

Patient-reported factors influencing return to work after joint replacement

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Background	An increasing number of patients in the working population are undergoing total hip and knee replacement for osteoarthritis and the timing and success of return to work (RTW) is becoming increasingly important as a measure of success for these patients. There is limited understanding of the patient variables that determine the ability to RTW.
Aims	To explore the factors influencing RTW following hip and knee replacement from the patient's perspective.
Methods	A cross-sectional population-based postal survey carried out with patients of working age after hip and knee replacement surgery in a UK teaching hospital. Free text comments were collected regarding the experiences of patients returning to work following hip and knee replacement. Qualitative thematic analysis was undertaken to identify the factors influencing RTW from the patient's perspective.
Results	From the patients' perspective three key factors were identified that influenced RTW. Patients reported an improved physical and psychological performance at work after surgery in comparison to pre-operative functioning, although there was a lack of informed advice regarding RTW after surgery. Workplace support and adaptation of the job role enhanced the experience of RTW.
Conclusions	Return to work is influenced by a combination of patient, clinician and occupational factors. The relationship between each of these needs to be explored in greater depth through further qualitative work to gain a wider understanding of the variables influencing patients' RTW following hip and knee replacement.
Key words	Qualitative; return to work; total hip replacement; total knee replacement.

Introduction

The impact of hip and knee osteoarthritis on quality of life, work productivity and employment is well documented with substantial indirect costs resulting from reduced work performance, absenteeism and job loss [1–3]. Joint replacement surgery is increasingly performed as a cost-effective procedure to improve function and quality of life and reduce pain in patients suffering from primary osteoarthritis [4]. The proportion of hip and knee replacements performed in patients under the age of 65 is increasing rapidly: the 10th National Joint Registry reports that 18–20% of patients undergoing hip and knee replacement in England and Wales are under

the age of 60 [5]. The growing demand for joint replacement surgery for younger patients is predicted to continue [6,7], resulting in an increasing number of patients wishing to retain employment after surgery. The ability to return to work (RTW) safely is becoming increasingly important as a measure of success for younger patients, reflecting a reversal of the impact of osteoarthritis (OA) upon functional ability and quality of life following surgery. The benefits of an early return to employment are reported in terms of socio-economic factors as well as benefits to both physical and mental health; conversely, there is strong evidence that unemployment may cause psychological harm, poorer general health and higher mortality rates [8]. Optimizing employment outcomes

for this expanding group of patients therefore has health, social and economic benefits for patients and society.

Previous literature has identified that age, patient motivation, employment before surgery and type of job are important determinants of successful RTW [9–11]. However, there is a lack of information of the interplay between patient-reported factors and success of RTW, in particular qualitative analyses of these key factors.

While quantitative studies can identify the extent to which surgery helps in RTW, the perspectives of the patient or employer are better determined by qualitative studies. Previous qualitative studies have discussed the critical role of healthcare professionals [12–14], pre- and post-operative reported pain [15–17] and the interaction of subjective reported functional outcomes [17,18] upon patient outcomes following joint replacement. However, this body of work does not substantially consider the impact of joint replacement surgery on OA sufferers' working lives [11].

The aim of this study was to perform qualitative analysis to examine in depth the patient-reported determinants of ability to RTW from a representative sample of patients after hip and knee replacement. Our intention was to identify if there were any clear unifying or consistent themes underscoring ability to RTW from the patients' perspective.

Methods

A cross-sectional population-based postal survey was carried out with a sample of patients after primary total hip replacement (THR) or total knee replacement (TKR) for OA. The sample included patients between 6 months and 3 years after surgery and under the age of 60 at the time of their joint replacement to capture the experiences of returning to and remaining in the workforce after joint replacement surgery. Patients were identified from the Freeman Joint Registry (FJR), an ongoing clinical audit monitoring outcomes following total hip and knee replacement at the Freeman Hospital (Newcastle Hospitals NHS Foundation Trust, Newcastle upon Tyne, England). Eligible patients were sent the questionnaire, consent forms and information sheet with a pre-paid envelope. Patients consented to the study by returning the questionnaires and completed consent form. Non-responders were given up to two reminders.

The questionnaire investigated the impact of factors that impede or assist RTW after TKR and THR. The questionnaire design was derived from a previous study of adult juvenile idiopathic arthritis and employment [19]. A preliminary version of the questionnaire was re-evaluated following discussion with a patient involvement group and the content and style modified in response to feedback from orthopaedic clinic patients. The questionnaire consisted of a combination of categorical and free text answers regarding education, employment, general health and experience of RTW.

Local R&D approval was obtained and ethical approval was granted by the Proportionate Review Subcommittee of the NRES Committee, London, before commencing the study. Patients were allocated a study identification number that was used throughout the study to ensure anonymity and maintain confidentiality.

Free text boxes provided patients with the opportunity to expand on their individual experiences and perceptions following surgery (Box 1). Qualitative analysis was undertaken using the large volume of free text data obtained. The process used was based on thematic analysis as described by Braun and Clarke [20]. Thematic analysis is a method for identifying, analysing and reporting patterns (themes) within data [20]. Patients' free text comments varied in length and depth of information as they expanded on their individual experiences. The comments documented for each question produced crossover for many different codes and themes. As we wanted the themes to be data driven, we did not use the basic questions as a framework. The verbatim text was repeatedly re-read by the researcher (MB) to ensure familiarity with the whole dataset, which was then systematically coded to derive the initial descriptive codes. This was an iterative process whereby new codes were identified to develop a consistent interpretation of the dataset. These initial descriptive codes were collated into more analytical themes, which helped make sense of the large dataset. Themes identified captured important elements of

Box 1. Free text questions included in the questionnaire

Please describe in detail the difficulties faced when you attempted to resume/regain employment after your operation.

Patients were asked to explain further on the following questions:

- Do you think the information that was provided helped you prepare for problems you may face at work?
- Do you think you received enough support to help you return to work?
- Do you think there is anything more that the surgical and rehab team could have done to help you return to work?
- Do you think your performance at work has improved since the operation?
- Do you think having the surgery may be perceived as an impediment to move to another job?
- Do you think having had the surgery has improved your prospects in the job market?

Please describe any alterations made to help you or any barriers you faced from employers.

the patients' experiences and how these related to their RTW. The emerging themes were repeatedly reviewed in relation to the whole dataset and refined to generate resulting themes and associations as described by Clarke [20]. Initial codes and subsequent analytical themes were verified by a qualitative researcher (JL) to ensure the internal validity of the themes in relation to the dataset. The resulting themes and supporting data were also reported and discussed at regular meetings of the research team as a process of member validation. Key points are illustrated throughout the results section by anonymized verbatim quotes. All quotes are followed by the patient's study ID number, age, time taken to RTW and type of replacement, to add additional context to the data.

Results

One hundred and two patients returned the completed questionnaire (52 THR, 50 TKR) of which 96% completed the free text comments. The median age of participants was 54 (range 20–59), with a ratio of ~2:3 males to females. A total of 83 (81%) were employed prior to surgery and 80 (78%) returned to work at a median of 12 weeks (range 2–64).

Three key themes were identified, highlighting that RTW after joint replacement may be influenced by a combination of patient, healthcare professional and workplace factors. Patients reported the impact of improved physical and psychological performance at work after surgery but also reported a lack of consistent advice from healthcare professionals to inform them of expected periods of sickness absence. When patients did RTW they reported the positive impact of workplace support and adaptation to job role.

The majority of patients reported an improved ability to do their job following surgery. In reporting the positive outcome of surgery, many reflected on the severe effects of OA on their physical function and quality of life pre-operatively (see [Box 2](#) for patient quotes). Physical improvements in mobility, strength and range of movement were reported following surgery and patients also reported psychological benefits from pain relief, more sleep, better concentration, increased confidence and improved outlook for the future. Despite the negative impact of OA on work participation and quality of life, only a small proportion of patients changed roles or left employment because of these problems prior to surgery.

Following surgery patients accepted short-term physical difficulties with range of movement, reduced mobility and tiredness, as well as the emotional stress associated with dependence on others and driving restrictions. Such difficulties did not prevent them returning to work and were often reported to be less obstructive than difficulties encountered pre-operatively.

Box 2. Patient quotes for performance following surgery

- My knee problems were a factor in my decision to retire early from teaching. I was having severe problems getting around the school site. I did not anticipate working again. ... My knee replacement has TOTALLY altered my life. I am amazed at what I can achieve now when compared to pre TKR!!! [Study No. 13, Age 57, RTW 12 weeks to a new job, TKR].
- Much more mobile, happier in myself, less tired, therefore more patience with customers, staff and management [Study No. 29, Age 54, RTW 8 weeks, THR].
- I no longer think about pain, pain relief or that others are watching me walk badly/limp. This obviously helps my concentration on work matters. I am able to concentrate better on other people's issues now [Study No. 1, Age 57, RTW 6 weeks, THR].
- My mobility has improved and my knee is pain free. Better quality of life. Happier to be at work [Study No.66, Age 54, RTW 12 weeks, TKR].
- The knee replacement has been a huge success. I have excellent range of movement and if this had been the only health problem I am certain that I would be still in employment [Study No. 78, Age 56, did not RTW, TKR].
- (TKR would be seen as an impediment). ... If the job includes physical aspects relating to accessing confined spaces, climbing ladders, kneeling for periods. ... Not an impediment in a sedentary work environment [Study No. 91, Age 56, RTW 9 weeks, TKR].
- I was unable to continue joinery as I can no longer kneel down when trying to lay floors or skirting boards etc. [Study No. 18, Age 39, RTW 64 weeks, TKR].

The presence of post-operative complications, persistent pain and ongoing restriction of movement required more permanent changes to the work environment to allow patients to remain in employment. TKR patients also reported that restrictions on kneeling and bending resulted in difficulties in more physically demanding occupations. In such cases, patients perceived a negative impact on their future prospects in the job market following their TKR. Patients working in more demanding job roles appeared accepting of the requirement to make long-term adjustments to their occupation to accommodate these ongoing restrictions.

Patients who did not return to employment often reported that either co-morbidities or OA affecting other

joints prevented their RTW even when the surgical outcome was positive.

Many patients reported that they were not given any advice regarding RTW from healthcare professionals pre- or post-operatively (see [Box 3](#) for patient quotes). Patients reported that the information that they did receive regarding their recovery was aimed at older, retired patients, reinforcing their perception that joint replacement surgery was for the elderly population. There was a general expectation from patients that they should be off work for a minimum period of 12 weeks following surgery to recuperate regardless of the physical nature of the work. This was reflected in the median length of time for RTW in the study, which was 12 weeks (2–64 weeks).

When patients did discuss RTW with healthcare professionals, the advice was felt to be inconsistent and not tailored to the individual's recovery or circumstances. Some patients reportedly adhered to the recommended duration of absence even when they felt able to RTW sooner. Patients returning to work before 12 weeks often reported a reason to explain their 'early' return, such as financial reasons, boredom or obligation to the employer, again emphasizing the expectation of a prolonged period of recuperation among this group of patients.

A third theme identified was that the majority of patients commented on the adaptations allowed by their employer that facilitated their RTW. In most cases,

Box 3. Patient quotes for advice regarding return to work

- I cannot recall my return to work being discussed at all and the booklet we were provided with seemed to be aimed at people of pensionable age [Study No. 67, Age 59, RTW 12 weeks, TKR].
- From what I can recall do not think returning to work was mentioned as the majority of people I saw in the ward and at the pre op meeting were retired [Study No. 87, Age 53, RTW 12 weeks, THR].
- ... being self-employed I did not work for the recommended 3 months then went straight back to work [Study No. 58, Age 57, RTW 12 weeks, TKR].
- ... my fitness for work certificate was extended by my GP for a further 6 weeks. At this time I felt I was ready to return to work but was advised by the surgeon's practice nurse at my review that I should not return to work until at least 13 weeks had elapsed. Certificate again extended by my GP for a further 6 weeks [Study No. 67, Age 59, RTW 12 weeks, TKR].

patients were given the option of a period of phased return, adaptation to work space or reduced workload, which helped them overcome short-term physical difficulties resulting from their operation (see [Box 4](#) for patient quotes). The involvement of occupational health staff and a period of adaptations were associated with a positive experience of RTW. These adaptations also

Box 4. Patient quotes for the role of workplace adaptations

- I returned to work through occupational health dept, who were very helpful and understanding. However, had I not had the support of occupational health, and had to deal directly with management, my return to work may have been a totally different experience [Study No. 33, Age 52, RTW 12 weeks, TKR].
- I returned to work on a phased return basis which not only accommodated the slight physical impairment but psychologically supported my ability to resume full working practices [Study No. 95, Age 59, RTW 11 weeks, THR].
- I asked for equipment to help me at work. I did not get any of it. Can't sit for long periods of time but I have to do 10 hour shifts [Study No. 96, Age 46, RTW 6 weeks, THR].
- I didn't qualify for sick pay. ... I had to return to work so I could pay my mortgage. ... In my first week back (still on crutches) a fire alarm test exposed me to issues and inequality. ... Manager was unsupportive and occupational health made no approach either while I was sick or when I returned [Study No. 9, Age 40, RTW 5 weeks, TKR].
- Unfortunately, my employer wouldn't allow me to go back to work on part time basis following the op I had to work full time 9–5 from my first day of return to work. ... After 8 weeks on the sick, it was tiring and difficult to adjust to [Study No. 29, Age 54, RTW 8 weeks, THR].
- I was looking for a transfer and when they found out I was having a hip replacement I didn't get any of the transfers I applied for ... I wanted to return (after the operation) but they advised me they wanted to dismiss me due to the time off I have had in the last 12 rolling months ... [Study No. 2, Age 28, did not RTW, THR].
- ... I was not allowed to return to my job in full capacity ... as I could not do control and restraint courses, I was allowed to return as a porter with a drop in pay ... , I should have been given the opportunity to return to my job ... I decided to put in for my retirement [Study No. 63, Age 59, RTW 12 weeks, THR].

supported difficulties with fatigue and other psychological aspects of reintegration into the work environment.

Only one patient who returned to work with adaptations felt that their employer only went along with them because legally they had little choice. A small number of patients reported a lack of engagement from their employers. In situations where interventions such as phased return, risk assessment, adaptations to work space and support were not available patients reported a more negative experience of their RTW and highlighted the difficulties that they encountered.

Although patients reported that the support and adaptations put in place by their employer facilitated a more positive experience of RTW, this was not necessarily reflected in an earlier RTW. Conversely, although patients reporting a lack of support and adaptations described a more negative experience of their RTW, this was not a barrier in respect to the time taken to RTW.

This lack of support appeared more evident where patients had to return earlier for financial reasons or because of a threat to employment. Despite the majority of patients reporting that work participation was improved following surgery, some felt that employers would not share the same opinion. Patients felt that they may be discriminated against due to their perceived disability, the fear of further surgery and a poor sickness absence record. A small number of patients reported pressure to leave their pre-operative employment or felt that limitations were imposed on their roles by employers.

Discussion

Qualitative research investigates individuals' attitudes, beliefs and preferences through their own accounts and can thus identify issues for patients not apparent to someone without their perspectives or experience [21]. This study identifies three key themes highlighting that RTW after joint replacement may be influenced by a combination of patient, healthcare professional and workplace factors.

There are limitations to this work. The retrospective nature of this study reports patients experiences up to 3 years following surgery. The comments are reflective and based upon the patients recollection, which will inevitably result in a risk of recall bias. By their very nature, these comments are free flowing and not limited to key points, although key themes influencing RTW may have been omitted as patients' responses are constrained by the questions posed. Although patients did expand beyond the focus of the individual questions, interview work with a smaller group of patients would allow more extensive in-depth exploration of patients' experiences and may identify key themes not yet considered. We found uniformity of the key themes between hip and knee replacement patients although issues concerning

kneeling after knee replacement were highlighted. The interplay between the patient, the employer and the provision of care is crucial for successful recovery and RTW but this study does not report the views of the clinician or the employer. However, this work is unique as, to the best of our knowledge, no other qualitative study has reported on patient experience of returning to work after THR and TKR.

We found that the majority of patients reported improved performance and ability to do their job following surgery. This work supports the findings of previous studies, highlighting that joint replacement is effective in reducing pain and improving function and quality of life [10,11,22]. The majority of individuals in work prior to surgery reported fewer limitations at work following their joint replacement [7,9,10]. This improved performance may differentiate the needs of this group of patients from those of patients trying to RTW with other chronic musculoskeletal disorders. The short-term physical difficulties reported were similar to those identified in previous quantitative studies, where patients reported difficulties getting to and from work, lifting and bending [7,10]. Patients in this study accepted these limitations and were able to overcome difficulties with adaptations to their role, preventing delays in returning to work. Certain activities continued to be problematic after surgery, including kneeling, crouching and clambering through enclosed confined spaces for occupations such as plumbers, joiners and gardeners [7].

Patients received inconsistent advice regarding the duration of expected sickness absence following surgery. The majority reported that their RTW was not purposefully discussed with clinicians before or after their operation. There is limited information in the literature to guide clinicians in advising patients about RTW following joint replacement and the impact of the advice given to patients on this subject has not previously been reported. A recent systematic review [23] identified 19 studies on RTW following knee and hip replacement, none of which identified the advice given to patients as a variable or discussed such advice as a factor influencing RTW. Studies in other areas of surgery have identified wide variations in advice given by health professionals about RTW and have reported that patients are likely to follow clinicians' advice even if they feel able to RTW earlier than advised [24,25].

Adaptations such as a phased RTW, modifications to the workplace and reduced workload may assist successful RTW from the patients' perspective. Workplace adaptations such as reduction in working hours, workplace aids and modified duties are known to influence work participation in patients remaining in the work force with OA [22,26,27] but have had little consideration in relation to returning to work following joint replacement surgery. Styron *et al.* [9] reported that the physical demands of a patient's job were only important when

patients were unable to modify their work. However, they did not give details about these modifications and how they affected RTW rates. Difficulties identified by patients in this study reflect the findings of a previous study [10], which found that patients identified difficulties getting to and from work, negotiating the workplace, pace and hours of work both pre- and post-operatively.

This qualitative study has examined the patient-reported determinants affecting the ability to RTW after TKR and THR. Several influencing factors have been identified and summarized in the three key themes. Despite some short-term difficulties, patients experienced improved physical and psychological performance at work after surgery. However, patients did not receive specific advice to facilitate their RTW following surgery. Patients perceived that the current provision of information for joint replacement patients is focused on the needs of elderly patients and reported that more clarity and consistency is required regarding RTW advice. Patients reporting a lack of support and adaptation in the workplace described a negative influence on their experience of RTW but this was not reflected in increased duration of sickness absence.

This work illustrates that improvements in pain and joint function alone cannot explain patients' experiences of RTW following joint replacement. The relationship between the individual's recovery and RTW is influenced by a range of biopsychosocial factors. Return to work literature from other healthcare fields highlights the impact of psychosocial variables and supports the need for a biopsychosocial approach to facilitating RTW [8,28–30].

We have identified the need for further qualitative work to explore in depth how these factors affect patients' experience of RTW. It is vital that we consider the roles of employers and clinicians in facilitating RTW for patients to enable the development of a tailored RTW intervention, which takes account of occupation, disease impact and patient variables. It is our hope that such an intervention to optimize RTW outcomes for patients will become integral to the pre-operative education and post-operative rehabilitation of patients of employment age undergoing lower limb joint replacement.

Key points

- Return to work following hip and knee replacement surgery is influenced by a combination of patient, healthcare and employment factors.
- The impact of each of these factors needs to be considered in order to facilitate patients' return to work.
- Further qualitative work is needed to explore how each of these factors affect patients' experiences of returning to work, in order to aid the development of effective measures to optimize individuals' return to work.

Funding

The work was undertaken with assistance from Research Capability Funding via Newcastle upon Tyne Hospitals and the NIHR.

Conflicts of interest

None declared.

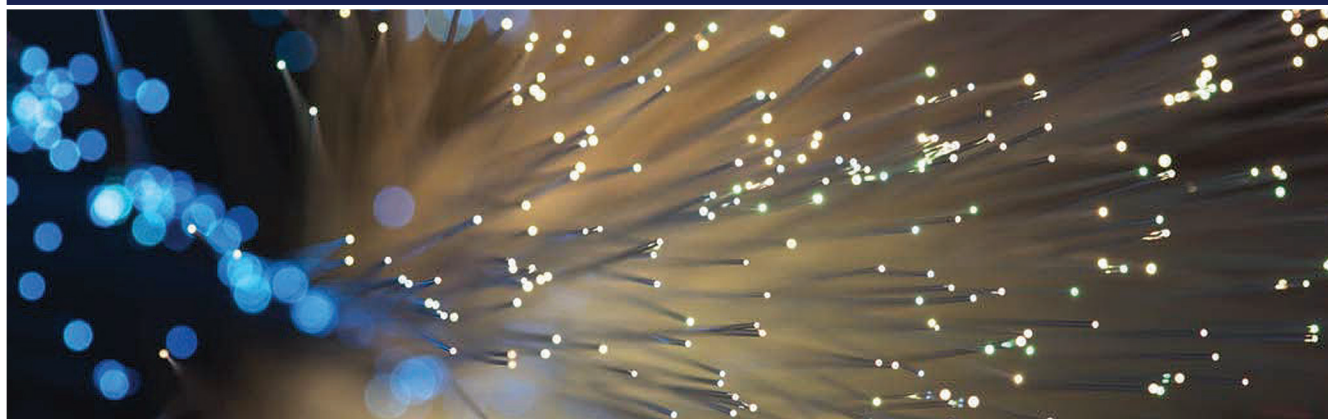
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