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Original article

Patient and healthcare provider experience and perceptions of a preoperative rehabilitation class for lumbar discectomy: A qualitative study

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ABSTRACT

Background: Lumbar disc disease is a leading cause of low back pain. Lumbar discectomy (LD) may be indicated if symptoms are not managed conservatively. Rehabilitation has traditionally been delivered postoperatively; however, there is increasing delivery preoperatively. There are few data concerning perceptions and experiences of preoperative rehabilitation. Exploring experiences of preoperative rehabilitation may help in the development and delivery of effective care for patients.
Objectives: To develop an understanding of patient and healthcare provider (HCP) experiences, perspectives and preferences of preoperative LD rehabilitation, including why patients do not attend.
Design: A qualitative interpretive approach using focus groups and individual interviews.
Methods: Data were collected from; a) patients listed for surgery and attended the preoperative rehabilitation (October 2019 to March 2020), b) patients listed for surgery but did not attend rehabilitation, and c) HCPs involved in the delivery of rehabilitation. Data were transcribed verbatim and analysed using thematic analysis.
Results/findings: Twenty participants were included, twelve patients and eight HCPs. The preoperative class was a valuable service for both patients and HCPs. It provided a solution to staffing and time pressures. It provided the required education and exercise content helping the patients along their surgery pathway. Travel distance, transportation links, parking difficulty and cost, lack of knowledge about the class aims, and previous negative experiences were barriers to patient attendance.
Conclusions: For most patients and HCPs, the preoperative class was valuable. Addressing the challenges and barriers could improve attendance. Future research should focus on management of patient expectations and preferences preoperatively.

1. Introduction

Traditionally, rehabilitation has been delivered postoperatively for lumbar discectomy (LD) patients (Williamson et al., 2007; Gilmore et al., 2016). A survey of UK practice indicated that whilst all neurosurgery centres provided postoperative rehabilitation, one in three provided a preoperative service (Alsiaf et al., 2022). Preoperative rehabilitation has been proposed as a potential way to improve postoperative outcomes in patients planning to undergo spinal surgery (Delgado-Lopez et al., 2019; Janssen et al., 2021), but also reported as a way to reduce the need for postoperative rehabilitation in the orthopaedic population (Cabilan et al., 2015).

There is no conclusive evidence to determine whether patients who undergo preoperative rehabilitation do better than those that do not.

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Studies have shown significant short-term differences in favour of preoperative rehabilitation (Louw et al., 2014; Chen et al., 2015; Lee et al., 2018), though not in the intermediate and long term (Louw et al., 2014; Chen et al., 2015) or on the primary outcomes (Nielsen et al., 2010; Louw et al., 2014; Rolving et al., 2015; Lindback et al., 2018). To save time and resources, some hospitals are providing the service, eliminating the need for postoperative inpatient rehabilitation. However, it has also been reported that 41% of patients invited to preoperative rehabilitation did not attend (Watt et al., 2019).

Preoperative spinal rehabilitation has also been identified as an opportunity to change health behaviour, including exercise and diet and a person-centred approach to this is recommended (Lundberg et al., 2019). It is important to understand and assess patient preferences and perspectives on rehabilitation to inform high-quality patient care and to help physiotherapists and healthcare organisations develop better rehabilitation programmes for patients (DH, 2008). The person-centred process involves discussing care with the clinician and taking patient values and preferences into consideration within the context of a medical decision-making process to determine the best treatment options (Elwyn et al., 2012), and to highlight important differences in the views between patients and therapists (Louw et al., 2009).

There is, however, a lack of research related to patient and healthcare provider (HCPs) experiences of preoperative rehabilitation including the reasons patients choose to attend or not. Such data are important as they provide an understanding of the experiences of LD patients as well as HCPs delivering the preoperative rehabilitation and have the potential to help inform the content and delivery of the service in addition to improving patient satisfaction and delivering patient-centred care (El-Haddad et al., 2020).

This study aimed to develop an understanding of patient and HCP experiences and views of preoperative rehabilitation for LD, including an exploration of why patients do not attend.

2. Method

2.1. Study design

A qualitative approach using focus groups and individual interviews was used. An interpretivist paradigm informs the theoretical perspective of the current study, to understand and describe human nature and the perspectives of individuals directly involved with the phenomenon being studied (Cavaye, 1996; Blaikie and Priest, 2019). The generic qualitative approach was chosen, also known as "basic qualitative" or "simply interpretive"; it has been defined as *"not guided by an explicit or established set of philosophic assumptions in the form of one of the known (or more established) qualitative methodologies"* (Caelli et al., 2003, p. 4). This report follows the consolidated criteria for reporting qualitative research (COREQ) (Tong et al., 2007). Ethical approval was obtained from the Health and Care Research Wales (HCRW) (reference 21/NE/0056).

2.2. Setting

This study took place at Salford Royal Foundation Trust (SRFT). SRFT has a specialist neurosurgery unit. SRFT is one of the busiest neuroscience units in the UK with subjects referred from across the North West of England, Isle of Man, and Jersey. All patients on the weekly surgery list were invited by the HCPs to attend the class except those with neurological signs and symptoms such as motor deficit, or functional impairment, such as, wheelchair use, or who lived a long distance from the hospital. Approximately 70% of patients were eligible, with the remaining 30% seen on the ward postoperatively.

The preoperative rehabilitation consisted of one class delivered by a senior physiotherapist and an assistant at the hospital for up to 20 patients at a time. Classes lasted for up to an hour and a half with content based on National Institute for Health and Care Excellence (NICE) guidelines (NICE, 2016), NHS England's National Low Back Pain and Radicular Pain Pathways (NHS, 2017) and a Delphi consensus study (Goodwin et al., 2015). The programme included an overview of the anatomy of the back and information about the surgical procedures being planned; mobility and posture instructions and precautions; exercises that focus on including lower limb circulation, range of motion and strengthening exercises; and postoperative advice that includes wound care, return to work, sports, driving and sexual activity. Patients also received an advice booklet available online.

(https://www.jpaget.nhs.uk/media/450106/PH-37-Lumbar-Discectomy-Decompression-Advice-v1-web.pdf).

2.3. Eligibility criteria

Three groups were invited to take part in the study, a) patients listed for LD surgery and attended preoperative rehabilitation (October 2019 to March 2020), b) patients listed for LD surgery but did not attend preoperative rehabilitation, and c) HCPs involved in the delivery of the preoperative rehabilitation (Table 1). Purposive sampling was used to ensure that all genders, across a range of ages, were included. Partners/carers attended where necessary. There were no exclusion criteria.

Three focus groups were planned, one for each group, each with 6–10 participants. This was based on a similar study in this in this area (Rushton et al., 2017) and on recommendations for focus group interviews (Clarke and Braun, 2013).

2.4. Recruitment

Participants were recruited by letter via the physiotherapy service at SRFT. A clinician identified patients who had been invited to the preoperative class from surgical lists. Three rounds of 10 invitation letters were sent to each patient group (the total number of patients invited was 60). HCPs were identified from clinicians involved in running the class. Written consent was obtained via a reply slip following a written invitation that accompanied a participant information sheet and re-obtained in the focus group/interview.

2.5. Data collection

2.5.1. Focus groups

Focus groups are an economical, faster, and more efficient method than one-to-one interviews by obtaining data from multiple participants (Frey and Fontana, 1991; Krueger and Casey, 2014). The best way to exchange opinions and address disagreements between participants is via focus groups (Kitzinger, 2005). The technique can stimulate recall and opinion elaboration (Frey and Fontana, 1991), as participants were asked about a service they received a year before COVID; therefore, the group interview was selected as the most efficient way to recall participant experiences. Focus groups were online via Zoom due to the COVID–19 pandemic, lasted approximately 60 min and were held in the evening, as requested by participants. If, however, participants could not attend a focus group, a one-to-one online or a telephone interview was arranged. The lead author (HA) facilitated the focus group with the help of an assistant facilitator (PCG), who took field notes. Interviews were

Table 1
Eligibility criteria.

Inclusion criteria Groups A and B	Inclusion criteria Group C
• All genders aged 18 years or over • All patients registered for LD discectomy and invited to attend preoperative rehabilitation classes between October 2019 to March 2020 • Able to communicate in English	• All HCPs, including physiotherapists and physiotherapy assistants involved in delivering the preoperative class for LD patients

conducted in English using an interview schedule to help guide the discussion. The interview guides were developed from the literature, the expertise of the research team and a physiotherapy HCP. These were piloted by three HCP (Two physiotherapists and one assistant) and one patient, all with experience in preoperative rehabilitation. Following piloting, minor edits were made to the interview guide, e.g., some questions were rephrased and sequentially aligned, and further topical probes were made. Questions for patients who attended the class explored experiences of preoperative rehabilitation class; for patients who did not attend the class, questions explored the need for the pre-operative rehabilitation class and their reasons for not attending; for the HCPs, questions explored experiences and perceptions of providing physiotherapy pre-and postoperatively including possible reasons for non-attendance.

2.6. Data analysis

Focus group and interview data were digitally recorded and transcribed verbatim by a professional transcriber, followed by a second check conducted by the lead author (HA) to ensure accuracy. Thematic analysis (TA) was used to analyse the data based on the six-phase framework described by Braun and Clarke (2012) (Table 2). Data were analysed manually using the inductive approach for coding (Weinberger et al., 1998) and managed using NVivo9 software backed up to cloud-based servers.

3. Findings

Twenty participants took part in the study, seven in group A (5 male, mean age 60 years; range 37–84 years), five in group B (3 male, mean age 58 years; range 69–41), and eight in group C (2 male, mean age 33 years; range 29–44), including seven senior HCP's and one assistant (Table 3).

Ten patients had LD for the first time; two had a previous laminectomy and a caudal epidural + epidurogram. Three patients identified in group B did not attend the class as they did not receive the invitation, which was unclear at the time of recruitment.

3.1. Main themes

Data analysis confirmed that data saturation had been reached (Creswell and Poth, 2016). Four main themes and several sub-themes were identified: 1. Motivations for service delivery change; 2. Benefits of change to service; 3. challenges and barriers; 4. Opportunities for service delivery development (Fig. 1). Anonymised verbatim quotes have been used to highlight the findings (Supplementary File 1) (Braun and Clarke, 2012).

4. Motivations for service delivery change

i) ***Evidence-based support and managers' support:*** HCPs stated that initiating the rehabilitation preoperatively was based on reports from another hospital disseminated at a conference. HCPs highlighted that changes to the service could not have been achieved without the support of hospital managers and surgeons.

ii) ***Low staff capacity/high patient demand/the surgery nature and timing:*** LD surgery is mainly undertaken as day surgery, providing little time for inpatient engagement with rehabilitation following surgery. HCPs reported that motivation for service change was finding an efficient way to address a combination of low staffing capacity, high turnover of day-case surgery, and increasing patient demand.

Table 2
Data analysis phases.

Thematic analysis phases	The current study phases
Phase 1: Familiarisation with the Data	- The transcripts were read independently by the research team (HA, GY, PCG) to understand the whole before analysing the parts (Gadamer, 2013) and to become more familiarised with the data. - The team did not conduct a mechanical act of turning the participant's word into the written word; instead, the process was about constructing the meaning of those words, considered to be the primary key stage within an interpretive methodology (Braun and Clarke, 2012). - Raw data, field notes, transcripts, and reflexive journals were kept.
Phase 2: Generating Initial Codes	- Code generation began by organising data into meaningful segments, finding the initial coding, and identifying emerging patterns (Fetterman, 2019). - Everything was coded backwards and forward (coding cycle) through the data noting any potential themes. - This process ended up producing the transcript codebook. The codebook included the code name/label, full definition, and examples (MacQueen et al., 1998).
Phase 3: Searching for Themes	- Theme generation was initiated by looking across all the codes in the codebook and finding the relationships and connections between them to generate the themes. - The process was repeated until a group of codes relating to one theme were identified. - The theme was then defined and named.
Phase 4: Reviewing Themes	- Themes were reviewed and identified from the previous stage; themes were expanded, contracted or changed during the analyse stage. - Following the research team data discussion, a decision was made to present the data from all participants' positive or negative perspectives to enhance the credibility of the data interpretation (Hanson, 2017).
Phase 5: Defining and Naming Themes	- Themes were defined and named. HA conducted a detailed analysis to identify each theme's story. - PCG and GY evaluated the data regularly to analyse and discuss the consistency and accuracy of the information. - TON was the independent researcher consulted to ensure the themes were sufficiently clear and comprehensive (King, 2004). - The names of the themes were carefully selected to be punchy and immediately give the reader a sense of what the theme is about (Braun and Clarke, 2012). - Once the themes had been reviewed, the main themes were produced and named. - Sub-themes, which are important themes within a theme, were identified and used to structure large and complex themes (Braun and Clarke, 2012).
Phase 6: Producing the Report	At this final phase, the research phases were fully established. The research team had entirely generated and defined the themes and was ready to begin the final analysis and write the finding report. - A summary of the final analysis report was created and submitted to participants for feedback through member checking.

5. Benefits of service change

i) ***Preoperative rehabilitation format and content benefits:*** With regard to effective timing and efficient treatment, HCPs stated that the preoperative class efficiently provided the patient with appropriate intervention, thereby reducing staff workload and saving time.

HCPs stated the class format helped create a peer-patient support group. Patients also preferred the preoperative session as a class format and described it as a friendly atmosphere.

Table 3
List of Participant groups and Interview Type.

Group A (Patient attended)		Group B (Patient did not attend)		Group C (HCP)	
P1	FG-3	***P8***	FG-5	***P13***	FG-1
P2	FG-3	***P9***	FG-5	***P14***	FG-1
P3	FG-3	***P10***	FG-5	***P15***	FG-1
P4	FG-3	***P11***	FG-6	***P16***	FG-1
P5	1-to-1	***P12***	FG-6	***P17***	FG-1
P6	FG-4			***P18***	FG-1
P7	FG-4			***P19***	*FG-2*
				P20	*FG-2*

P= Participant, HCP= Healthcare provider, FG= Focus group, 1-to-1 = one-to-one interview.

HCPs stated that the preoperative class aimed to prioritise patient needs and address their expectations at the right time before surgery. HCPs felt that the class encouraged self-management postoperatively, helping the patients prepare and plan for their postoperative social and physical environments ahead of surgery. They reported that patients who attended the class were more familiar with the exercises and education compared to those who did not attend.

Most patients indicated that the class exercise demonstration was the thing they liked and was most important. Patients felt the information was provided by informative staff that used simple terminology. Patients shared that they felt anxious as they moved towards an unknown pathway postoperatively but that they felt reassured by the class.

Patients felt the class enhanced their confidence to become independent in terms of activities of daily living postoperatively.

HCPs stated that the class helped economically; it allowed fast-track discharge, reducing the need for patients to be seen by a physiotherapist during their stay.

HCPs highlighted that the class helped manage patient expectations. They said that some of the patients attending the class were surprised by the instructions given to them, as they did not know about their importance in improving outcomes following surgery.

ii) ***Booklet benefits:*** Patients stated that the booklet provided in the preoperative class was informative, clear, and helpful in answering their questions and acted later as a reference guide. They highlighted that their back pain sometimes lasted for years and required long-term rehabilitation; therefore, they liked that they were able to refer to the booklet when they needed to remember the exercises. They added that the booklet was also accessible online, contained HCPs' contact details to ensure continuous support, and provided open contact for further questions if required.

Some patients, however, felt that the education booklet alone was sufficient, and there was no need to gather the patients before surgery to explain something that was already well explained in the booklet. In contrast, HCPs perceived that the booklet alone could not provide sufficient detail, which may confuse some patients. Additionally, some patients who did not attend the class also felt that the booklet alone was not sufficient.

iii) ***Patient satisfaction:*** HCPs stated that a positive patient satisfaction survey was one of the primary outcome measures that encouraged the hospital to continue providing the class. They commented that lower demand for postoperative physiotherapy could be connected to the comprehensive information provided in the class. Most patients who attended the class agreed with the HCPs and were satisfied with the preoperative rehabilitation. They recommended the class be maintained.

6. Challenges and barriers to attending preoperatively

Participants who attended the preoperative class were asked about the challenges they faced attending. In addition, the patients who did not attend were asked about the barriers that prevented their attendance (see Fig. 1 & Table 4).

Miscommunication: Two patients who did not attend stated that they did not receive an invitation to attend the preoperative class. Another patient said that he was invited but then received surgery as an

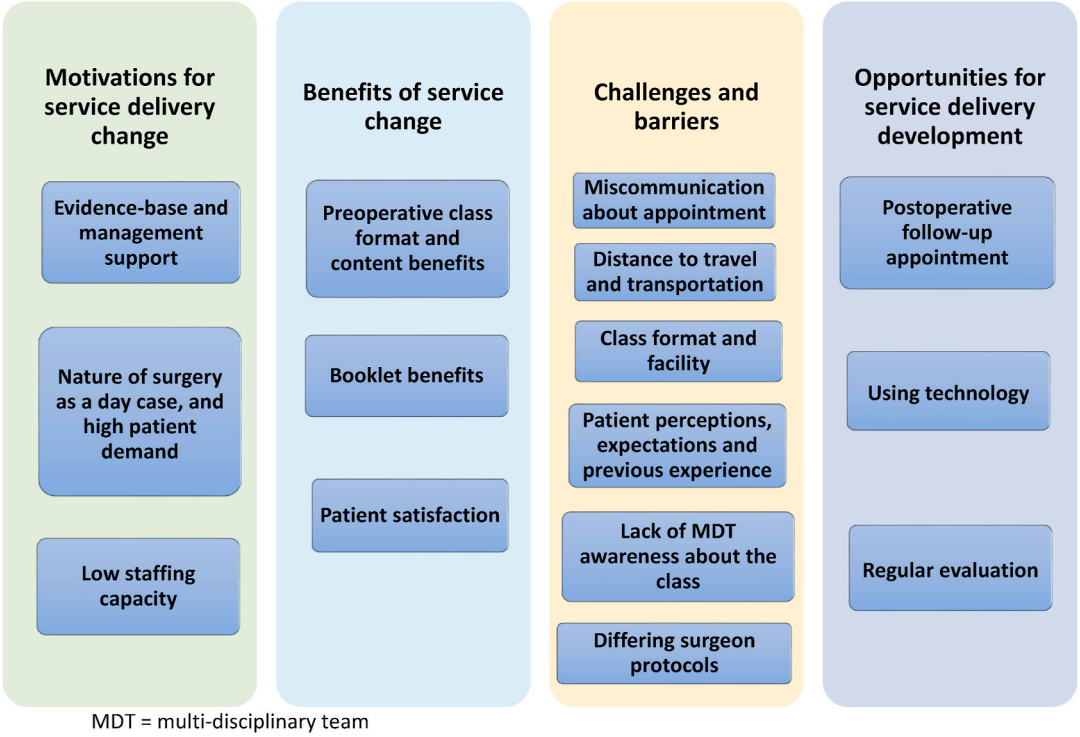

Fig. 1. Study Themes and sub-themes.

Table 4
Participants' challenges and barriers to service change.

HCPs	Patients Attended the Class	Patients Did not Attend the Class
Challenges	Challenges	Barriers
Patients' perceptions, expectations, and previous experience	Distance to travel and transportation	Miscommunication
Class format	Parking difficulties and cost	Distance to travel and transportation
Workload impacted	Public transportation	Parking difficulty and cost
Patients' screening	Patients' confidence levels	Public transportation
Staff training	The class format	Patient's perception of the aim of the class
Patients with new symptoms or red flags	Crowded class	Previous bad experience
Patient's expectations of a postoperative physiotherapy session	Differing surgeon protocols	
Lack of MDT awareness about the class and coordination		
Differing surgeon protocols		
Workload impacted		

MDT = multi-disciplinary team.

emergency case.

Distance to travel and transportation: Some patients arrived late, and others did not respond to the invitation. HCPs stated that this might be due to the hospital's location, i.e., a long distance to travel, difficulty and cost of parking on arrival, and poor transportation links. The distance required to travel meant sitting for a long time, affecting some patients' back pain and influencing their attendance.

Class format: Patients stated that one disadvantage of the class format was the different confidence levels of patients who attended, meaning unconfident people would not necessarily receive the information they wanted or needed.

Patient perceptions, expectations, and previous experience: There was a discrepancy between the perceptions of HCPs and comments from patients who did not attend regarding non-attendance. On the one hand, HCPs perceived that poor patient perceptions of the class impacted attendance. In contrast, one patient highlighted that the class's importance to his rehabilitation was not clearly explained in the invitation letter, resulting in non-attendance. Another patient who did not attend the class said this was based on previous experience with physiotherapy, which made her back pain worse.

Additionally, some patients who attended the class expected more, including a longer preoperative class, activities involving exercise, and more advanced exercises to strengthen their back after the acute postoperative stage. Others expected postoperative physiotherapy.

The lack of awareness among other members of the multidisciplinary team (MDT): surgeons and nurses did not necessarily know about or understand the aims of the class. A lack of coordination with and by the other members of the MDT was a challenge highlighted by the HCPs.

Differing surgeon protocols were described as a challenge by both HCPs and patients. Patients were referred by neurosurgical and orthopaedic spinal teams. This resulted in HCPs needing to explain different surgeons' postoperative protocols, which were considered time-consuming by the HCPs and confusing by the patients.

7. Opportunities for service delivery development

***Postoperative follow-up appointment*:** Some patients stated that a postoperative follow-up appointment with the physiotherapist would be desirable as it would improve their confidence and prevent them from 'feeling forgotten'.

Using technology – An online class: Some HCPs and the patients suggested running the class online could be considered. However, for some patients, there was a preference to be seen in person. A patient who did not attend the class suggested using technology over the paper booklet would be preferable. One patient suggested using an app, which would make it easier for the HCPs to communicate and follow up with patients postoperatively to ensure that they are committing to the exercise regularly and accurately.

Regular evaluation: HCPs suggested ongoing evaluation of the service was important to ensure its appropriateness and patient satisfaction.

8. Discussion

This study investigated patient and HCP experiences and perceptions of preoperative rehabilitation for patients listed for LD surgery. Overall, the class was considered an important and valuable service by both patients and HCPs. Four key themes were identified: 'motivations for service delivery change', which included the rationale for initiating the service; 'benefits of service change', which included practical aspects of the service and also satisfaction; 'challenges and barriers, including reasons for non-attendance; and 'opportunities for service delivery development', which included suggestions to improve the service.

In the current study, HCPs highlighted that the main reason for originally changing the rehabilitation service from postoperative 'one-to-one' to a preoperative class was to address low staff capacity, eliminate the need for postoperative inpatient sessions, high patient demand, and the surgery's nature and timing. Moreover, patients are becoming increasingly inquisitive about their medical conditions and their therapy choices (Davis et al., 2013; Klifto et al., 2017). Spinal surgery patients often ask surgeons preoperatively and during follow-up visits about the role of physiotherapy and have recommended adding this information to the surgery consent discussion (Zahrai et al., 2020). The need for preoperative education was highlighted in the current study as an additional motivator for initiating the service.

Whilst NICE and the APTA guidelines recommend providing patients with both oral and written information (APTA, 2013; NICE, 2021), some patients felt the booklet alone was sufficient for them to understand the required instructions postoperatively and suggested it as an alternative to the class. However, this cannot be applied to all patients, as some stated that attending the class was crucial for them. Furthermore, this study found that not all patients like to read, with some favouring face-to-face sessions, demonstrations, or videos. These findings resonate with a study involving patients on a colorectal enhanced recovery pathway, where some patients expressed their dissatisfaction with the number of booklets provided and admitted to not reading them (Cooper, 2013). This exemplifies the need for personalised care, providing patients with information in the format they prefer, including booklet, face-to-face, or online.

The preoperative class had several barriers and challenges for patients. Some of these can be mitigated by offering different options and personalising patient care. Patients' unrealistic expectations can be mitigated by providing some form of expectation management. Whilst it may be unrealistic to meet all patient expectations, satisfaction level and postoperative outcomes could be influenced by adjusting preoperative expectations to be more realistic (Doering et al., 2018). In this study, patients who attended the class talked about expectations not being met including active exercise, longer class duration, and postoperative physiotherapy follow-up. These were considered unrealistic by the HCPs as they would increase class time, staffing, and room capacity, which was not available. Therefore, patients were informed that they would not be seen postoperatively and were advised to adhere to the booklet in order to recover. In the current study, providing clear preoperative information to manage patient expectations appeared to increase patient satisfaction. This was reported by the HCPs, who distributed a routine satisfaction survey following the class that indicated positive feedback. Therefore, to support the patient's transition to self-management

postoperatively, they must be adequately educated and empowered before and at discharge (Pollack et al., 2016).

There appears to be a link between patient expectations, preferences and satisfaction, emphasising careful consideration of each. Expectations could be influenced by a patient's previous surgery experiences, the observations of friends and relatives, HCPs or the media (Iversen et al., 1998; Zahrai et al., 2020). This was seen in the current study as some of the reasons for not attending were related to a previous bad patient experience. Studies showed that positive expectations are associated with positive outcomes in the spinal surgery population, and unrealistic expectations regarding lumbar surgery might lead to complications postoperatively (Toyone et al., 2005; Ronnberg et al., 2007). These findings are supported by a systematic review (Witiw et al., 2018) and a cohort study (Rampersaud et al., 2022) aimed to examine the impact of expectations on satisfaction and lumbar surgery patient-reported outcomes. The expectation-actuality discrepancy (E-AD) results when patient expectations exceed actual outcomes, and high-quality studies suggest that a larger E-AD is associated with lower satisfaction (Witiw et al., 2018). Thus, improving patient satisfaction requires assessing specific patient expectations of outcomes and addressing any unrealistic expectations that could lead to a large E-AD (Rampersaud et al., 2022). This is again in line with our findings, as some patients who were dissatisfied with the class format and expected more were also not satisfied with the surgery outcome. Expectations regarding the effect of preoperative rehabilitation might be one-factor influencing the patient experience of the service, attendance, or outcome of the surgery (Carr-Hill, 1992; Deyo et al., 2010; Kalauokalani et al., 2001). Therefore, understanding and managing patient expectations are critical to ensure that patients and HCPs work towards similar goals.

HCPs should encourage patients to express their particular needs and preferences for care, treatment, management, and self-management (NICE, 2021). However, whilst some patients suggested the need for postoperative follow-up, this may not be realistically provided in person for all patients following discharge. A case series study (n = 8) described the safety, feasibility, and potential clinical benefits of a telephone-supported early home exercise programme for the cervical discectomy population and found it safe, feasible to implement, and promising for clinical benefits (Coronado et al., 2021). With adequately powered experimental studies verifying these results, postoperative telephone support could be applied to LD populations, making them feel better supported and cared for. However, to avoid additional workload, HCPs, could screen patients for high fear of movement beliefs to identify those who need postoperative follow-up (Kori, 1990).

This study found that some people did not attend the class due to miscommunication about their appointment. This is related to an issue with the appointment booking system, with some patients not being invited to the class, and those who were invited but none receive a reminder. However, in this case, the HCPs registered the patient as 'invited but did not attend. The inefficiency of appointment booking systems was highlighted in another study that explored the views of patients and practices on non-attendance causes in NHS primary care (Martin et al., 2005). Furthermore, there is strong evidence that reminder systems effectively reduce non-attendance at appointments across diverse service contexts and patient populations (McLean et al., 2016). HCPs tend to blame patients for missed appointments rather than considering the possibility that practice/hospital/system factors may have a role in their absence (Husain-Gambles et al., 2004).

Personalised care would be advantageous, with multiple forms of education and advice available for patients. It is clear from the current study that not all people want all service elements. Identifying who desires what would make services more effective and less costly and reduce healthcare inequity. Personalised care was highlighted as one of the NHS's long-term plans for the 21st century, and patients will be offered more personalised therapeutic options (NHS, 2019). Therefore, preoperative rehabilitation could be used to identify patient strengths and limitations, allowing treatments to be personalised to their needs and preferences.

Some patients in the current study reported contrasting surgeon protocols confusing. This was also reported in UK (Williamson et al., 2007) and Australian surveys (Gilmore et al., 2016) evaluating current practice for patients undergoing LD. Patients appreciate an intervention personalised to their individual conditions (Boote et al., 2017). Challenges with contrasting surgeon protocols cannot be fully mitigated, as they are based on surgeon experiences and surgical techniques.

The strengths of the current study stem from its trustworthiness in data collection and analysis, whereby TA provides a framework in guided steps for generating quality analysis and ensuring rigour (Braun and Clarke, 2012). Credibility was addressed by prolonged engagement with the data prior to data analysis, investigator triangulation and data triangulation (Denzin, 2017). The expertise and background of the research team meant that the data were seen from different perspectives; (HA), a female senior physiotherapist and PhD student with 24 years of clinical experience, was supervised by an expert physiotherapy qualitative researcher (GY), expert physiotherapy quantitative researchers (PCG, MC), and Consultant Rheumatologist (TON). None of the research team were involved in delivering care for the patients in the study or in the development of the service, thus contributing to the level of trustworthiness. Providing a thick and rich description of the method and findings enhances the transferability (Tobin and Begley, 2004). The research team conducted a logical, traceable and well-reported study to address the study's dependability (Tobin and Begley, 2004). The study and its findings are auditable, whereby the reader can understand the decision trail (Sandelowski, 1995).

There are a number of limitations which need to be considered in interpreting the results. Firstly, the study provides insights into the experiences of preoperative rehabilitation for LD in the UK setting. Therefore, its findings may not be generalizable to other surgical procedures and hospitals, which may have different clinical care pathways, surgery, populations and timeframes between preoperative rehabilitation and surgery. Secondly, recall bias may be a limitation due to the time lapse between the preoperative class and focus groups. Because all surgery ceased during COVID-19, recruiting patients who had recently received surgery was not possible. Thus, the interviews were conducted up to 18 months post attendance at the class, which may impact the validity of findings, as the participant's views might be influenced by their individual postoperative positive or negative experience. Thirdly, facilitator bias can be difficult to control in a focus group. This was mitigated by a well-trained facilitator (HA) and an assistant facilitator (PCG) who probed responses to ensure understanding was from the participants' perspective. They also encouraged all participants to contribute by making them feel comfortable with voicing differing opinions to avoid dominant and silent participation. In addition, before each focus group, the facilitator highlighted that there was no right or wrong answer, that the research team were independent of the hospital where the patient had their treatment, and that their responses were confidential and would not affect their future treatment. Furthermore, as the focus group was conducted online, this could limit participation for those who were not computer literate and or did not have access to a computer with an internet connection. This was mitigated by offering alternative ways to participate, such as via a telephone interview, as was the case for one of the participants in this study. Finally, even though the study focussed on pre-pandemic care, the empirical data collection for the current research was conducted during the COVID-19 pandemic, which accelerated the introduction of technology across healthcare, including online consultations and rehabilitation. The rapid implementation of technology during COVID-19 may have also shaped and influenced some of the participants' perceptions and suggestions, such as their suggestion to utilise the online class as an alternative to the face-to-face course.

9. Conclusions

For most patients and HCPs, preoperative rehabilitation was valuable. HCPs viewed it as a valuable intervention and provided a solution to staffing and time pressures. For patients, it provided the required education and exercise content, helping them along the surgery pathway. Addressing the challenges and barriers identified could improve attendance. HCPs should focus on managing patient expectations and preferences preoperatively. The current findings help shape rehabilitation to improve future patient experiences and management. Future research should include the study of personalised modes of delivery and patient perceptions of them.

Ethical approval

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Declaration of competing interest

None declared.

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Appendix A. Supplementary data

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