This study won the ML Roberts prize awarded for the best 4th year undergraduate research project at the School of Physiotherapy, AUT University in 2016.

An exploration of the sequence and nature of treatment options available to people living with osteoarthritis of the hip and/or knee within a New Zealand context.

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ABSTRACT

The aim of this study was to explore the sequence and nature of treatment options available to people living with osteoarthritis of the hip and/or knee in New Zealand. Twenty-three people living with hip and/or knee joint OA participated in face-to-face interviews about their experiences of OA treatments they were offered and received. All data were analysed thematically. Data analysis led to the identification of three themes, which were, *General Practitioner as initial contact; lack of a clear treatment pathway; inconsistent provision of information*. Theme 1 highlighted that participants utilised their General Practitioner (GP) as their initial and primary health care provider for OA management advice. Theme 2 explored participants' reports of exploring a variety of treatment options for their hip and/or knee joint OA, establishing that there is no clearly defined treatment pathway. Theme 3 identified notions regarding participant education about OA. Analysis indicated that people living with OA are looking for consistent advice and a clear management pathway. The GP was the first health professional that most participants had contacted about their OA, however following this consultation there was no clear identifiable management pathway.

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Key Words: Knee and hip osteoarthritis, New Zealand, Treatment options, Treatment pathways

INTRODUCTION

The longer people live the more likely they are to develop long term musculoskeletal disorders. Of the 291 long term disorders identified globally, osteoarthritis (OA) of the hip and knee was ranked the eleventh highest contributor to disability, up from fifteenth in 1990 (Cross et al., 2014). In line with international trends, the prevalence of OA in New Zealand has increased from 9% of adults in 2001/2012 to 10% in 2015/2016 (Ministry of Health, 2015, 2016), with a predicted rise to 17% by 2020 (Access Economics, 2010). OA does impact detrimentally on people's physical fitness, social integration, mental health, and general wellbeing (Rabenda et al., 2007). OA of the knee joint is reported to be the primary cause of disability in walking, stair climbing and activities of daily living among people 50 years of age and older (van Dijk, Dekker, Veenhof, & van den Ende, 2006). Further, people with chronic OA of the hip and knee joint have a greater risk of cardio-metabolic comorbidity (Nielen et al., 2012) and early mortality due to their reduced physical fitness (Hochberg, 2008). Consequently, these functional problems and associated comorbidities will place greater financial demands on the health care system and its personnel.

At present New Zealand has no management guidelines for people living with OA (Larmer, Reay, Aubert, & Kersten, 2014). However, current international clinical guidelines advocate conservative management of OA prior to considering medication or surgery (Dean & Hansen, 2012; Fransen & McConnell, 2008; Merashly & Uthman, 2012; Van Manen, Nace, & Mont, 2012; Zhang et al., 2008). It has been argued that to reduce the burden of OA, safe and effective health services involving a range of conservative management options across a multidisciplinary team are required (Larmer et al., 2014). Despite the recommendations of many of the previously referenced guidelines, internationally clinicians continue to focus on the provision of medication and surgery (Hunter & Lo, 2009). The referral of patients to conservative management programmes has been poor (Chevalier, Marre, de Butler, & Hercek, 2004; Cottrell, Roddy, & Foster, 2010). Furthermore, low levels of engagement (Poitras et al., 2010) and limited long-term adherence (Pisters et al., 2010) hinder the success of these programmes. Research indicates a similar practice in New Zealand (Reid, Potts, Burnett, & Konings, 2014).

There is limited research that explores the sequence and nature of treatment people receive following their diagnosis of OA (Brand, Ackerman, Bohensky, & Bennell, 2013; Brand et al., 2014; Reid et al., 2014; Smythe, Larmer, & McNair, 2012). Additionally, much of this research has been undertaken in countries, such as Australia (Reid et al., 2014), where people diagnosed with OA have access to publicly funded rehabilitation prior to surgery. Until recently no such funded options have been available in New Zealand. In 2016 the Ministry of Health initiated the Mobility Action Programme where 17 small pilot projects were offered across New Zealand (Ministry of Health, 2017). Therefore accessibility of treatment is likely to differ from that of other countries and may also differ to existing recommended clinical guidelines, such as those developed by Zhang et al. (2008)

Therefore, the aim of this study was to explore and trace the sequence and nature of treatment options available to people living with OA of the hip and/or knee in New Zealand. The results of this study would inform a larger survey about the availability and access of treatment options for people living with OA of the hip and/or knee joint within New Zealand.

METHODS

Study Design

This study used a qualitative descriptive methodology and data were analysed using thematic analysis. Thematic analysis identifies, analyses and reports ideas within the data (Braun & Clarke, 2006). This method avoids highly interpretive, abstract, and conceptual analysis, instead focusing on a description of the key issues and/or themes (Sandelowski, 2000). It was anticipated that this study methodology would allow the researchers to identify and report the sequence and nature of treatment options available to and utilised by people living with OA of the hip and/or knee joint in New Zealand.

Participants

Twenty-three people took part in the study. The inclusion criteria were: people over 18 years of age; living in New Zealand with a physician-confirmed diagnosis of OA of the hip and/or knee joint(s). Participants were also required to have a good command of the English language to be able to participate in the interviews.

Data Collection

The Auckland University of Technology Ethics Committee (AUTEC 15/371) approved the study. The study was based at the North Campus, Auckland University of Technology (AUT), Auckland. Participants were recruited by advertising at the AUT Akoranga Integrated Health Clinic, by an email sent to Arthritis New Zealand members, or by word of mouth. The advertisement informed people to contact the student researcher (JGG) if they wished to participate. When potential participants contacted JGG they were provided with the study information sheet. Those who still wished to participate signed the consent form and completed the demographic and disease characteristics questionnaire.

Data were collected by way of a face-to-face individual semi-structured interview that was conducted and digitally recorded by JGG. Interviews were conducted between December 2015 and January 2016 at a location suitable to participants, with them electing either the AUT North Campus or their home. Interviews took up to 160 minutes in duration, were conducted in a conversational style, were guided by the interview schedule (see Table 1) and aimed to invite stories about particular events and moments regarding treatment for OA. The interview schedule was developed from current literature describing best practice clinical management of OA (Zhang et al., 2008; Fransen & McConnell, 2008).

Table 1: Interview schedule

Interview Questions
• When were you diagnosed with osteoarthritis, and who made the diagnosis?
• What advice were you given at the time of the diagnosis?
• Were you referred to any other health services for your arthritis?
• Were you referred to any non-health providers for your OA (such as green prescription)?
• Have you sought treatment for your OA on your own?
• What things have you trialled or done to manage your OA?
• What things have been useful?
• What things have not been useful?
• Where did you get your information? Health professionals, friends, websites, books, or other sources.
• What was the order in which you trialled the different interventions for your OA?
• Do you take, or have you taken, any medications or supplements for your OA?

Following the completion of the interviews all paper forms were scanned, converted to PDF files and stored electronically. The original forms were destroyed. Digital recordings were securely electronically stored. Interviews were transcribed verbatim and checked for accuracy by JJ and CP. Identifiable features of the transcriptions were removed for participant confidentiality, and participants were allocated a participant number for coding. Data were then analysed.

Data Analysis

Demographic data were analysed using descriptive statistics. The interview analyses followed the six phases outlined by

Braun and Clarke (2006). The phases are familiarisation of the data, generating initial codes, searching for themes, reviewing themes, defining and naming the themes, and producing the report. Two of the researchers (JJ and CP) independently reviewed the transcripts and coded sentences that contained meaningful incidents relating to the research question. From the interview data, themes were identified and the relevant participant quotes were used to illustrate them.

FINDINGS

Participants' demographic and arthritis characteristics

As can be seen in Table 2 the majority of the participants were female, and were over the age of 50 years. Most participants took some form of analgesia and/or anti-inflammatory medication for their arthritis. In addition, 17 participants were retired, the remaining six were engaged in relatively sedentary roles. The participants' highest education level ranged from completion of high school through to postgraduate education. Seventeen participants either had already had one or more surgical interventions for their OA or were planning to do so.

Table 2: Participants' demographic and disease characteristics

Variable	n = 23
Age (years) mean (range)	70.3 (52 – 86)
Female	20
Male	3
Reported use of analgesia, *n* (%)	15 (65)
Reported use of anti-inflammatories, *n* (%)	17 (74)
Symptom duration (years)	0.5 - 30
Symptom duration since diagnosis (years)	0.5 - 22

Interview Findings

Three themes were identified in the data that related to the sequence and nature of treatment options available to people with hip and/or knee OA in New Zealand. The themes were called: General Practitioner as initial contact; lack of a clear treatment pathway; inconsistent provision of information. Within each of the themes a number of distinctive notions were recognised. Each of the three themes and the associated notions are explained and supported by participant quotes from the data.

Theme 1: General Practitioner as initial contact.

This theme highlights that participants utilise their General Practitioner (GP) as their initial and primary health care provider for OA management advice. Also associated with this theme and detailed are the range of management strategies participants reported using following contact with their GP.

Once participants made the decision to seek medical attention, 19 of them chose their general practitioner (GP) as their first point of contact. *'I was having difficulty getting upstairs so I went to the doctor'* (Participant 15).

Frequently, the GP made the diagnosis of hip and/or knee OA through X-ray findings, which was then followed by a specialist referral, commonly to an orthopaedic surgeon or a rheumatologist. *'I got really really sore calves and sore knees… and I was all swollen up so I went to my GP...so he sent me for X-rays and a referral to a hospital in the rheumatology department'* (Participant 5).

Conservative management strategies were suggested in a number of different situations. These were if there was no referral to a specialist, prior to and/or following specialist referral; and sometimes by the specialist. If conservative management was indicated by the specialist, participants were referred back to the GP, who then became the primary point of contact for their OA management. The typical conservative approach was the use of either analgesic or anti-inflammatory medications, and a self-management programme, which participants undertook on their own. Self-management strategies included trials of over the counter medications and/or supplements, use of heat or ice packs and/or exercise. *'I've just started on* [glucosamine]*, the doctor has just suggested it'* (Participant 22). '[GPs] *do like to give a lot of pain killers… I suppose you go in there and that's what they can do, but they don't recommend, if he did recommend the exercise I would've went* (Participant 16).

However, only a small number of participants indicated that they were advised by their GP to exercise and/or to reduce their weight. '[Advice was given] *to keep active, probably to keep an eye on my weight and things like that'* (Participant 17). *'And that's what came out of the initial discussion with the GP really was to build up the muscles around the joint so that the joints are less impacted'* (Participant 12). A greater number of participants did not report receiving advice from their GP about exercise, staying active, and/or seeking advice from an appropriately qualified health provider, such as a physiotherapist. *'The GP never mentioned anything about exercise or a physio'* (Participant 16).

Theme 2: lack of a clear treatment pathway.

Theme 2 focused on the plethora of treatments offered to participants over time for their hip and/or knee OA. Participants reported that remaining active was important for them, and that they had discovered this themselves without advice from a health practitioner. Some participants also indicated that they were not given a specific exercise prescription. *'No particular exercise but yes keep active and if you don't use it you lose it sort of thing and that really encourages me to keep pushing* [staying active] *you know'* (Participant 23). *'I just feel as though I need to keep moving, I don't want to lose any mobility'* (Participant 9).

Another notion identified that participants were commonly referring themselves to both recommended and alternative health care providers within the community. Participants described engaging with physiotherapists, chiropractors and osteopaths but also naturopaths, acupuncturists, practitioners of traditional Chinese Medicine, and massage therapists in an attempt to seek effective treatment for their OA. *'So we did the clay therapy …., I've always taken magnesium for my joints and my asthma, and a bit of this and a drop of that'* (Participant 5).

The data showed that participants were using trial and error methods to determine the best treatments for their OA, which included the use of over-the-counter supplements. *'Yeah well I went on glucosamine after I'd been to Arthritis New Zealand meetings people were talking about glucosamine…I sort of thought, I'm prepared to try anything so I've been on it for quite a while'* (Participant 9). *'I did take of course I should tell you is fish oil and glucosamine every day, with these things about what helps you never know because if you hadn't taken it you have no way of knowing'* (Participant 12).

Theme 3: inconsistent information provided.

Theme 3 revealed that there is no consistent information provided to individuals with hip and/or knee OA. The notions revealed that people initially believe that their OA symptoms are age-related, until they find out otherwise; that they seek information from a variety of sometimes conflicting sources, including health professionals and the internet; and that they consider they have received inadequate information/education regarding treatment options, with the exception of surgery.

Prior to diagnosis, participants described putting up with their OA with frequent reports of delaying engagement with health services. *'Just terribly painful, I couldn't get up the stairs and everyone would say to me go and get it seen* [to], *it was getting worse and the pain was getting unbearable'* (Participant 15). A number of participants indicated that they delayed contacting their GP due to a belief that their condition was not severe enough or because they associated their symptoms as general aches and pains.

> *I had a bit of trouble identifying the fact that my knees were bad enough to be operated on. So I had trouble with my knees for [20 years] until finally one actually stopped working and I was out shopping and it just stopped with incredible pain, you know, and from that time on I had to walk with a stick. At that stage I started making noises about what was wrong with my knee you know* (Participant 1).

The second identified notion indicated that some participants were receiving differing advice regarding the management of their condition from health professionals. *'I have great faith in my GP but it's really hard… the consultant saying one thing and the GP saying something else'* (Participant 5).

The third identified notion related to the sources participants reported using to find out about their condition. A number of participants reported using the internet and finding it useful.

> *I get on the internet, I do a lot of reading, I pick up every bit of research that I can in magazines or journals or on the internet to see what might help and try and integrate it into my life if I can.* (Participant 6).

Finally, participants reported that they felt they had not received sufficient information/education about treatment and support options for people with OA, other than to have surgery.

> *…in a lot of ways we haven't had a lot of support or information about what you can and can't do, you know like yes you've got arthritis, you just get on with it type thing, it's not like there are groups to go to or some sort of exercises or other ways of relieving you know…even before the surgeries, when we knew* [I] *had the knee arthritis and when we knew* [I] *was going to need replacements and things like that, the lack of information on what we could or couldn't do, or where you could go to get things to make life easier was pretty much non-existent* (Participant 8).

DISCUSSION

The primary aim of this study was to explore and trace the sequence and nature of treatment options available to people living with OA of the hip and/or knee in New Zealand. The information provided by the participants fell into three themes, namely: General Practitioner as initial contact; lack of a clear treatment pathway; inconsistent provision of information. Beyond these initial observations, the findings from this study appear to highlight two issues impacting the management of OA in New Zealand. First the participants' delay in seeking health provider input regarding their OA may be due to an absence of education and information about the disorder. Second there appeared to be a lack of a clear and consistent treatment pathway for OA in New Zealand, despite the availability of evidence-based guidelines. The strengths and limitations of this study are outlined and then the implications and recommendations for both research and clinical practice are presented.

A consistent finding in the data was that participants delayed consultation with their GP until such a time that their osteoarthritis was detrimentally affecting their activities of daily living. This is not a new finding in research exploring what influences people with OA to consult their GP (Bedson, Mottram, Thomas, & Peat, 2007; Thorstensson, Gooberman-Hill, Adamson, Williams, & Dieppe, 2009). It is common for people in the older age group to consult their GP for pain relief and to delay consultation regarding joint pain as this is seen as a normal part of the ageing process (Sanders, Donovan, & Dieppe, 2002). Widespread education of the ageing population in New Zealand regarding OA symptom identification and management recommendations may help to address the misconception that joint pain is an inevitable part of the ageing process and may support individuals to seek medical care earlier in the disease process.

The lack of a clear and consistent treatment pathway resulted in every participant experiencing different advice and treatment options for their OA. Some participants undertook self-management strategies whereas others only used pharmacological strategies. Pouli, Das Nair, Lincoln, and Walsh (2014) found that the beliefs of individuals with knee joint OA influenced their use of medication with them feeling reliant on it for pain relief, while still looking for alternative methods to assist with pain. The participants in our study utilised trial and error to explore treatments for their OA, which may have been due to the influence of their belief systems on their decision(s) about which OA treatments they chose to use, and is consistent with the findings by Pouli et al. (2014). This is despite the recommendations provided in the Osteoarthritis Research International (OARSI) guidelines stating that effective management of hip or knee OA requires a combination of pharmacological and non-pharmacological modalities (Zhang et al., 2008). The recommended modalities include education, referral to a physiotherapist, muscle strengthening and weight reduction. These modalities are integral in the treatment of OA and can be implemented by a number of different health professionals. This study and others have found that in spite of participants not specifically being advised to exercise a large number of them were aware of the importance of exercise and remaining active (Grime, Richardson, & Ong, 2010; Morden, Jinks, & Ong, 2011). A review of 17 guidelines found exercise and education to be the strongest recommended non-surgical and non-pharmacological management strategies for OA (Larmer et al., 2014). Therefore, a clear treatment pathway, incorporating both exercise and education, for both people with OA and health practitioners to follow may help to instigate an evidence-based multidisciplinary approach to OA management in New Zealand.

Study strengths and limitations

This study had two strengths. The first was the use of a qualitative methodology that resulted in the collection of rich data that explored the phenomena of interest in some depth. The second was that our sample of 23 people had a broad range of different experiences of treatment for their OA. This study had two limitations. First the sample were purposively recruited within Auckland and therefore the findings may not be applicable to all people with hip and/or knee OA across New Zealand. Second, the majority of participants were recruited through their association with Arthritis New Zealand, therefore the knowledge and experiences of these people may differ from people without connections to Arthritis New Zealand.

Implications and recommendations for research and clinical practice

Future service development for individuals with hip and/or knee OA may benefit from the inclusion of a clear management pathway that could start with the GP as the first point of contact but also incorporate other healthcare providers in a clear cohesive manner. Information could be provided for people living with OA that identify health professionals with expertise in conservative management strategies, such as exercise therapy and education, as the first point of contact. Funding options must also be considered for people with OA in New Zealand to access evidence-based treatment modalities.

This management pathway may also benefit from addressing the management of OA from a long term condition perspective with an emphasis on continuity of care between multiple health practitioners, rather than episodic consultation. Based on the findings of our study there is a need for the implementation of a co-ordinated evidence-based multidisciplinary approach for the care of individuals with hip and/or knee joint OA in New Zealand. This approach should start with multi-disciplinary conservative management in which there is communication between health providers, including but not limited to GPs, physiotherapists, dietitians, rheumatologists, psychologists for pain management, and orthopaedic surgeons. This approach was suggested by Hunter (2011) for Australian clinicians, and is appropriate for the New Zealand context, and in line with OARSI recommendations (Zhang et al., 2008).

Future research can be directed to capturing a more comprehensive picture of what is occurring in New Zealand regarding the sequence and nature of treatments for OA of the hip and/or knee joint(s). This information could be obtained through the development and implementation of a survey to gather a large number of responses. The results of this survey may in turn assist in the development of future policy regarding OA management in New Zealand.

CONCLUSION

The main finding from this study is that there is no clear and consistent pathway for the management of OA of the hip and/or knee in New Zealand. This has had a resultant effect of a diverse range of conservative management strategies being used in a trial and error manner, in spite of the availability of evidence-based guidelines for OA management. GPs are typically the first point of contact that individuals with OA seek treatment from, and are also often the primary point of contact for their OA management. However, participants reported conflicting information from different health practitioners and there is a need for widespread education regarding OA symptom identification and management recommendations. These findings can be used to guide the development of a clear long term condition management pathway with the GP as the first point of contact, along with the inclusion of other health professionals in a cohesive and multidisciplinary manner to ensure continuity of care. Future research should be directed to the development and implementation of a survey to gather a large number of responses thereby obtaining a more encompassing evaluation of the sequence and nature of treatment options for hip and/or knee OA in New Zealand. In turn, this survey can further guide a treatment pathway and other future policy regarding hip and/or knee OA management in New Zealand.

KEY POINTS

1. There is no clear and consistent pathway for the management of hip and/or knee osteoarthritis in New Zealand.
2. General practitioners are typically the first point of contact that people consult for the treatment of their osteoarthritis.
3. The information provided by health professionals, including physiotherapists, should be consistent and in line with the international guidelines for the management of osteoarthritis.
4. Defined pathways need to be developed for the management of osteoarthritis of the hip and/or knee, with general practitioners being the primary care givers, along with the inclusion of health professionals who have the relevant treatment expertise.

DISCLOSURES

The authors declare no conflicts of interest. Arthritis New Zealand funded this research as a Summer Studentship for Jasmin Jolly in 2015 and 2016.

PERMISSIONS

Ethical approval was granted by Auckland University of Technology Ethics Committee (AUTEC 15/371).

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