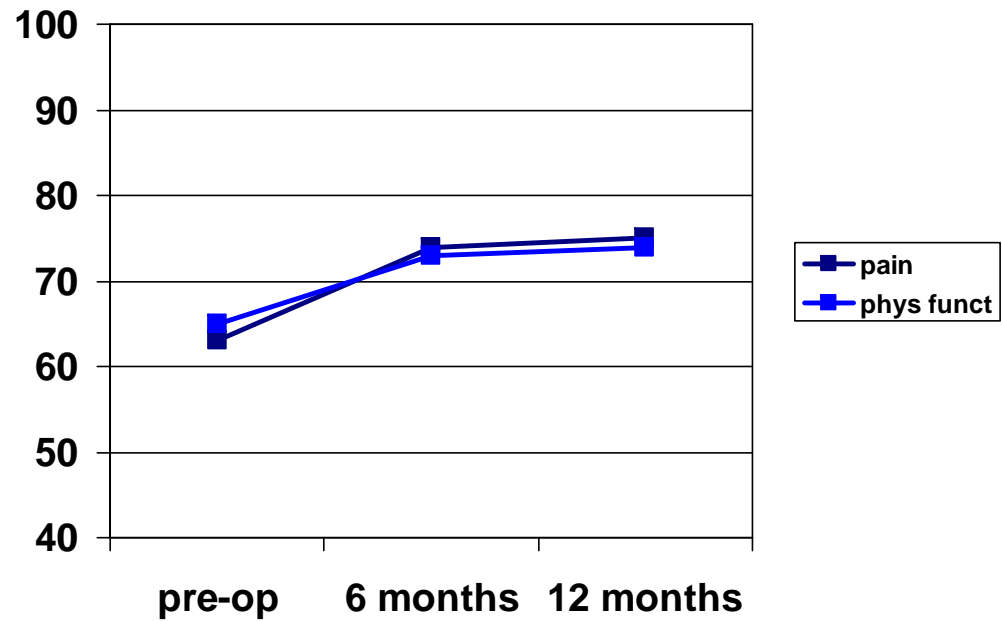
LONG-TERM OUTCOMES

- Increase in pain at follow-up
- Increase functional limitations at follow up
- Global surgical recovery
- SF – 36 health-related quality of life
(pain, physical functioning, mental health, vitality)



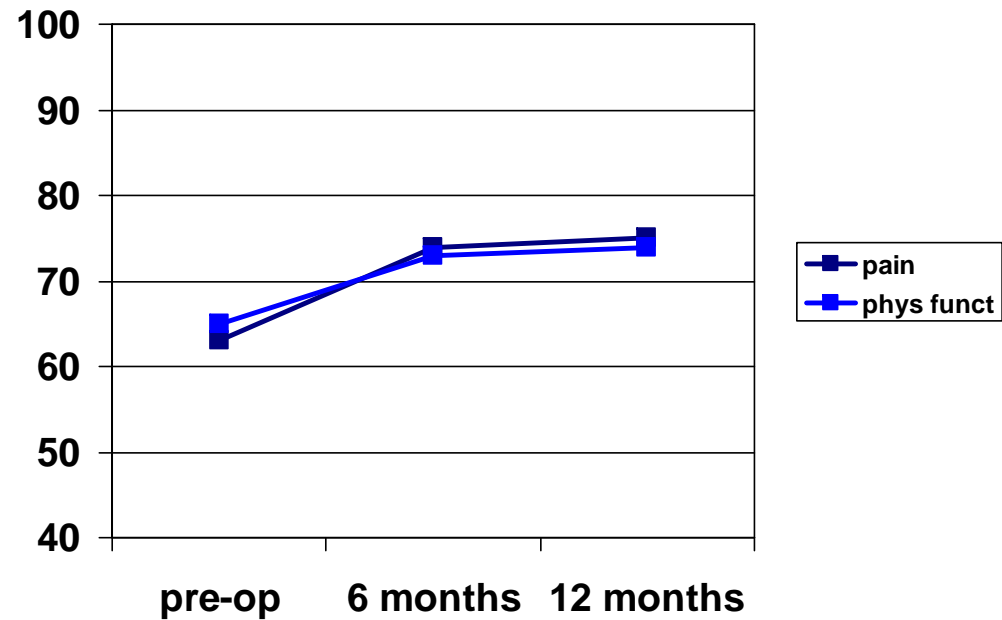
OVERALL LONG-TERM OUTCOME

SF-36



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SF-36



Perceived recovery

6 months: 78% (range 0 – 100%)

12 months: 82% (range 0 – 100%)

OVERALL LONG-TERM OUTCOME

| | improved | same | deteriorated |
|------------------------|----------|------|--------------|
| PAIN | 53% | 30% | 17% |
| FUNCTIONAL LIMITATIONS | 43% | 43% | 14% |

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PREDICTORS LONG-TERM OUTCOME

| Predictor | pain | functioning |
|---------------------------|------|-------------|
| More extensive operations | ✓ | ✓ |
| Duration > 3 hr. | ✓ | ✓ |
| Acute post-op pain | ✓ | ✓ |
| ASA grade III | ✓ | ✓ |
| Surgical fear | ✓ | ✓ |
| Optimism | | ✓ |

Peters et al., *Annals of Surgery*, 2007; 245: 487

Peters et al., *Submitted*

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| Optimism | | ~ 0.6 – 0.7 |

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| More extensive operations | ✓ | ✓ |
| Duration > 3 hr. | ✓ | ✓ |
| Acute post-op pain | ~ 3.5 | ~ 2.5 |
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- ❑ More homogenous surgical sample:
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- Genetic analyses

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- ❑ Same + additional predictor variables (core set)
- ❑ Similar + additional outcome variables (core set)
- ❑ Genetic analyses
candidate genes (SNP's)
gene x psychological variables

WHAT'S NEXT.....??

- Causal or association?

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- Need for specific interventions targeting identified risk factors

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The Netherlands Organization of Scientific Research

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thank you for your attention