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Title	The patient's perspective on returning to elective surgery following COVID-19
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## **Introduction**

The recent COVID-19 pandemic necessitated re-focusing of resources to prevent healthcare systems from becoming overwhelmed, resulting in the cancellation of elective surgery. Simultaneously, many patients were restricted in their contact with others and instructed not to attend healthcare facilities unless absolutely necessary. Patient adherence led to significant reductions in attendances, to a point where life threatening illnesses were not being addressed (1, 2).

Lately, an effort has been made to restart elective surgery. Noteworthy, guidance has been issued by the American College of Surgeons and the Royal College of Surgeons on the resumption of elective surgery (3). While work on the 'project restart' is ongoing, little is known on the thoughts of the patients, their fears and willingness to undergo surgery. This work explores patients' perspective on the return to a modified provision of elective surgery within the orthopaedic discipline.

## **Method**

The study used semi-structured interviews with patients who were scheduled to undergo elective orthopaedic surgery, but their procedures were cancelled due to the Covid-19 crisis. A mixed method approach was adopted, combining 15 open and closed questions; with the focus being the effect of the delay on the patient; their feelings about the health care system returning to elective surgery; the patient's view on the modified approach that needs to be adopted prior the surgery and remote post-operative management; and the unqualifiable risk of Covid-19 infection.

An exploratory thematic analysis was employed based on the six phase approach outlined by Braun and Clarke (4, 5). We chose thematic analysis because of the nature of the dialogue and its flexibility, comparative to other techniques, ie discourse analysis. Data familiarisation was conducted by the first author and involved conducting, recording, fully transcribing, reading and re-reading the interviews. Themes developed from the data obtained were coded in NVIVO 12. A realist method was employed, "which reports experiences, meanings and the reality of participants". If word limit allowed data were inserted; Saturation was reached when data from the new interviews generated similar codes already within the existing categories. Codes were then collated into themes in relation to the questions being looked into. These themes were then reviewed, defined and named. A quarter of the data was encoded separately by a separate member of the research team. Any disagreements or additions in the coding were discussed until a compromise was reached. In addition, the General Anxiety Disorder 7 (GAD7) questionnaire was used to investigate the presence of anxiety.

Ethical approval was gained from the School of Medicine, Leeds University, MREC 19-080.

## Results

Out of 110 patients approached, 101 (65 females) consented to participate with a mean age of 63.8 (range 18-88). Scheduled procedures included joint arthroplasty (57), joint arthroscopy (6), long bone non-union surgery (7), and other types of elective procedures (31). The analysis showed five themes, **Table 1**:

i. the delay of surgery; ii. feeling of attending hospital during COVID; iii. reaction to the COVID operative protocol; iv. reaction to the COVID post-operative care; v. when patients wanted their elective surgery, Table 1.

The delay of elective surgery caused an increase in their pain in over half of the patients, with a small proportion reporting that this had led to a negative impact on their mental health. Statements such as “the increasing pain has given me some dark days during lock down” were recorded. The level of pain described was significant, 55.4% reported a VAS score of between 75-100. A large proportion of patients reported that they were pleased about the recommencement of elective surgery. However, the majority were concerned about contracting COVID-19 whilst in hospital and a small proportion (5.9%) felt it was unsafe.

The herein work also revealed that patients were adaptable; when the procedures were cancelled, patients seemed willing to understand and to accept the reasons that led to this decision. Statements such as “I understood that the National Health System (NHS) has great problems to worry about compared to my painful hip” were a common finding.

Interestingly, a very high proportion of patients were prepared to embrace the new pre-operative self-isolation/testing and more self-directed post-operative physiotherapy and management. Noteworthy, there was a small proportion of patients, who wanted to wait for more than 3 months in order to avail themselves of the recommencement of elective surgery.

In terms of the presence of anxiety, the mean GAD7 score was 5.6 (0-21), which is at the threshold of mild to moderate anxiety, **Figure 1**.

## Discussion

At the start of the COVID pandemic, elective surgery was cancelled on both patient safety and resource management issues. The effects of the delay has caused patients prolonged suffering from increased pain, reduced mobility, and a negative impact on mental health. After the initial wave of the COVID pandemic, it was recognised there was a need to create COVID free surgical facilities to re-commence surgery for chronic conditions (6). There was a radical shift in message given to these patients. Initially elective patients were being cancelled with the explanation that it would expose them to an unnecessary risk, but in order to recommence elective services, the message was revised that elective surgery could be achieved with a lower but an unquantifiable risk of developing COVID. This work examines for the first time the patient perceptions of the return to elective surgery.

It has been previously reported that there is a strong link between patient expectations and surgical success (7), making it crucial to understand and manage the patient's perceptions when introducing changes to pre and post-surgical protocols during COVID. The study reassuringly demonstrates elective surgical patients are embracing the remote manner of managing their post-operative care. The authors speculate that this acceptance is due to the large changes that have occurred in other spheres since the COVID outbreak.

Pre-operative anxiety is known to be a predictor of reduced function and increased pain (8). In the patient cohort group participated in this study, the mean GAD7 score demonstrated mild-moderate anxiety. While, patients overwhelmingly supported the re-commencement of elective surgery (84.2%), serious concerns existed about contracting COVID-19 in hospitals (66.3%) and a small proportion perceiving it to be unsafe. These anxiety levels need to be addressed in the re-commencement of services as it widely accepted that these influence clinical outcomes (9). The manner and type of information given to the patient prior to making the decision to have elective surgery is important (10). The authors recommendation is that adequate time should be taken at the pre-operative stage to address the patient specific concerns and such an approach would improve overall clinical outcomes.

Interestingly, patients were happy to comply with additional pre-operative protocols aimed at reducing the transmission of the virus. Furthermore, patients supported telemedicine for post-operative follow-up appointments and understood the need to undertake physiotherapy by following written instructions rather than face-to-face appointments.

In conclusion, patients embrace the modified return to elective surgery, but attention needs to be focused on reducing anxiety to avoid a negative impact on clinical and functional outcomes.

(1,164 words)

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**Table 1** – A summary of the thematic and objective analysis, the types and strengths of the shared experience

Themes	Types and strength of shared experience
Effect of Covid-19 delay	<ul style="list-style-type: none"> <li>• 64.4% of patients reported increased pain due to the delay</li> <li>• 55.4% of patients reported their current VAS to be between 75-100</li> <li>• 32.7% reported a reduction in their mobility</li> <li>• 7.9% reported a notable negative impact on their mental health due to the delay</li> <li>• 58.4% of patients reported they understood and expected their operation to be cancelled</li> <li>• 48.5% reported feeling disappointed and upset about it</li> </ul>
Feeling of attending hospital	<ul style="list-style-type: none"> <li>• 84.2% of patients reported feeling pleased about the restarting elective surgery</li> <li>• 19.8% felt nervous</li> <li>• 5.9% perceived it to be unsafe</li> <li>• 66.3% of patients are concerned about the risk of contracting COVID-19 when coming into hospital.</li> </ul>
New Pre-operative protocol	<ul style="list-style-type: none"> <li>• 84.2% of patients were prepared to meet the strict self-isolation criteria for two weeks before and after the operation, and accepted they would not be allowed any visitors in hospital</li> <li>• 92.1% of patients were prepared to visit the hospital for their pre-assessment visit and shortly before their operation for a COVID-19 test.</li> </ul>
Change in post-operative care	<ul style="list-style-type: none"> <li>• 89.1% of patients thought it was acceptable to have a telephone appointment rather than see a clinician face-to-face for their post-op follow up</li> <li>• 88.1% of patients thought it was acceptable to be given a list of physiotherapy exercises to complete after their operation rather than see a physiotherapist face-to-face.</li> </ul>
Timing of surgery	<ul style="list-style-type: none"> <li>• 76.2% of patients reported a desire to have their operation as soon as possible</li> <li>• 10.9% wanted to wait more than three months.</li> </ul>

Figure 1 - Mean GAD7 Score, across the components of the anxiety scale

