Title: Occupational therapy pre-operative intervention for total hip replacement patients; a qualitative enquiry.

Running head: Pre-operative OT for total hip replacement

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Abstract

The aim of this service improvement project was to explore the experiences of occupational therapists working in a specialist orthopaedic hospital with total hip replacement patients. Semi-structured interviews were carried out with eight occupational therapists working and the data was recorded, transcribed and analysed using qualitative processes. Six themes emerged from the data including pre-operative intervention should be provided for all THR procedures, pre-operative occupational therapy is key to timely discharge, patient education is an important part of pre-operative occupational therapy intervention, predicting some patients' needs pre-operatively can be challenging, certain patients need to have post-operative occupational therapy and occupational therapists with greater experience are more confident to treat patients pre-operatively. The findings suggested that occupational therapy appears to be key to facilitating the rapid discharge of total patients in the current climate of accelerated pathways of care, as a comprehensive pre-operative occupational therapy service reduces the need for post-operative intervention for certain patients.

Introduction

Total hip replacement (THR) is a common orthopedic procedure (Withers et al., 2017). Over 89,000 primary THRs were performed in the United Kingdom (UK) in 2021 (National Joint Registry, 2022) and this number is expected to increase, especially in patients over the age of seventy (Matharu et al., 2021). The preoperative role of occupational therapy for patients having a THR is well established (Royal College of Occupational Therapists, 2017). This involves assessing patient's individual needs in relation to self-care, productivity, and leisure; taking account of their role, occupations and environment; and discussion about any concerns the patient has about their current functional ability. Based on assessment, the therapist may make recommendations about managing activities of daily living following surgery and regarding adaptations to the home environment. Equipment to assist activities of daily living may be prescribed to compensate for limitations in post-operative function or to increase safety and independence prior to surgery. McNaught and colleagues reported that that the majority of total hip replacement patients in their study found occupational therapy advice and equipment useful in meeting the criteria for discharge (McNaught et al., 2016).

The UK National Health Service (NHS) provides public healthcare, which is free at the point of contact, and is paid for by general taxation (Chang et al., 2011). In the NHS, within the last decade, there has been a significant change in the treatment of patients having a primary THR with the introduction of rapid recovery models, accelerated pathways of care and same day discharge. These models have decreased length of stay by promoting multidisciplinary working, providing education in the form of preoperative hip schools, and introducing novel surgical, anaesthetic, and preoperative techniques, along with early mobilisation (Larsen et al., 2008). They have also reduced patient morbidity and mortality and

length of stay, and at the same time increased patient satisfaction (Nagra et al., 2017). Wainwright and Middleton (2010) described occupational therapy as part of the comprehensive preassessment process, providing preoperative education and managing patient expectations.

The introduction of pre-operative group education for hip replacement patients, as part of rapid recovery models, involves the multidisciplinary team; for example, the orthopedic surgeon, specialist pain nurse, occupational therapy and physiotherapist emphasizing the importance of the pre-operative occupational therapy. This early intervention focused on preparing patients for surgery and their discharge home. Since Covid-19 patient education sessions have not been re-established and occupational therapy education is delivered on a one-to-one basis in the pre-operative clinic setting.

A change in orthopaedic practice locally has also resulted in the elimination of hip precautions for most patients following a primary THR. In this local service both anterior and posterior approaches to hip replacement are used but the rehabilitation protocols are the same and any post operative restrictions are recommended on an individual basis. In response to these changes the occupational therapy service has had to adapt to best meet the needs of patients within a significantly shorter treatment time. Pre-operative occupational therapy assessment is less likely to take place in the home environment, and instead, every patient is now triaged and assessed in the pre-operative assessment clinic by an occupational therapist. The aim of this assessment is to discharge patients who were having primary hip replacement surgery from occupational therapy at the pre-operative stage, reducing the number of post-operative contacts required and enabling a timelier hospital discharge.

It is important to understand the barriers to high quality health care as this knowledge would support service developments by identifying areas where occupational therapists can provide the most appropriate and relevant clinical input, therefore optimizing patient care pathways. Thus,

the aim of this service improvement project was to explore the occupational therapists experience of this expanded pre-operative service and determine where they felt they could have the most significant clinical input through personal interviews.

Methodology

The service improvement project was part of a UK National Health Service (NHS) improvement project within a specialist orthopaedic hospital. It was registered with the Hospital's Quality Improvement and Governance Committee and is not defined as research.

Data Collection

Data was collected using semi-structured interviews with a purposive sample of occupational therapist volunteers in the UK National Health Service.

All occupational therapists who provided pre-operative and postoperative care to patients undergoing total hip replacement were invited to discuss their experience of the pre-operative service as part of a service improvement project. Those who were interested were contacted to arrange a convenient time to talk.

Eight occupational therapists, with clinical experience ranging from 18 months to more than 20 years, volunteered for an interview. Demographic data was not collected due to being a service improvement project. Table 1 lists the questions used to guide the interviews which was conducted by one occupational therapist with over 20 years orthopaedic experience. Interviews lasted between 25-75 minutes and were recorded and transcribed verbatim.

Data analysis

Data was analysed using the six stages of Reflexive Thematic Analysis (Braun & Clarke, 2021). This process includes 1) familiarization with the data, 2) generating initial codes from the data, 3) generating themes around a central idea, 4) reviewing potential themes, defining, and

naming themes and 5) producing the report. This approach acknowledges an active role in interpreting patterns of meaning, interview transcripts were coded following each interview. After all the interviews, the themes were developed by arranging codes around a core idea. The two therapists undertaking the service improvement discussed each theme and a third experienced qualitative researcher reviewed the results. Interviews were stopped once coherent themes were developed

Findings

This paper presents six themes relevant to the pre-operative assessment of hip replacement patients, along with verbatim examples. An example how themes developed through the process is illustrated in Figure 1.

Pre-op intervention should be provided for all THR procedures.

All therapists felt that pre-operative occupational therapy intervention was important and should be provided for THR patients including primary and revision hip surgeries. This is illustrated by this statement:

> "Since I started in pre-op' I really began to appreciate the role of occupational therapy in pre-op and the difference it can make, in terms of just helping the patient plan for surgery"

Some therapists acknowledged the change in THR protocols following developments in orthopaedic practice and surgical developments, with the majority of primary THR patients no longer required to follow post op precautions. Pre-operative occupational therapy intervention typically involves the provision of equipment to assist activities of daily living and compensate for reduced function and post operative restrictions. Occupational therapists identified that equipment was now provided for patients undergoing primary hip replacements based on assessment of the patients' individual needs alone, rather than routinely prescribed based on the procedure. The following two comments illustrates implications from these changes.

> “So, in recent years its changed, with them not following hip precautions anymore, so that’s been a huge change for occupational therapy now just focusing on the patient as an individual and how they will manage”.

> **“**If they are struggling with toilet transfers before surgery and I have observed them having difficulty transferring on/off chair in clinic, or if they had difficulty and used the toilet frequently at night, I would provide equipment to assist”.

Participants advised that, for some patients, providing equipment pre-operatively could increase patient safety and independence in activities of daily living. In certain cases, some occupational therapists felt that not providing a certain piece of equipment, might result in a risk of harm. For example, one therapist stated:

> “I would prescribe equipment if a patient has been having recent falls, or I observe poor balance when they transfer from a clinic chair, if they rely on upper limb leverage and have nothing else to lever up on”.

Pre-operative occupational therapy is key to timely discharge.

Several occupational therapists discussed changes accompanying accelerated discharge pathways and day case surgeries. There appeared to be an underlying feeling that occupational therapists needed to complete their intervention at the early pre-operative stage, to facilitate a timelier discharge for some patients by reducing the workload post-operatively or allowing intervention to be more targeted to a specific activity. Therapists also described characteristics in patients that lead them to consider they may be appropriate to be discharged from occupational therapy pre-operatively.

For example:

> “…all THR’s are seen pre-operatively and if they are quite straightforward and they can be discharged from occupational

therapy pre-operatively, then they are, and we wouldn't see them post op"

"We have the fast-track patients who we are expecting to be day cases or very short stay. These are the younger patients who don't have co-morbidities and for that group, in particular, we need to make sure we are setting them up pre-operatively with the aim being they won't then need our input post op"

"Otherwise, fit and well, demonstrates a clear understanding of surgery and their expectations are realistic, and they are going to look after their surgery, they've demonstrated to me they can compensate for having a stiff painful hip when they go home, that's the type of patient I would discharge straight from clinic".

Occupational therapists also felt they needed to anticipate equipment needs pre-operatively as the need to see an occupational therapist following surgery might delay the process, however, one therapist added a caution:

"I imagine sometimes we do not always get it right, because in some cases there is the potential to over prescribe equipment to try and limit the occupational therapy intervention (required) post op, and it can be tricky to make that decision".

Patient education is an important part of pre-operative occupational therapy intervention.

Occupational therapists identified their role as critical and key to delivering pre-operative education, addressing individual patient needs, and managing patient expectations about their rapid hospital discharge and functional outcomes. One therapist commented:

"a patient can be fit and well, and an issue around their work presents at clinic, they have unrealistic expectations about managing or maybe around family responsibility if they have young

children so although they may be fit and well, you need to see them".

All occupational therapists interviewed discussed the value of joint education classes (Hip School) which were previously introduced as part of the enhanced discharge pathway. Due to the COVID-19 pandemic, group education sessions were halted and therapists voiced disappointed of this:

> "it's a shame we can't do a hip or knee school currently. As it means people have all the information to hand, which is helpful, it discusses how to prepare for surgery, what to expect and puts the ownership on the patients and makes them an active participant in their care".

Occupational therapists described how this education could improve patient safety and reduce anxiety pre-operatively, they felt that this was a key part of their role in preparing the patient for surgery. Therapists described how they have since provided this education to individual patients at the pre-operative assessment clinic, and how much clinical time this takes while others referred patients to on-line education resources. One therapist reflected:

> "[We can] help in terms of just helping the patient plan for surgery and reducing anxiety. Particularly patients struggling with mobility at this stage or to be set up for downstairs living., and improve their general safely (at this stage"

Predicting some patients needs pre-operatively can be challenging.

Pre-operative therapists suggested that the needs of some patients can't always be predicted at an early preoperative stage as there are other factors that would influence a person's function post operatively. For this reason, occupational therapists identified that in some cases patients

would require post operative intervention. The therapists described this group of patients as more complex. For example:

> “Someone who is already struggling with personal care, physically frail, sensory impairment all those other factors, so the frail elderly patient would be a definite [post op patient] unless they’ve got really good care support at home, but I would have to factor in other issues such as the effect of the anaesthetic and co-morbidities.”

This is illustrated below as therapists acknowledged that they can’t always predict how patients are going to be post -operatively.

> “I don’t think they (pre-operative occupational therapy) can fully meet the needs for all patients, because you don’t know how people are going to be and there are so many influencing factors but putting in place the basics saves time post op and is incredibly helpful, but I don’t think it can take away post operative occupational therapy completely”.

Occupational therapists discussed the difficulty of anticipating patient equipment needs pre-operatively, and the reasoning for provision of equipment was multifaceted based on the patient’s functional ability and working towards an accelerated pathway of care. Two therapists remarked specifically on equipment:

> “Equipment is prescribed based on how they are in pre-op, if they can transfer form a chair using upper body strength, then I wouldn’t bother as they will compensate. But if … it’s going to save time at the point of discharge then I would prescribe”.

> **“**It is easier to anticipate the level of need after surgery, because I sometimes provide a raised toilet seat because I think it’s safe, but I don’t actually know if the patient uses it”.

However, there was a feeling that prescribing equipment routinely for primary hip patients, can result in the assessment not being as person centred as it could be. Specifically, one therapist commented:

> “I think there has previously been a knee jerk reaction towards equipment, you provide equipment thinking that will be ok, but you miss out on the relevant concerns of the patient around their occupational roles, so I think there has been a problem with that in the past”.

Occupational therapists with greater experience are more confident to treat patients pre-operatively.

More experienced occupational therapists reflected on the changes to the primary hip replacement pathway, the absence of routine hip precautions, and a reduced length of stay, all of which influenced their practice. Some therapists discussed factors that guided their clinical reasoning when identifying patients who required more input post operatively, such as the patients general medical state and functional difficulties.

For example, therapists with more than five years’ experience commented:

> “So, in recent years its changed, with most patients not following hip precautions anymore, that’s been a huge change for occupational therapy just focusing on the patient as an individual and how they will manage”

> “Someone who is already struggling with personal care is physically frail, has sensory impairment and all those other factors unless they’ve got really good care support at home, but I would have to factor in other issues such as the effect of the anaesthetic and co-morbidity’s”

Those with less experience commented on a reliance on referrals from other members of the multi-disciplinary team for patients with post operative needs. For example, one less experienced therapist reflected:

> “Sometimes the physiotherapist refers patients for bed transfers and a leg lifter, if a patient lives with someone who can assist, I

usually encourage this as its usually only short term until the patient can manage the bed transfer themselves".

Occupational therapists commented that planning for post operative assessment was a strategy to eliminate risk or error, and this varied depending on the experience and confidence of the therapist, as exemplified by this comment:

> "So, it depends on the experience of the person in pre-op if they feel confident to discharge that patient. Some therapists would put them down for post op review to assess, and I do wonder if that is down to confidence and what might happen to them (the patient) if I don't put them down for review afterwards" (Occupational therapist with more than 5 years' experience).

Finally, results indicated there is a definite need for certain patients to have post operative occupational therapy which depends on a variety of reasons.

Table 2. There is a need for certain patients to have post operative OT.

a) patients who had poor baseline function or reduced mobility with limited ability to complete everyday activities	"If they have a poor baseline and are not very functional pre-operatively, they are more likely to need input post operatively".
b) patients who had had an existing care package or lacked social support for discharge home	"So patients who live alone, with no support network and needs to be independent with all tasks would require assessment and may need a package of care to support to help them recover initially".
c) patients with existing co-	"If this (medical history) is complex

morbidities.	or they are not medically optimised or have been struggling (with day-to-day tasks) pre-operatively, if they are elderly or live on their own".
d) patients who were very anxious and benefit from practising activities following surgery	"If patients are anxious about managing after surgery and I can't provide the reassurance pre-op I would ask the occupational therapist to see them to build up some confidence when they are on the ward".

Discussion

The aim of the project was to explore the occupational therapists' role in the pre-operative service for primary THR patients and understand where occupational therapists felt that they had the most appropriate clinical input. Our findings suggest that occupational therapists feel that pre-operative intervention is an essential component of an effective accelerated pathway for patients undergoing primary hip replacement. Our findings also highlight some challenges in responding to the changes in surgical procedures, post operative restrictions, and patient pathways of care which occur as healthcare advances.

Rapid recovery programmes and accelerated pathways of care mean that patients are discharged from hospital more quickly (Nagra, Hamilton et al 2017). Our findings support the value of the pre-operative occupational therapy service for efficient patient discharge and working towards same-day discharge for primary THR patients. We found occupational therapists identified that patients with good function at baseline, good social support and a lack of co-morbidities could be

discharged from the occupational therapy service at their pre-operative clinic appointment. The benefit of good multidisciplinary working, and referral back to occupational therapy was described as a “belt and braces” approach. This provides a safety net ensuring all patients who needed in-put post operatively could be signposted to the in-patient occupational therapy service for further assessment. This was seen as important for those patients who had complications post operatively and required more rehabilitation or for those patients whose needs could not be predicted pre-operatively. Evidence suggests that preoperative occupational therapy improves patient satisfaction, expectations, and reduces hospital length of stay and occupational therapy input postoperatively (McGregor et al., 2004). This resonates with our findings that pre-operative occupational therapy is essential for fast tracking patients, timely discharge, managing patient expectations and reducing the need for post-operative intervention.

In our review, occupational therapists described a comprehensive pre-operative occupational therapy service which included equipment to compensate for reduced function and enable accelerated discharge. Orpen and Harris found that prescribing preoperative equipment increases patients’ independence prior to THR surgery (Orpen & Harris, 2010). The therapists also acknowledged that the most common items of equipment prescribed were toileting equipment which supports the findings of Drummond et al (2012).

Our findings indicate that a change in protocol, meaning that THR patients are not required to follow hip precautions, this meant that occupational therapy interventions had become more patient centred, rather than being influenced by the post operative precautions. Therapists remarked that this had supported their decision making for prescribing equipment which was only provided to patients who had difficulty mobilising, managing transfers or personal activities of daily living pre-operatively or were highly likely to require this following surgery. However, some occupational therapists felt that there had been

a shift back to equipment provision with the increase accelerated discharge. This shift reduced the need for post-operative occupational therapy, maximised patient safety pre and post operatively, and reduced delayed discharges due to occupational therapy. However, this may not be cost effective if equipment is not required post operatively and patients may be dependent on equipment for longer than required. Occupational therapists suggested that equipment may be over prescribed pre-operatively to facilitate discharge and they did not know if patients always used the equipment, or for how long. Studies of equipment use have reported significantly greater use for persons with acute orthopaedic conditions than those with chronic disorders (Finlayson & Havixbeck, 2016). Our findings suggest that patients with the most significant post-operative equipment needs were the elderly, who had poor baseline function and lacked social support.

Occupational therapists in our review identified their role as key in providing patient education. Evidence suggests that pre-operative education reduces patient anxiety (Orpen & Harris, 2010). Despite the removal of hip precautions, occupational therapists told us that educating patients took a good deal of clinical time, and yet was an essential component in preparing patients for discharge, managing rehabilitation expectations, and enabling a timely hospital discharge. The literature supports th fact occupational therapists have always played an integral role in the treatment of patients undergoing THR (Drummond et al., 2012) and it may be that the time that was spent post operatively has shifted to the pre-operative stage, were the value of occupational therapy input can influence outcomes including patient satisfaction, reduced length of stay and cost (McGregor et al., 2004; Coudeyre et al., 2007).

Our findings indicate that the needs of patients with no significant co-morbidities, provided they are functionally independent, can be met pre-operatively, supporting previous work, in which pre-operative fitness has been found to be predictive of post operative outcome following total

hip replacement (Fortin et al., 1999). Although the needs of many patients can be met pre-operatively it is not always possible to predict every patients' needs prior to surgery, and there are some that need post-operative occupational therapy. Occupational therapists described this safety netting approach, where a patient could still be referred post operatively to occupational therapy if needed. For example, patients who had significantly longer on bed rest due to medical issues following surgery had greater needs, including rehabilitation, equipment provision and care needs. The most frequent reason for referral for these patients was for assessment of bed transfers and toileting needs which is supported by Drummond and colleagues, who found that transfers and dressing practise were the most frequently practised activities with hip replacement patients (Drummond et al., 2012).

Finally our findings also suggest that clinical experience had an impact on the therapists practice and decision making. Occupational therapists with less orthopaedic experience described how departmental protocols influenced their clinical reasoning and provision of equipment, while occupational therapists with greater experience reflected on the changes in practice over recent years that had adapted their approach to one that was more patient focused. This implies therapists with greater experience were more confident in predicting patients' ability to compensate following surgery without equipment. Due to the professional status of occupational therapists, they are required to problem solve rather than diagnose and clinical reasoning is an integral skill for practice (Robertson & Griffiths, 2013). This underpins the way occupational therapists practice (Chapparo, 2008) in predicting patient needs based on their baseline function, comorbidities, level of social support and anxieties around surgery. This is supported by evidence suggesting that novice practitioners are more prescriptive and those with more experience tend to approach their practice more organically, driven by patient centered cues.

Limitations

Although this was a service improvement project, not a research study, our findings potentially can be transferable across occupational therapy practice. However, the project was limited as participants were selected, as part of a service evaluation, from only one hospital. All volunteers and the interviewer worked in the orthopedic service which would have influenced the discussion. However, participants spoke about positives and negatives and welcomed the opportunity to take part in a service improvement project. What is clear is that future research is needed to explore patients' functional outcomes and equipment use following THR would help us to maximize cost effectiveness with appropriate patient care.

Conclusion

This paper describes a service improvement project to investigate whether occupational therapy can play an integral role in facilitating rapid hospital discharge for primary THR patients. While this may have cost implications due to equipment provision for patients who are otherwise fit and well, and increased patient dependency on equipment that may not be required following surgery, increased clinical experience offered improved occupational therapists' decision making and may encourage more individualized care. Those with less experience tended to be more protocol driven. Unfortunately there appears to be a shift back to equipment provision to increase patient safety and independence. Although this can maximise patient safety and enable timely hospital discharge, patients may be dependent on equipment for longer than required. Nevertheless, the findings of this project suggest that occupational therapy is key to enabling the rapid discharge of THR patients in the current climate of accelerated pathways of care and for a particular group of patient's effective occupational therapy pre-operatively reduces the need for occupational therapy intervention post-operatively.

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Appendix 1

Table 1. List of key interview questions

For the primary hip patients can you describe your intervention pre-op?
Can you explain what pre-operative education you provide?
What would you describe as the typical patient who doesn't require post op intervention?
Can you give examples the assessments carried out in clinic?
Can you describe the type of patient who would need intervention at pre-op?
What type of patient would you discharge at pre-op?
What sort of equipment would you prescribe at pre-op? – *examples/ reasoning*
Can you explain the type of patient you would identify as requiring post op intervention?
How are patients referred to you post operatively?
What type of patient would you recommend are seen after their surgery?

What equipment would you most frequently provide post discharge?
How can we improve the pre-op service?