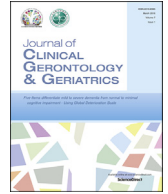




Contents lists available at ScienceDirect

## Journal of Clinical Gerontology &amp; Geriatrics

journal homepage: [www.e-jcgg.com](http://www.e-jcgg.com)

## Original article

## Falls in people prior to undergoing total hip or total knee replacement surgery: Frequency and associated factors

Keith D. Hill, PhD, Grad Dip Physio, BAppSc (Physio)<sup>a,\*</sup>,  
 Elin Wee, B. Physio (Hons), Master of Health Information Management<sup>b</sup>,  
 Soula Margelis, BPhysio (Hons), BSc (Hons)<sup>b</sup>, Hylton B. Menz, PhD<sup>b</sup>,  
 John Bartlett, MBBS, FRACS<sup>c</sup>, Neil R. Bergman, MBBS, FRACS<sup>c</sup>,  
 Stephen McMahon, MBBS, FRACS, FAOrthA<sup>d,h</sup>, David L. Hare, MBBS, FRACP, DPM<sup>e,f</sup>,  
 Pazit Levinger, PhD, BED<sup>b,g</sup>

<sup>a</sup> School of Physiotherapy and Exercise Science, Curtin University, Perth, Australia<sup>b</sup> School of Allied Health, College of Science, Health and Engineering, La Trobe University, Bundoora, Victoria, Australia<sup>c</sup> Warringal Private Medical Centre, Heidelberg, Victoria, Australia<sup>d</sup> Malabar Orthopaedic Clinic, The Avenue Hospital, Windsor, Victoria, Australia<sup>e</sup> Austin Hospital, Heidelberg, Victoria, Australia<sup>f</sup> The University of Melbourne, Melbourne, Victoria, Australia<sup>g</sup> Institute of Sport, Exercise and Active Living (ISEAL), Victoria University, Melbourne, Victoria, Australia<sup>h</sup> Department of Surgery, Monash University, Melbourne, Victoria, Australia

## ARTICLE INFO

## Article history:

Received 7 February 2016

Received in revised form

22 March 2016

Accepted 25 March 2016

Available online xxx

## Keywords:

accidental falls  
joint replacement  
osteoarthritis

## ABSTRACT

**Background:** Total hip/total knee replacement (THR/TKR) surgery is becoming an increasingly common approach for the management of primarily lower limb osteoarthritis. A number of factors such as reducing mobility, structural joint changes, and pain may predispose those awaiting hip and knee surgery to falls, which may impact on pre- and postsurgery functions. The aim of this study was to identify the prevalence of falls in the year preceding THR/TKR surgery, and factors associated with falls.

**Methods:** Cross-sectional survey of patients scheduled for THR/TKR, including measures of joint disease severity, falls, falls efficacy, quality of life, pain, and depression. Comparisons across falls status (nonfaller, single faller, or multiple faller) and high/low disease severity for both THR and TKR groups were undertaken.

**Results:** A total of 282 people (mean age 67.3 years) completed surveys before the surgery (197 TKR). As much as 41% reported one or more falls in the preceding year, and participants reported that the affected joint contributed to the fall in 35% of the cases. TKR multiple fallers ( $\geq 2$  falls) had significantly lower falls efficacy, worse function, greater pain catastrophizing and depression, and poorer 36-Item Short Form Survey Mental Component Scores than nonmultiple fallers. For both THR and TKR groups, several measures were significantly worse for those with greater disease severity, including falls efficacy, depression, pain catastrophizing, self-rated health, and physical activity.

**Conclusion:** Falls are common in the 12 months preceding total hip or knee surgery. A number of factors are associated with risk of multiple falls and with joint disease severity. Strategies to reduce falls risk should be a priority in the year preceding lower limb joint surgery to optimize presurgery and postsurgery outcomes.

Copyright © 2016, Asia Pacific League of Clinical Gerontology & Geriatrics. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## 1. Introduction

Osteoarthritis of the hip and knee is a disabling condition that can cause severe pain and physical morbidity,<sup>1</sup> and is increasingly

\* Corresponding author. School of Physiotherapy and Exercise Science, Curtin University, GPO Box U1987, Perth 6845, Australia.

E-mail address: [Keith.Hill@Curtin.edu.au](mailto:Keith.Hill@Curtin.edu.au) (K.D. Hill).

<http://dx.doi.org/10.1016/j.jcgg.2016.03.001>

2210-8335/Copyright © 2016, Asia Pacific League of Clinical Gerontology & Geriatrics. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

common in aging populations. Joint replacement surgery is often recommended for arthritis of the knee or hip, with over 86,000 hip and knee replacement procedures performed in Australia annually.<sup>2</sup> Patients may suffer increasing pain, functional limitation, and deterioration of quality of life for a number of years before undergoing surgery, with significant worsening for those who are on a waiting list for surgery.<sup>3</sup>

Physiological factors such as muscle weakness and impaired postural control and balance are strongly associated with risk of falls in older people<sup>4–6</sup> and these may be impaired further with lower limb osteoarthritis. Lower limb pain is also an important factor, often associated with osteoarthritis, contributing to increased risk of falls.<sup>7,8</sup> Falls can cause reduced independence and function, reduced mobility, loss of confidence in mobility, and reduced quality of life. For people with advanced lower limb arthritis, including those on waiting lists for joint replacement surgery, a fall may further exacerbate mobility impairment and dependence, and possibly necessitate a delay in planned surgery, and in some cases may negatively impact on subsequent outcomes postsurgery.

Despite extensive research investigating falls prevention for older people generally,<sup>9</sup> there has been little change over the past 15 years in countries like Australia on key national indicators such as rate of hospitalizations due to falls.<sup>10</sup> A Center for Disease Control report identified several key priorities for future research in order to improve falls prevention outcomes, including considering the unique characteristics and needs of important high falls risk subpopulations<sup>11</sup> rather than assuming generic approaches to falls prevention would be suitable across the heterogeneous population of older people. People with lower limb arthritis, including those with severe joint disease on waiting lists for surgery, may be an important subpopulation to investigate falls risk in greater detail, and several recent reviews have highlighted the importance of future research into understanding falls and fall risk factors in individuals with lower limb osteoarthritis.<sup>12–14</sup> However, few studies have explored falls in older people with lower limb arthritis.<sup>15–19</sup> Several of the studies conducted had samples with mixed arthritis diagnosis, and did not focus on those with more severe arthritis on surgical waiting lists.<sup>15,18</sup> Three studies have explored falls in the pre- or postjoint replacement surgery period,<sup>16,17,19</sup> but have been small ( $n = 35, 35,$  and  $99,$  respectively), and all focused only on knee replacement surgery. Studies have generally been too small to investigate multivariate analyses of factors associated with falls, and none has investigated falls in the presurgical period for hip replacement surgery patients.

The aims of this study were to (1) identify the proportion of people waiting for total hip replacement (THR) or total knee replacement (TKR) surgery who fell in the 12 months preceding surgery, and the common circumstances of these falls; (2) determine factors associated with fall status (nonfaller, single faller, or multiple faller) in people waiting for THR/TKR surgery, and (3) determine factors (including falls) associated with disease severity.

## 2. Methods

### Participants

This cross-sectional study obtained comprehensive survey data from people booked for hip or knee replacement surgery through three participating orthopedic surgeons' consulting rooms in Melbourne, Australia. The study was as inclusive as possible, and so all patients booked by the participating surgeons for hip or knee replacement surgery were approached for inclusion, except those aged under 30 years and those with limited ability to read and speak basic English.

Patients satisfying inclusion criteria were sent an information package by postal mail. This included the participant information and consent documentation and a prepaid reply envelope. Those consenting to the study returned the consent documentation to the researchers. A survey booklet containing the questionnaires was then sent to the consenting study participants. They were asked to complete the survey booklet 2–4 weeks prior to the surgery, and return it to the research team. If a survey was not received within 2–3 weeks preoperatively, a follow-up letter was sent. If the survey was still not received preoperatively, a follow-up phone call was placed to determine the participant's willingness to remain involved.

### Questionnaires

A set of surveys was mailed to each participant. It was anticipated that survey completion would take between 45 minutes and 60 minutes. The survey kit included the following questionnaires/indexes:

- (1) A questionnaire asking demographic information including age, sex, current and past health problems, and medications.
- (2) Western Ontario and McMaster University Osteoarthritis (WOMAC) Index, which is used for assessing physical function, pain, and stiffness.<sup>20,21</sup> The WOMAC is a widely reported self-completed disease-specific measure of patients with osteoarthritis of the hip and knee. This index assesses severity of knee or hip pain during five daily activities (range, 0–500), stiffness (range, 0–200), and severity of impairment of lower-extremity function during 17 activities (range, 0–1700). The items were scored with the use of a 100-mm visual analog scale, where 0 represents no pain or difficulty with physical function and higher scores represent worse functional health. All three subcategories were summed to give a global WOMAC score (range, 0–2400).
- (3) The 36-Item Short Form Survey (SF-36), version 2, which was used to assess self-perceived quality of life.<sup>22</sup> The SF-36 contains 36 items, comprising eight subscales: four subscales evaluating physical health dimensions [physical functioning (PF), role limitations due to physical problems (RP), bodily pain (BP), and general health (GH)] and the other four subscales evaluating mental health dimensions [vitality (VT), social functioning (SF), role limitations due to emotional problems (RE), and mental health (MH)]. Each scale is attributed a score from 0 to 100. The eight subscales are combined into two summary scores—physical health [Physical Component Score (PCS)] and mental health [Mental Component Score (MCS)].<sup>22,23</sup> The raw data were analyzed using the SF-36v2 software (QualityMetric, George Washington Highway, Lincoln, RI, USA) where a normalized *T* score for each dimension and the overall scores of the physical (PCS) and mental (MCS) components were generated.
- (4) The Incidental and Planned Exercise Questionnaire (IPEQ) for older people, which was used to assess the physical activity level of the participants.<sup>24</sup> The IPEQ includes 10 questions that estimate physical activity level during the past week and covers the frequency and duration of planned activity (planned exercise and walks) and incidental activities (casual day-to-day activities). The score was derived by multiplying frequency score and duration score to create a total duration for incidental and planned activities as well as an overall total score. The total time spent was summed across all components and expressed as hours/week (see Delbaere and colleagues).<sup>24</sup>
- (5) The Pain Catastrophizing Scale, which consists of 13 items describing different thoughts and feelings that individuals

Download English Version:

<https://daneshyari.com/en/article/8732644>

Download Persian Version:

<https://daneshyari.com/article/8732644>

[Daneshyari.com](https://daneshyari.com)