

ORIGINAL RESEARCH

Stratification of Treatment in a Community-Based Musculoskeletal Service: A Mixed-Methods Study to Assess Predictors of Requiring Complex Care



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Abstract

Objective: To explore factors that might be relevant when designing a triage tool.

Design: A mixed-methods study using multivariable logistic regression analysis to identify significant factors associated with requiring different levels of care, and qualitative focus groups exploring views of patients and physiotherapy clinicians regarding case complexity.

Setting: A community-based adult musculoskeletal service delivering tier 1 (standard physiotherapy) and tier 2 care (complex care beyond the scope of standard physiotherapy) and providing onward referral to orthopedic clinics (tier 3).

Participants: Quantitative data were extracted from a random sample of patients (N=484) who had received treatment for musculoskeletal conditions. Patients and physiotherapists who had received care or who worked in the service participated in focus groups.

Interventions: Not applicable.

Main Outcome Measures: Themes that emerged from focus groups were compared against predictors of requiring complex care found to be significant ($P<.05$) after quantitative data analysis.

Results: A total of 184 patients (38.0%; 95% confidence interval, 33.8–42.4) received complex care. Peripheral joint problems, unclear diagnosis, and symptoms affecting sleep were significant independent predictors of requiring complex care. These data supported some of the main themes raised at focus groups.

Conclusions: A substantial proportion of patients receive tier 2 complex care. Further studies are needed to evaluate whether the predictive factors found to be significant in our study might be useful for developing a tool for more effective triage to the most appropriate tier of musculoskeletal care.

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A quarter of the global adult population is estimated to be affected by musculoskeletal (MSK) disorders.¹ In the United Kingdom (UK), they account for over a quarter of all consultations with general practitioners (GPs)^{2,3} and have a considerable societal burden, including work absences.⁴ MSK conditions are predominantly managed in primary and intermediate care settings.⁵⁻⁷ Within the UK National Health Service there are 3 different

levels of care. Standard physiotherapy (tier 1) is generally appropriate for noncomplex MSK conditions, whereas specialist clinical assessment and treatment services (tier 2) are available for those patients who require more complex care (involving investigative procedures, treatment procedures not included in standard physiotherapy practice, or an extended number of treatment consultations) over and above the treatments that can be provided in tier 1 care. Secondary care orthopedic services (tier 3) are reserved primarily for surgical cases and for those MSK patients who have failed to be managed effectively in the primary and intermediate care settings.

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There is evidence to suggest that referral to an inappropriate care pathway can cause delays in care that can be both inefficient and associated with poor treatment outcomes,⁸⁻¹⁰ and that clinical triage can improve the appropriateness of referral routes and also reduce overall health care costs.¹¹ The UK Musculoskeletal Services Framework⁶ proposes the use of tools to guide this triage process.

Existing tools have been adapted from non-MSK settings¹² but may not be appropriate and can be time-consuming and cumbersome to use, while those specifically designed for the MSK population are either targeted at predicting onward referral to orthopedic secondary care¹³ or are often specific to 1 joint or anatomic region.^{9,14-21} This makes them unsuitable and/or impractical for use in routine clinical practice in the community care setting²² where single-site MSK pain is the exception rather than the rule.²³

Some community-based studies of MSK care have evaluated predictors of prognosis and outcomes²⁴⁻²⁶ rather than health care use and needs. These studies have identified generic factors (eg, pain intensity and duration, and psychosocial factors such as anxiety and depression) associated with poor outcome irrespective of the patient's MSK condition. We hypothesized, therefore, that there may also be generic predictors across all MSK conditions that might help to determine the level of care required.

One recent publication²⁷ describes a study protocol that may provide further insight into prognostic factors for health care use in patients specifically referred to a specialist MSK clinic. However, we have found no study to date that has explored the prediction of complex care needs in MSK patients referred to a service that provides both tier 1 and tier 2 levels of care, and also onward referral to tier 3 care, allowing comparison of data for patients across all levels of complexity in MSK conditions.

There remains a need to develop a standardized triage process for MSK conditions¹¹ that is practical to use in the community care setting to identify patients with MSK conditions who are likely to require complex care. With an absence of evidence on which to base any a priori hypotheses for predictors, the aim of this exploratory study was to use a mixed-methods approach to appraise a range of background characteristics that might be useful when designing a generic tool for predicting the likely requirement for complex care in the MSK outpatient setting. The specific objectives of the study were to (1) estimate the frequency of complex care from a sample of MSK patients; (2) determine statistically significant predictors of the requirement for complex care; (3) assess whether patients receiving complex care are associated with different treatment outcomes; and (4) explore the views of service providers and service users in relation to identifying and treating patients requiring complex MSK care.

Methods

Study Design

This study was a mixed-methods study with quantitative analysis to identify significant factors associated with requiring complex

care, and qualitative focus groups to explore the views of patients and physiotherapy clinicians regarding case complexity. After review by the local research department, this service evaluation study was deemed not to require review by an external ethics committee.

Setting

The study was undertaken in the Leeds MSK service, a city-wide community service. The service receives approximately 30,000 adult patient referrals per year from GPs and delivers both tier 1 (standard musculoskeletal physiotherapy treatment) and tier 2 care (more complex assessment and care from physiotherapists with an extended role or MSK physicians), and serves as a triage service for onward referral to tier 3 (secondary care orthopedic clinics). The initial referral tier is determined by the patient's GP, but patients may be transferred within the service to a more appropriate tier.

Data extraction

Initially, we randomly selected 550 patients from a fully anonymized dataset of all new referrals to the Leeds MSK service (April 2013 through March 2014). A new referral was defined as a referral received from a patient's GP for assessment and treatment of any new, existing, or recurrent MSK problem. All patients with a new MSK referral to tier 1 or tier 2 and with available clinical records were eligible for inclusion in the study. Before sampling, we excluded referrals to allied services (domiciliary physiotherapy service, MSK podiatry service, spinal triage service, community falls service), and patients who had not completed treatment or assessment in the MSK service. We extracted details of patient characteristics, GP referral information, physiotherapy assessment details, symptoms, comorbidities, and patient beliefs and expectations. Potential predictors were considered after a review of the literature, a scoping exercise with physiotherapy clinicians, and an assessment of the availability of data within electronic patient records.

Data extraction was undertaken by MSK clinicians familiar with standard recording of patient data on the electronic records system, and initially recorded on data collection forms (supplemental appendix S1, available online only at <http://www.archives-pmr.org/>) before being collated in an Excel spreadsheet.^a

Definition of complex care

Patients were defined as having received complex care if treatment included 1 or more of the following criteria: (1) investigations as part of care package (ultrasound, magnetic resonance imaging scan, x-ray imaging, blood tests, nerve conduction tests); (2) treatment not included in standard physiotherapy practice (peripheral or spinal injection, assessment or treatment by extended scope physiotherapist or MSK physician); and (3) number of treatment appointments that exceeds the 90th percentile from within the random sample. This definition used for the purposes of our study was based on a review of the related literature, and from results of earlier scoping work with physiotherapy clinicians that involved clinicians of different grades and experience reviewing and classifying a range of case studies according to how complex they felt the management would be, and subsequently describing which factors contributed to their decision.

List of abbreviations:

CI	confidence interval
GP	general practitioner
MSK	musculoskeletal
UK	United Kingdom

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