Factors affecting the perioperative experience of older patients undergoing joint replacement surgery: An integrative literature review

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Outline

1. Introduction
2. Review
   - Aim
   - Significance of review
   - Quality appraisal
   - Data extraction and synthesis
   - Search methods
3. Results
4. Discussion
5. Clinical implication
6. Conclusion
Introduction

- Globally, older population has reached 650 million and forecasted to reach 2 billion by 2050
  (United Nations, 2010; World Health Organization, 2011a)

- Aging is associated with chronic conditions such as osteoarthritis which affects mobility and independence.
  (Dawson, et al., 2004)

- Total Hip Replacement (THR) and Total Knee Replacement (TKR) are treatment strategy for osteoarthritis.
Introduction

Osteoarthritis (OA) is defined as "a heterogeneous group of conditions that lead to joint symptoms and signs which are associated with defective integrity of articular cartilage, in addition to related changes in the underlying bone at the joint margins"

Subcommittee on Osteoarthritis of the American College of Rheumatology Diagnostic and Therapeutic Criteria Committee

(Altman et al., 1987)
Severe OA Hip/Knee

- Worsening pain
- Disability
- Deformity
- Loss of function
- Social Isolation

Total Hip / Total Knee Replacement (THR/TKR)

- Alleviate pain/disability
- Restore function
  Improve quality of life postoperatively

(Dawson, Fitzpatrick, Fletcher, & Wilson, 2004; Kaplan, 2008; Martin & Thornhill, 2011; Fujita, Makimoto, & Hotokebuchi, 2006; Hamel, Toth, Legedza, & Rosen, 2008; Nguyen, Sept 2010; Skerker & Mulford, 2008; Ministry of Health, 2011; Singh et al., 2010)
Joint replacement surgery comprises 3 phases:

**Preoperative**
- Decision to undergo surgery till transfer to operating room

**Intraoperative**
- Period of surgery in the operating room till transfer to the post-anaesthesia care unit (PACU)

**Postoperative**
- Admission to PACU till recovery from surgery

(Medical Education Division, 2007; Keogh, 2011)
Aim of integrative literature review

To examine the factors relating to the perioperative experience of older persons undergoing total hip and total knee replacement surgery resulting from osteoarthritis
Significance of Review

Imperative for nurses to understand factors relating to the perioperative experience of older persons undergoing joint replacement surgery

Challenging/Complex perioperative journey to regain control of life

Inform nursing practice
Expand nursing knowledge

Lack of continuum in perioperative period

(Gustafsson, Ponzer, Heikkila, & Ekman, 2007; Stephen-Woods, 2008)
Search methods

- **Electronic search of CINAHL, PubMed, Scopus and Web of Science**
- **Search terms:**
  - Preoperative experience, intraoperative experience, postoperative experience and perioperative experience, Health Related Quality of Life (HRQOL) and Quality of Life (QOL).
  - total knee replacement, total hip replacement and total joint replacement to narrow down the search.
- **Inclusion criteria:**
  - Patients age ≥ 60 years old
  - Perioperative experience of THR/TKR related to osteoarthritis
  - HRQOL/QOL of THR/TKR related to osteoarthritis
  - Time period 2001 - 2012
  - English Language
  - Primary research (Qualitative and Quantitative design)
  - Published in peer-reviewed journals
Quality Appraisal

- Qualitative Assessment Review Instrument (QARI) critical appraisal tools
- Meta analysis of Statistical Assessment and Review Instrument (MASTARI) critical appraisal tools

Comparable Cohort / Case Control Studies

Data Extraction and Synthesis

Data matrices:

- Display extracted data on sample characteristics, measurement tools, methodology, data collection, key findings
- Compare and synthesize results for similarities and differences across selected studies
Results

Potentially relevant papers identified by literature search n=214

Papers retrieved for detailed examination n=135

Papers assessed for methodological quality n=40

Papers included in the review n=22

Cinahl-84
PubMed-90
Scopus-20
Web of Science-20

Papers excluded after examination of abstract and duplicates n=79

Papers excluded after review of full paper n=95

Papers excluded in the review n=18

Qualitative papers n=9

Quantitative papers n=13
Results – Study Design

13 Quantitative Studies

- Prospective longitudinal (6)
- Cohort (3)
- Cross sectional (2)
- Descriptive (1)
- Retrospective (1)

Results

9 qualitative studies

Methodological approach

Hermeneutic/Interpretative phenomenology (5)

Interpretive Phenomenology (1)

Grounded Theory (1)

Qualitative (Methodological approach not stated) (2)

(Fujita, et al., 2006; Marcinkowski et al. 2005; Gustafsson, et al., 2010a; ; Gustafsson, et al., 2010ab; Gustafsson, et al., 2007; Mauleon, et al., 2007; Mchugh & Luker, 212; Parsons et al, 2009; Sjoling, et al., 2005)
# Quality Appraisal

Critical appraisal checklist of Joanna Briggs Institute (2011) for both quantitative and qualitative articles

<table>
<thead>
<tr>
<th>No.</th>
<th>Criteria</th>
<th>Yes</th>
<th>No</th>
<th>Unclear</th>
<th>Not Applicable</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Is sample representative of patients in the population as a whole?</td>
<td>√</td>
<td></td>
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<td>2.</td>
<td>Are the patients at a similar point in the course of their condition/fi</td>
<td>√</td>
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<td>3.</td>
<td>Has bias been minimised in relation to selection of cases and of controls</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td>Cohort study</td>
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<td>4.</td>
<td>Are confounding factors identified and strategies to deal with them stated?</td>
<td>✓</td>
<td></td>
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<tr>
<td>5.</td>
<td>Are outcomes assessed using objective criteria?</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>Multiple measurement tools are not used in standardized manner for both 3 and 10 year cohorts</td>
</tr>
<tr>
<td>6.</td>
<td>Was follow up carried out over a sufficient time period?</td>
<td>√</td>
<td></td>
<td></td>
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<td>10 year study - 40% response rate due to lost in follow-up</td>
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<tr>
<td>7.</td>
<td>Were the outcomes of people who withdrew described and included in the analysis?</td>
<td>✓</td>
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<td>8.</td>
<td>Were outcomes measured in a reliable way?</td>
<td>✓</td>
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<td>9.</td>
<td>Was appropriate statistical analysis used?</td>
<td>✓</td>
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<tr>
<td>10.</td>
<td>Conclusions drawn in the research report do appear to flow from the analysis, or interpretation, of the data.</td>
<td>✓</td>
<td></td>
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</tbody>
</table>

**Rat et al. (2010)**

- Title: Total hip or knee replacement for osteoarthritis: mid- and long-term quality of life.
- Level of evidence: 3

**Gustafsson, B. et al (2007)**

- Title: The lived body and the perioperative period in replacement surgery older people’s experiences

- No. 1: There is congruity between the stated philosophical perspective and the research methodology.
- No. 2: There is congruity between the research methodology and the research question or objectives.
- No. 3: There is congruity between the research methodology and the methods used to collect data.
- No. 4: There is congruity between the research methodology and the representation and analysis of data.
- No. 5: There is congruity between the research methodology and the interpretation of results.
- No. 6: There is a statement locating the researcher culturally or theoretically.
- No. 7: The influence of the researcher, and vice-versa, is addressed.
- No. 8: Participants, and their voices, are adequately represented.
- No. 9: The research is ethical according to current criteria or, for recent studies, there is evidence of ethical approval by an appropriate body.
- No. 10: Conclusions drawn in the research report do appear to flow from the analysis, or interpretation, of the data.
## Data extraction and synthesis

### Theme: Factors relating to perioperative experience

<table>
<thead>
<tr>
<th>Author, Year, Country</th>
<th>Aim, study design, sample</th>
<th>Methods of Data Collection</th>
<th>Key findings</th>
<th>Critique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat et al (2010) France</td>
<td>Aim: Compare quality of life (QOL) scores 3 and 10 years after total hip arthroplasty (THA) or total knee arthroplasty (TKA) for osteoarthritis with QOL scores in a general population. Determine factors associated with QOL after surgery. <strong>Study Design</strong>: Longitudinal prospective study over 3 and 10 year period. 2 multi-centres of OA participants undergoing THA/TKA. <strong>Sample</strong>: n = 232 THA/TKA patients (3-year cohort), n = 221 patients (10-year cohort). <strong>Inclusion</strong>: French speaking. <strong>Exclusion</strong>: If bilateral, delay of more than 1 year between 2 surgeries.</td>
<td><strong>General population</strong>: n = 1038 (age 70-75 years) Population based survey QOL in 2003. <strong>Mean age – 73 years</strong>. <strong>Baseline measurement</strong>: Radiographs. Visual Analogue Score (VAS) 3 year cohort; n = 195. Medical Outcomes Survey Short Form 36 (SF-36). Osteoarthritis Knee and Hip Quality of Life questionnaire (OAKHQOL). 10-year cohort n = 89. Nottingham Health Profile (NHP). Arthritis Impact Measurement Scales 2 (AIMS2). <strong>Other measurement tools</strong>: Harris hip score (HHS) / Index of Severity for Knee osteoarthritis (ISK). Functional Comorbidity Index (FCI). Environmental factors - World Health Organization Quality of Life questionnaire-brief version (WHOQOL-BREF).</td>
<td>3-year and 10-year cohort Physical functioning and role-physical or role-emotional QOL scores were lower than general population with comparable age. Increased number of comorbidities, painful locations other than THA or TKA location Unfavourable environmental factors were associated with impaired QOL. 3-year cohort Low preoperative QOL scores were predictive of impaired QOL at follow-up. 10-year cohort Pain score, mental health, and social dimensions were lower than reference population. THA or TKA can improve QOL. High mean age, living alone, high number</td>
<td>No definition of HRQOL. Multiple tools used to measure HRQOL. Overlaps in measurement of dimensions. Comparing QOL of THA and TKA patients with general population may not be a good comparison and accurate due to different disposition. Measurement tools Different instruments are used for 3 year and 10 year cohorts and thus an objective measurement may not be achieved and thus a presence of biasness. Only 1 measure of QOL was used for the general population.</td>
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</table>
Factors relating to perioperative experience

1. Waiting time
2. Pain and disability
3. Mental Health
4. Race/ethnicity and gender
5. Body image
6. Coping and social support
7. Knowledge of care
8. Care Continuity
Waiting time

- Ranged from 6 months to 2 years
- Significantly correlated with pain experience, joint stiffness, physical functioning, confidence, and HRQOL
- Increased need for support from family members, friends, carers
- Limited independence in activities of daily living
- Increased utilization of nursing home, home help services, and physiotherapy during recovery
- Led to experience of powerlessness
  - (“A Life on hold” and “Continuous struggle”)
- Linked to “Life meaningless” and “Undignified”

(Ackerman, et al., 2011; Bachrach-Lindstrom, et al., 2008; Brownlow et al., 2001; Desmeules, et al., 2012; McHugh et al., 2008; Marcinkowski, et al., 2005; Montin, et al., 2009; Sjoling, et al., 2005; Stomberg & Oman, 2006)
Pain and Disability

Preoperative phase
- Experienced debilitating pain/disability from onset till preoperative period
- Limited and disrupted activities during day and sleep
- Significant deterioration on contralateral knee
- Led to endurance, hurting, struggling waiting for surgery
- Sought alternative therapy to relieve unbearable pain
- Led to impact to employment / early retirement

Postoperative phase
- Improved pain level and mobility

Pre and Postoperative phases
- False optimism

(Ackerman, et al., 2011; Bachrach-Lindstrom, et al., 2008; Brownlow et al., 2001; Desmeules, et al., 2012; Fujita, et al., 2006; Mauleon, et al., 2007; McHugh & Luker., 2012; Marcinkowski, et al, 2005; Montin, et al, 2009; Montin, et al., 2011; Parsons, et al., 2009; Rat, et al., 2010; Stomberg & Oman, 2006)
Patients undergoing joint replacement surgery experienced changes in the status of their mental health during their perioperative continuum. One study by Ackerman (2011) reported a 25% prevalence of psychological distress in patients waiting for THR and TKR surgery. In another study, which examined the relationship of preoperative waiting time to mental health, 25% of THR patients experienced clinically significant mood disorders during the waiting period (Brownlow et al., 2001; McHugh et al., 2008). In this study, only four participants waited for surgery for more than 18 months. Though the patients' waiting time was shortened, there was no evidence of cases with rescheduled surgery to reduce the waiting time in support of study findings (Brownlow et al., 2001). A study by Montin (2007) reported a significant negative correlation of preoperative state anxiety and preoperative psychosocial dimension of HRQOL. The patients' trait and state anxiety was found to be at a moderate level before and after surgery. Though the preoperative trait anxiety impaired the HRQOL both before and after surgery, there was no relationship found between state anxiety and HRQOL (Montin et al., 2007). Patients felt “Defenceless” and “Fear of bodily harm/death” while waiting for joint replacement surgery (Gustafsson et al., 2007). Postoperatively, patients encountered anxiety and distress over the change to their body image and as they adjusted to living with prosthesis during their rehabilitation period (Fujita et al., 2006).

Mental Health

Preoperative phase

- 25% patients awaiting THR/TKR reported psychological distress
- 25% THR patients had clinically significant mood disorders
- Preoperative state anxiety was negatively correlated with the psychosocial dimension of HRQOL.
- Felt “Defenceless” and “Fear of bodily harm/death” while waiting for joint replacement surgery

Postoperative phase

- Reported anxiety/distress over body image
- Adjusted to a life with prosthesis

(Ackerman, et al., 2011; Brownlow et al., 2001; Desmeules, et al., 2012; Fujita, et al., 2006; Gustafsson, et al., 2007; McHugh et al., 2008; Montin, et al, 2007; Stomberg & Oman, 2006)
Race/ethnicity, age and Gender

Race/ethnicity

- African Americans had significantly higher pain scores, functional impairment and lower expectations of surgical outcomes; perceived well-being/function than White Americans

Age

- Older patients reported more postoperative pain than younger patients

Gender

Females:

- Reported more postoperative pain/discomfort, anxiety, depression than males
- Received more home help services (1 mth), transportation (1 mth) and home nursing services (2 mths)

Body image

Preoperative:

- Felt embarrassed using a walking stick and how others perceive them
- Placed self perception of body, ability and image of body constantly always on one’s mind

(Parsons, et al., 2009; Gustafsson, et al, 2007)

- Experienced inferiority complex related disability and transition from disabled body to one of being-charge postoperatively

(Fujita, et al., 2006; Gustafsson, et al, 2007)

Postoperative

- Felt distressed over body image
- Underwent readjustment of unfamiliar body through discovery of limitations and possibilities

(Fujita, et al., 2006; Gustafsson, et al, 2007)
Coping and Social Support

Preoperative phase

- Needed to cope with “Loss of independence” and “hygiene needs” due to pain/disability from severe OA
  
  (Fujita, et al., 2006; Parsons, et al., 2009)

- Absent from work or consider early retirement
  
  (Parsons, et al., 2009)

- Increased family support from 31% - 58% gave a sense of security in coping/continuity and meaning in life
  
  (Bachrach-Lindstrom, et al., 2008; Parsons, et al., 2009; Sjoling, et al., 2005)

Postoperative phase

- Expressed frustration, demoralization due to incapability and continued physical dependency
  
  (Parsons, et al., 2009)

- Decreased family support to 11% at 1 year follow-up
  
  (Bachrach-Lindstrom, et al., 2008)

- Contributed to challenging transition of hope and faith to regain independence
  
Knowledge of care

- Evaluated hospitalization positively with information booklet given a few weeks before admission
  
  (Montin, et al, 2010)

- Increased comprehension with appropriate timing of preoperative education
  
  (Stomberg and Oman, 2006)

- Frustrated over absence/lack of information, management of OA symptoms, surgical expectations and time period of recovery
  
  (Parsons, et al., 2009; Mchugh, et al., 2012)

- Increased confidence in recovery with advice from primary doctors and guidance from healthcare professionals- increased confidence in recovery
  
  (Mchugh, et al., 2012)
Care Continuity

• Building effective relationship (trust) between healthcare professionals and patients
  (Mauleon, et al., 2007; Gustafsson, et al., 2010b; Sjoling, et al., 2005)

• Receiving support from healthcare staff gave much needed reassurance to patients during the care continuum
  (Mchugh and Luker, 2012)

• Involving patients actively during care continuum found patients are more likely to exhibit care ownership, confidence and courage towards independence
  (Mauleon, et al., 2007; Gustafsson, et al., 2010b; Sjoling, et al., 2005)
Discussion

Perioperative Experience

- Prolonged waiting time
- Pain and disability
- Information and knowledge of care
- Psychological distress/anxiety/fear of unknown and death
- Race/ethnicity/culture/age/gender
- Body image
- Coping and support
- Care continuity
Clinical implication

- Evaluation of preoperative waiting time
- Patient-centric clinical assessment
- Timing of preoperative education
- Multidisciplinary collaboration for care continuity
- Incorporate nursing knowledge into nursing policy, nursing practice and research

(Montin, et al., 2010; Stomberg & Oman, 2006)
Conclusion

Evidence on multitude of factors relating to perioperative experience

Highlight need for further research to examine perioperative experience of older persons undergoing joint replacement surgery

Further research on lived perioperative experience of diverse race, ethnicity, culture in Asian population
References


References


References


Thank You