



Project Title



UiO : University of Oslo

Pre-operative clinical and psychological predictors of acute pain trajectories
and quality of life in orthopedic surgery patients at Jimma University

Medical Center, Ethiopia

Mestawet Getachew

PhD student

Institute of Health Sciences , Jimma University, Clinical pharmacist

Professor Anners Lerdal (Main Supervisor, UiO)

Dr Maren Falch Lindberg (Co-supervisor, UiO)

Million Tesfaye (PhD) (Co-supervisor, JU)



Background



- Almost every person experiences some kind of pain thus “Relief of pain should be a human right.”

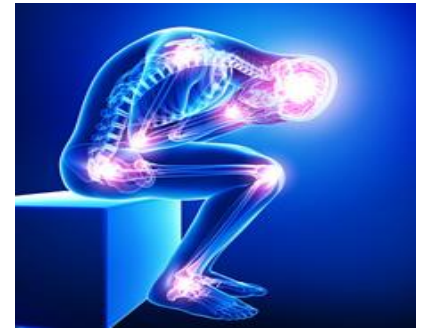
(Cousins M *et al.*, 2004)

- Pain, an unpleasant sensory & emotional experience associated with actual or potential tissue damage
- Acute pain, predicted physiological response to an adverse chemical, thermal or mechanical stimulus, associated with surgery & injury

(Raymond Sinatra, 2010 ; Cousins M *et al.*,2004)



...Background



- Even though, pain is a predictable event after surgery
- Effective pain management beyond the ethical obligations,
->medical & economic benefits:
 - Delays mobilization... muscle wasting, slowed recovery, thromboembolism
 - Progression of acute to chronic pain
 - Prolonged opioid use
 - Quality of life

(Schug SA *et al.*, Acute Pain Management: Scientific Evidence 4th edition, 2015)



...Background



- Despite substantial advances in pain research & clinical progresses in pain management
 - unrelieved pain remains public health problem
- Globally, up to 80% pts (moderate-severe)
 - Less than 50% of pts had adequate pain management

(Correll DJ, 2014)

- Pts undergoing orthopedic surgery experienced severe & the pain undertreated

(Gerbershagen HJ *et al.*, 2013)



...Background



- US, 80% (acute pain), 86% (moderate-extreme), and 50% after discharge

(Apfelbaum JL *et al.*, 2003)

- Tanzania, 95.6% (moderate-extreme)

(Mwashambwa MY *et al.*, 2018)

- Ethiopia,

- Gondar, 57%(moderate-severe)

(Admassu WS *et al.*, 2016)

- Jimma, 91.4%(moderate-severe)

(Woldehaimanot TE *et al.*, 2014)



Relevance

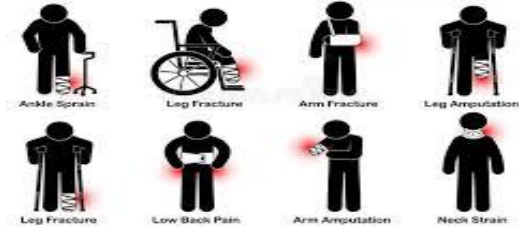


- Pre- & peri-operative factors are thought to be augmenters of pain intensity
(Werner MU *et al.*,2010 ; Hernández C *et al.*,2015)
- What factors... after orthopedic surgery are still unclear ?
- To generate knowledge & to raise awareness of clinician
 - the modifiable factors may be useful along with pain medication to optimize pain mgt
 - designing preventive plan for targeted patients at risk of intense pain
- Serve as a baseline for a wider future study



General Objective

- To identify pre-operative clinical & psychological factors associated with trajectories of pain intensity, and HRQL in orthopedic surgery pts



Research questions?



1. Association b/n catastrophic thinking & psychological factors with pre-operative pain intensity?
2. What is the change over time in intensity of pre- & post-operative pain & associated factors?
3. Association between analgesic adequacy with pain intensity?
4. The change of HRQL pre-operative & after 30 days of discharge & associated factors?

Variable



Independent variable

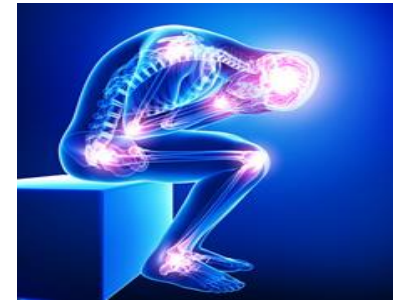
- Socio-demographic characteristics
- Substance use
- Body mass index
- Chronic disease & medication
- Physical status classifications
- Types of anesthesia & medication
- Types of surgery/length of surgery
- Analgesic medication
- Length of hospital stay
- Anxiety /Depression
- catastrophic thinking
- Cognitive & emotional illness

Out come variable

- Pre-operative pain intensity
- Post-operative pain intensity
- HRQL



Methodology



Study area:

- Orthopedic surgical unit at JUMC, Ethiopia

Design:

- Prospective longitudinal study

Sample size:

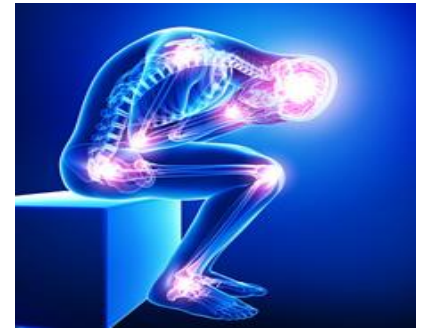
- G Power, $\alpha = 0.05$, $p = 0.80$, medium effect size ($f = 0.25$) assuming fixed model, linear multiple regression with 10 covariates a sample size ~ 196 , considering 10% for non-response rate: 220

Study population:

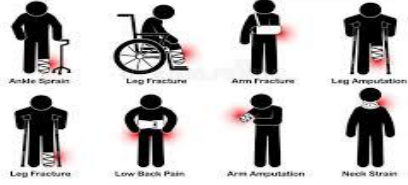
- Pts aged ≥ 18 yrs. stratified 110(upper) & 110 (lower) extremity



Ethical issue



- Approval granted from Oslo Health south-East regional ethical committee (2017/1609/REK)
- Approval will be sought from the Institutional Review Board, JU
- The study follow the Helsinki declaration ethics:
 - Voluntary nature of participation including their rights to refuse or withdraw at any time in point
 - Pt confidentiality will be maintained throughout the research
 - Depersonalized using a code number



Inclusion criteria

- Pts aged ≥ 18 yrs. scheduled for subacute orthopedic surgery
- Willingness & ability to provide a written informed consent form

Exclusion criteria

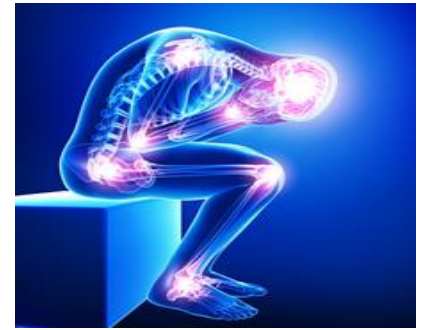
- Severe mental illness & dementia
- Transferred to ICU

Recruitment

- Recruit eligible pts from the subacute surgical waiting list
- Approach pts at the respective surgical ward before the planned operation
- Inform the purpose of the study
- Approve invitation by signing an informed consent form



Data collection



- Relevant data will be collected by nurses & anesthetist who will be pre-trained about nature of the study
- Data will be collected by administering a questionnaire via interview & reviewing the pts' medical records
- All questionnaires will be translated into local language (Afan Oromo & Amharic)
- pretest in 5% of patients before the actual data collection

| Types of Data | Source | Data collection time points | | | |
|---------------------------------------------------------------------------------------------|-------------------------|-----------------------------|-----------------------|------------------|---------------|
| | | Pre-surgery | Post-surgery days 1-3 | Day of discharge | After 4 weeks |
| Socio-demographic: age, religion, occupation | Patient cards/Interview | X | | | |
| Education status Substance use (smoking, Khat & alcohol) | Interview | X | | | |
| Clinical characteristics | | | | | |
| Body mass index | Patient cards | X | | | |
| Chronic illnesses & medications | Interview/Patient cards | X | | | |
| Analgesic medication; type, dosage, frequency | Patient cards | X | X | X | X |
| ASA Physical status | Interview | X | | | |
| Causes for injury | Interview | X | | | |
| Length of hospital stay | Patient cards | | | X | |
| Types of anesthesia, anesthesia medication, types of surgery & length of surgery | Patient cards | | X | | |
| Pain – Brief Pain Inventory | Interview | X | X* | X | X |
| Catastrophic thinking - PCS | Interview | X | | | |
| Anxiety/depression – HADS | Interview | X | | | |
| Cognitive & Emotion -BIPQ | Interview | X | | | |
| HRQoL - EuroQol-5Dimensions | Interview | X | | | X |

Project plan

| Activities & place | Jan 2017_ Feb 2018 | Mar 2018_ Jul 2018 | Aug 2018_ Aug 2019 | Sep 2019_ Feb 2020 | Mar 2020_ Aug 2020 | End of Aug 2020 |
|-----------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------|
| Protocol development and enrichment (Ethiopia) | | | | | | |
| Attending class & finalizing protocol (Oslo, Norway) | | | | | | |
| Processing ethical & training data collectors (Ethiopia) | | | | | | |
| Data collection(Jimma, Ethiopia) | | | | | | |
| Checking & Cleaning data (Ethiopia) | | | | | | |
| Attending class/ seminar (Oslo, Norway) | | | | | | |
| Data analysis, manuscript preparation (Oslo, Norway) | | | | | | |
| Thesis writing & manuscript preparation (Oslo & Ethiopia) | | | | | | |
| Result dissemination & publication (Ethiopia) | | | | | | |
| PhD defense (Oslo, Norway) | | | | | | |

MULTIPLE INJURY

Medical Vector



Ankle Sprain



Leg Fracture



Arm Fracture



Leg Amputation



Leg Fracture



Low Back Pain



Arm Amputation



Neck Strain

Acknowledgements



- Professor Anners Lerdal
- Dr Maren Falch Lindberg
- Million Tesfaye (PhD)
- Jimma University & University of Oslo
- SACCADE project
- My Family

MULTIPLE INJURY

Medical Vector



Ankle Sprain



Leg Fracture



Arm Fracture



Leg Amputation



Leg Fracture



Low Back Pain



Arm Amputation



Neck Strain



Thank you for your attention