

Project Title

Psychological Factors Strongly Associated with Poor Functional Outcomes and Quality of Life in Knee Osteoarthritis

Project Lead and Members

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Organisation(s) Involved

Woodlands Health Campus, Tan Tock Seng Hospital

Healthcare Family Group(s) Involved in this Project

Medical

Applicable Specialty or Discipline

Orthopaedic Surgery

Aims

To investigate the association of psychological factors (depression, anxiety, kinesiophobia, pain interference) on patient-reported outcomes (function and QOL)

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Conclusion

See poster appended/ below

Lessons Learnt

There are important associations between psychological factors and musculoskeletal health outcomes.

Psychological factors should be screened for and actively managed as part of a holistic model of care for Knee Osteoarthritis.

Future research should aim to further explore the other psychosocial determinants of health and effective interventions or stratification tools to target these psychological factors that impact health.

Additional Information

Singapore Health & Biomedical Congress (SHBC) 2023: Best Poster Award (Clinical Research) – (Merit Award)

Project Category

Applied/ Translational Research

Quantitative Research

Keywords

Knee Osteoarthritis, Kinesiophobia, Patient-Reported Outcomes

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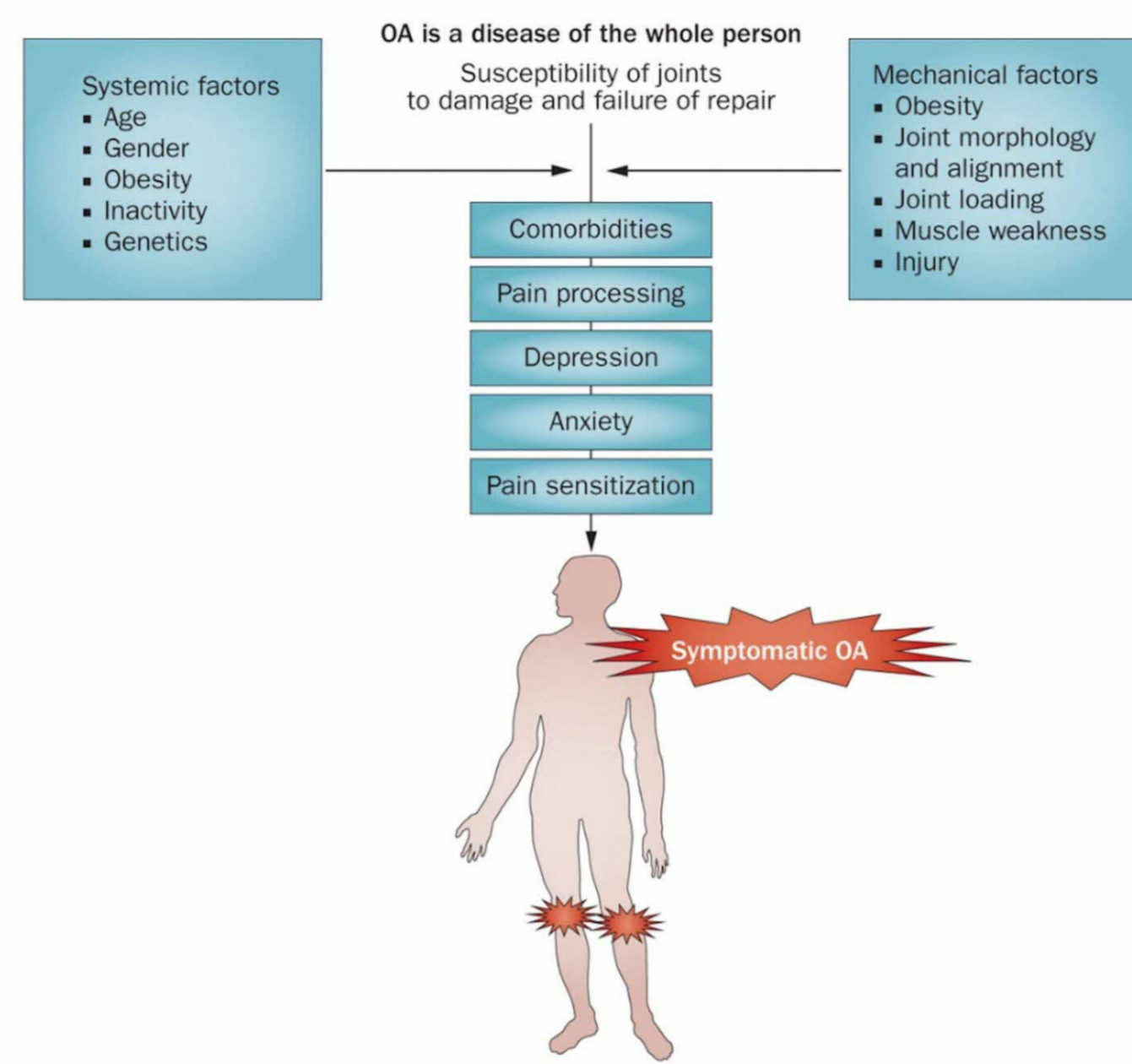
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Background

- Knee osteoarthritis (KOA) is the most common joint degenerative disease and the top cause of chronic disability among the elderly. [1]
- Traditional biomedical factors such as radiological severity have not been able to meaningfully predict functional and quality of life (QOL) outcomes in KOA patients. [2]
- Recent studies have pointed towards a biopsychosocial model in better prognosticating and managing chronic conditions like osteoarthritis. [3]
- Nonetheless, there remains a paucity in evidence exploring the specific psychological factors impacting KOA outcomes, warranting further studies.



RESULTS

Study findings

- Overall, the study included **563 patients**.
- Our study results showed that:

→ **Kinesiophobia (BFOM), pain interference (PEG) and depression and anxiety (PHQ4) were all significantly associated with poorer functional outcomes (KOOS) and QOL scores (EQ5D)**

- ❖ KOOS: adj. coef (BFOM/PEG/PHQ4):-0.76/-4.09/-2.56, p<0.001
- ❖ EQ5D-QOL: adj. coef (BFOM/PEG/PHQ4):-1.00/-2.34/-1.92, p<0.001

Objectives

Among people with non-operatively treated KOA, we studied:

1. The association of psychological factors (depression, anxiety, kinesiophobia, pain interference) on patient-reported outcomes (function and QOL)

METHODOLOGY

Study design and patients:

- This was a cross sectional study of patients who received non-operative treatment for knee osteoarthritis.

Baseline psychological measures:

1. Depression and Anxiety measured by the Patient Health Questionnaire-4 (PHQ4)
2. Kinesiophobia measured by the Brief Fear Of Movement scale (BFOM)
3. Pain interference measured by the Pain, Enjoyment of Life and General Activity scale (PEG).

Outcome measures:

- Functional status and QOL of patients were assessed using the Knee Injury and Osteoarthritis Outcome Score (KOOS) and EuroQol-5-Dimensions (EQ5D-QOL) respectively.

Data analysis:

- The association between the measured psychological factors with functional and QOL outcomes was analysed using multiple linear regression, with adjustment for age, gender, body mass index (BMI) and KOA duration.

Table 1: Descriptive statistics on demographic characteristics

| | |
|--|---------------------|
| Age in years, mean ± SD | 64.01 ± 7.92 |
| Gender, n (%) | |
| Male | 177 (31.4) |
| Female | 386 (68.4) |
| Ethnicity, n (%) | |
| Chinese | 452 (80.1%) |
| Malay | 50 (8.9%) |
| Indian | 52 (9.2%) |
| Others | 10 (1.8%) |
| BMI in kg/m² mean ± SD | 26.61 ± 4.94 |

Table 2: Association between BFOM, PEG and PHQ4 with KOOS and EQ5D

| | Adj. Coef | 95% CI | P value |
|----------------------------|-----------|--------------|---------|
| Outcome: KOOS pain | | | |
| BFOM | -0.71 | -1.08, -0.34 | <0.001 |
| PEG | -3.96 | -4.45, -3.48 | <0.001 |
| PHQ4 | -2.22 | -2.78, -1.66 | <0.001 |
| Outcome: KOOS ADL | | | |
| BFOM | -0.59 | -0.99, -0.19 | 0.004 |
| PEG | -3.99 | -4.51, -3.46 | <0.001 |
| PHQ4 | -2.53 | -3.12, -1.95 | <0.001 |
| Outcome: KOOS QoL | | | |
| BFOM | -0.98 | -1.38, -0.58 | <0.001 |
| PEG | -4.30 | -4.83, -3.78 | <0.001 |
| PHQ4 | -2.93 | -3.52, -2.35 | <0.001 |
| Outcome: KOOS Total | | | |
| BFOM | -0.76 | -1.09, -0.43 | <0.001 |
| PEG | -4.09 | -4.48, -3.69 | <0.001 |
| PHQ4 | -2.56 | -3.04, -2.09 | <0.001 |
| Outcome: EQ5D VAS | | | |
| BFOM | -1.00 | -1.33, -0.66 | <0.001 |
| PEG | -2.34 | -2.82, -1.86 | <0.001 |
| PHQ4 | -1.92 | -2.41, -1.42 | <0.001 |

*Controlled for age, gender, BMI, and duration of OA

CONCLUSION

- **This was the first and largest scale study done on an Asian population showing that psychological factors including kinesiophobia, depression, anxiety and pain interference negatively impacts functional outcomes and QOL in KOA patients**
=> This emphasizes the important associations of psychological factors to musculoskeletal health and outcomes of KOA
- Psychological factors should be screened for and actively managed as part of a holistic model of care for KOA.
- Future research should aim to further explore the other psychosocial determinants of health and effective interventions or stratification tools to target these factors that impact health

REFERENCES

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