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Long term conditions

Practitioner experiences of pulmonary rehabilitation service delivery during COVID-19 and impact on future service delivery.

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Abstract

Introduction

During COVID-19, pulmonary rehabilitation as we know it ceased to exist. The service needed to adapt rapidly to the requirements of the patient group, while complying with government isolation guidelines. Most groups moved online, but with little time to evaluate the service. What can we learn from this roll out to ensure practitioners continue to deliver a safe and effective pulmonary rehabilitation service.

Aim

To explore the opinions of physiotherapist and respiratory nursing specialists' on how pulmonary rehabilitation has changed due to COVID-19 and the impact on future service delivery.

Methods

A qualitative design was used to gain in-depth understanding of lived experiences. Forty nine participants completed the online survey of 14 open ended questions, and a four-stage thematic analysis used to identify emergent themes.

Findings

Three main themes were identified- a need for best practice, a need for patient centred care, and acknowledging the emotional stressors of COVID-19 on vulnerable patients.

Conclusion

Patients should be offered both online and face-to-face options for pulmonary rehabilitation, to promote patient centred care; providing options to participate in effective rehabilitation without physical or emotional restriction; and to increase staff training to enable practitioners to provide the increasingly complex and holistic service required.

INTRODUCTION

Prior to COVID-19, the majority of pulmonary rehabilitation classes were held in community or church halls (29%), or local leisure centres or gyms (24%).[1] To protect vulnerable people shielding, these face-to-face meetings typically adapted during the pandemic to a home-based telerehabilitation service.[2] The CSP defines telerehabilitation also widely known as telehealth, virtual or remote monitoring as "the use of electronic communications and virtual technology to deliver healthcare beyond traditional healthcare settings including the use of video or telephone communication and mobile apps ".[3]

Telerehabilitation is not a pandemic novelty; roll out began many years prior, with evidence suggesting that providing a home-based telerehabilitation service is equally effective, safe and well tolerated compared to face-to-face delivery as part of a randomised controlled trial.[4] However, while several studies demonstrate similar improvements in exercise capacity and quality of life measures when undertaking telerehabilitation, these studies also included thorough face-to-face pre- and post- assessments; limiting the applicability of findings to patients shielding from COVID-19 due to the restrictions faced by services at this time.[5]

Research by Burge, Holland[6] highlighted telerehabilitation to be on average $4497 cheaper than face-to-face pulmonary rehabilitation. Although statistically insignificant, and analysing the USA health system, these savings may be clinically relevant in the UK.

It takes on average 17 years to integrate research into clinical practice.[7] The rapid advancement of COVID-19 and need to expedite changes to service delivery has instead

provided a unique situation where clinical needs have leapfrogged research in an unprecedented way and as such, data on the effectiveness of these changes are limited. Research to date has focused on the effectiveness of a telerehabilitation programme, but little exists on how this change in delivery has affected service users, service providers, or what can be learned from this rapid and unplanned change to a core NHS service. Our research aimed to explore the opinions of physiotherapist and respiratory nursing specialists' on how pulmonary rehabilitation has changed due to COVID-19 and the impact on future service delivery.

METHODS

ETHICS

This study was approved by the University of Plymouth School of Health Professions Undergraduate Research Ethics Committee (3299).

STUDY DESIGN

To ensure breadth of opinions from across the whole of the UK and ensuring anonymity of participants, an online survey was developed by the research team, and uploaded[8] for voluntary completion by eligible participants.

The survey consisted of 14 open ended questions, producing richer and more complex data about participant experiences, providing a depth of understanding and opinions on changes to future service delivery.[9]

In line with the conclusions in the review paper by Foy, Eccles,[10] the questions were piloted by a healthcare professional specialising in pulmonary rehabilitation prior to data collection for respondent understanding, difficultly, timing and answer variation; while two researchers, blinded to the survey creation, tested the survey for flow, timing, layout, broken links and spelling errors.

PARTICIPANTS

Participants were recruited using purposive sampling via advertisement on respiratory physiotherapy and nursing social media accounts. Eligible participants were required to be either a respiratory specialist physiotherapist or nurse working in the UK. They must have led, or assisted with, pulmonary rehabilitation and experienced a change in delivery because of the COVID-19 pandemic.

DATA ANALYSIS

The online survey was open for six weeks from October 17th to November 25th, 2022, with 49 individual surveys submitted.

All identifying information was redacted from the transcripts. Data were analysed using a four-stage framework[11] manually assigning codes to key thoughts and ideas. Each researcher read all responses a minimum of three times to ensure data immersion before developing more detailed codes from a subgroup of questions. To increase reliability, codes and categories were defined by the five researchers independently, and then refined as a group until themes were identified and consensus was reached.[12] Each question was analysed by a different researcher pairing to ensure the coding framework was applied consistently and avoid researcher bias.

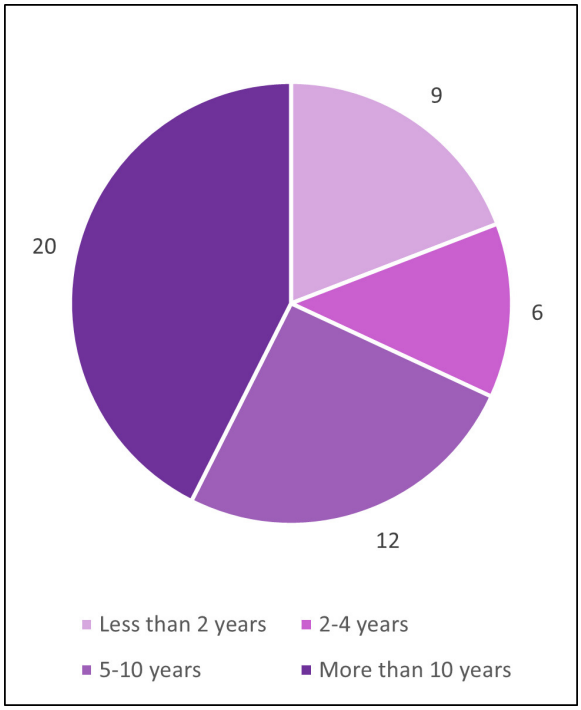

Figure 1. Number of years participants have been qualified.

FINDINGS

The majority (37/49) of respondents have been qualified for over 10 years (Figure 1) and delivering pulmonary rehabilitation services for over 10 years (Figure 2).

Thematic analysis of the data identified three themes-

1. A need for best practice
2. A need for patient centred care
3. Acknowledging the emotional stressors of COVID-19 on vulnerable patients

"WE MAY NOT BE DELIVERING GOLD STANDARD TREATMENT."- A NEED FOR BEST PRACTICE

Over half of participants (27/49) expressed need for more training and research into telerehabilitation delivery.

> PR is traditionally run as a F2F intervention and is therefore widely researched and established in this format. Delivering PR in any other medium means we are unsure of the effectiveness... we may not be delivering gold standard treatment... [Participant 8]

Participants also expressed a need for training in wider areas,

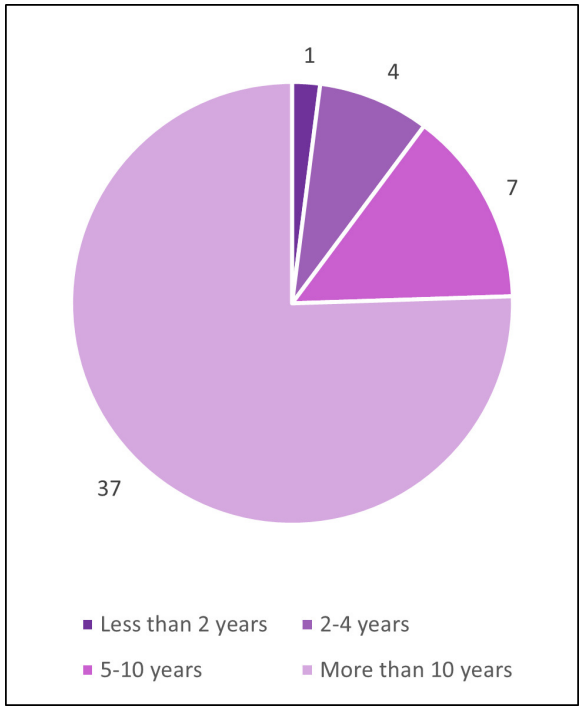

Figure 2. Number of years participants have been delivering pulmonary rehabilitation.

> We need a level of cardiac and general training as the patients are getting more complex with multiple patients requiring a cardiac/pulmonary rehab approach [Participant 46].

The British Thoracic Society (BTS) pulmonary rehabilitation guidelines, developed in 2013, suggest a minimum of twelve in-person sessions including education and physical activity for effective pulmonary rehabilitation. There are minimal references to integration of telerehabilitation as research in this area was in its infancy.[13] The NHS pulmonary rehabilitation service guidance also recommends minimum staffing ratios of 1:8 in exercise classes with a minimum of two supervisors per group, and greater staffing for oxygen users or complex patients.[14]

In 2018, Taskforce for Lung Health, reported 40% of hospitals had at least one respiratory clinician vacancy, and highlighted a need for more experienced respiratory specialists. An additional 600 physiotherapists over the next five years were recommended to keep up with current demand for pulmonary rehabilitation services.[15] This was echoed by one participant.

> I do feel in general though that putting the pandemic aside we have a general issue in the quality of PR delivery, with the workforce having been so diluted and recruitment issues. In my experience there are fewer actual specialists out there than there were 8-10 years ago, and the workforce is generally more junior/ inexperienced than it was [Participant 27]

With staff shortages, expanding in-person services is unlikely at present, however, many existing locations were unable to facilitate in-person programmes whilst complying with government social distancing guidelines "...halls were too small to accommodate infection prevention and control..." [Participant 43] so in-person services were unable to continue.

Recognising the workforce's need for standardisation of delivery and to ensure best practice across the UK, the Pulmonary Rehabilitation Services Accreditation Scheme (PRSAS) was launched in 2018, based on the BTS guidelines.[16] To date, only seven services in the UK are accredited to the scheme. As guidelines have not been reviewed since before most departments began integrating telerehabilitation, and therefore accreditation still requires teams to deliver rehab in person; many may not currently meet accreditation standards.

Some participants also reported poorer patient outcomes "...an audit of our outcomes from the socially distanced classes were not as good as the circuit class from before the pandemic... [Participant 36]". However, it is unclear whether the same outcome measures were used in both cohorts, it also fails to consider patients were self-isolating and likely to be less active during the pandemic, contributing to lower baselines. This was acknowledged by another participant.

> Although patients are more willing to engage with other technology, they are often very deconditioned and finding exercise hard. Some are motivated to get fitter and engage because of this, some groups of patients are resigned to being more unfit and have lost motivation by feeling very low in mood [Participant 25]

Zhang, Maitinuer[17] monitored 174 COPD patients over an 8-week telerehabilitation programme. Patients reported significant improvement in dyspnoea symptoms and reduction in 6MWT distances. Lack of a control group, and follow up at only 12 weeks limits long-term evaluation, however findings were substantiated by Cox, McDonald[18] who used a multicentre RCT with assessor blinding to investigate whether telerehabilitation was equivalent to face-to-face. The 142 participants had equivalent 6MWT distances in the telerehabilitation and in-person groups at 6 months. The 84% completion rate reported for the telerehabilitation programme in a rural location exceeded that typically seen in face-to-face programmes. Telerehabilitation may also provide an alternative, clinically equivalent, delivery method by removing barriers to attendance in under resourced locations where in person attendance is prohibitive.

"WE CAN'T FORCE PATIENTS TO DO FACE TO FACE"- PATIENT CENTRED CARE

Participants reported patient benefits with online or hybrid service delivery.

> I think a menu of options for participation re PR is a good thing. The evidence is stronger re face to face but we can't force pts to do face to face if they don't want to travel or are house bound. We have staffing issues too so offering a virtual based PR programme will help us increase the scope to deliver in localities where the

> travel/ staff/ accommodation might have prevented delivery of a face to face programme [Participant 31]

This study focused on the changes in service delivery from the practitioner's perspective, it is prudent to be conservative with generalisations and drawing conclusions of patient's experiences using only practitioner's experiences. Although our study was focused on practitioner perspective, it is notable how many responses directly referenced patient experience, highlighting a promotion of patient-centred therapy services.

Participants acknowledge benefits to telerehabilitation with caution.

> Virtual delivery offers something to patients that cannot attend in person, however they are missing out on an individualised approach and peer support that is only possible in face to face groups [Participant 43]

Skibdal, Emme[19] reported similar patient benefits, using surveys and semi structured interviews to explore attitudes towards telerehabilitation in patients with severe COPD who declined face-to-face classes. They discovered 28% of patients were interested in participating in telerehabilitation, 70% felt safe and willing to initiate the home programme, with 42% perceiving telerehabilitation to be equally beneficial to face-to-face services. As participants had not undertaken pulmonary rehabilitation, caution must be taken before linking perception to clinical benefit. It is important to note these patients had declined face-to-face contact, but were likely to engage in telerehabilitation, this may present an opportunity to rehabilitate and monitor these patients who may otherwise disengage, but further research is required to quantify this benefit.

Several participants highlighted transport to pulmonary rehabilitation centres as a major barrier for patients with reduced mobility, offering telerehabilitation as a potential benefit to these patient groups,

> Those who do not want to come face to face with people yet, or unable to travel out of home. Or even those who can't afford the rising costs of living and high petrol prices [Participant 14]

Another participant acknowledged that telerehabilitation was patients preferred delivery method.

> Many patients preferred this style of PR and subsequent results in outcomes match results of those who would complete a F2F programme. Many more patients able to access a distance PR if they have other commitments such as work or carer commitments [Participant 40]

Graves, Sandrey[20] found similar results, reporting patients living over 25 minutes from pulmonary rehabilitation classes were less likely to attend or adhere to programmes. By targeting patients who were more likely to adhere, they were able to reduce 'wasted' appointments and increase graduation rates. However, by only offering face-to-face appointments, those unable to attend often missed out on the benefits of regular contact with healthcare professionals.

"STAY AT HOME OTHERWISE COVID-19 WILL KILL YOU"- ACKNOWLEDGING EMOTIONAL STRESSORS

During COVID-19 lockdowns, government guidance to people with chronic conditions was to isolate at home and face-to-face services were not an option. Participants reported increased anxiety in patient groups.

"... patients found it difficult to let go of the advice given to them at the start of the Pandemic which was stay home at all costs otherwise COVID-19 will kill you. Even now anxiety about leaving the house combined with significant deconditioning prevent many patients from attending PR... [Participant 43]". There was also reluctance to participate in services:

"We surveyed our patients at the beginning of the pandemic and 90% could not or did not want to engage with virtual PR... [Participant 26]".

Mousing and Sørensen[21] used semi structured interviews to understand the experiences of 13 COPD patients during COVID-19 lockdowns. Their patients' experiences agreed with our findings, feeling compelled to self-isolate because they have lived experiences of respiratory distress contributing to a fear of dying from COVID-19. Feelings of anxiety and social isolation were reportedly heightened, as patients feared being forgotten about by medical services, concluding telerehabilitation could be beneficial to this population enabling regular contact without breaking social isolation.[21]

CONCLUSION

The study aimed to contribute to a broader understanding of respiratory practitioners' opinions on pulmonary rehabilitation changes and how these may impact plans for future service delivery.

Based on our findings, clinicians' feel that future pulmonary rehabilitation delivery should offer patients choices to participate in effective rehabilitation without physical or emotional restriction, through the offering of both online and face-to-face pulmonary rehabilitation programmes. Clinicians also highlighted a need for increased staff training to enable practitioners to provide the increasingly complex and holistic service required.

Although the survey was advertised equally to both populations, the response rate from respiratory nurses was significantly lower. Whether there are fewer nurses in pulmonary rehabilitation, or we failed to target this population effectively is unclear. Due to the constraints of university ethics policy, we were unable to directly target pulmonary rehabilitation workers within the NHS system, relying solely on social media to advertise our study. As such, we were predominantly limited to respondents who were active on social media, following relevant organisations. This may elicit selection bias, as participants are more likely to be utilising online technologies already, and more comfortable with integrating these into their practice. Future studies would gain NHS ethics to target distribution and ensure

all eligible staff were offered opportunity to contribute; and would extend to face-to-face interviews in an attempt to capture the entire workforce.

Further research will aim to connect practitioners and patients to ensure both viewpoints are considered equally in service development and provide weight to accreditation and guidelines supporting the inclusion of telerehabilitation alongside face-to-face programmes.

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DECLARATION OF INTEREST

None

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