Running Head: Psychology provision in respiratory medicine

Developing and evaluating psychological provision in the acute hospital setting for patients with chronic respiratory disease

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None

Ethical Standards
The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

Abstract

Physical health outcomes for patients with long-term conditions can be significantly affected by their psychological wellbeing; those experiencing psychological difficulties are less able to manage symptoms, have a poorer quality of life, and more frequent hospital admissions. National guidance recommends the assessment and treatment of psychological difficulties secondary to respiratory disease, but implementation of this across services is inconsistent. Here, we describe the process and findings of a nine-month study integrating psychological assessment and intervention into an acute respiratory department. The aim of this provision was to provide appropriate interventions for both inpatients and outpatients with identified psychological needs, and to evaluate the impact of these across a range of outcome domains. Psychological assessment and intervention was flexibly implemented as clinically appropriate within the context of the wider multidisciplinary team. Hospital admissions data were collated, and feedback obtained from both patients and staff. Results highlighted that psychological provision was well received by both patients and staff, and was associated with improved patient experiences and a greater focus on holistic care. Of the 73 patients receiving psychology input with at least one month follow-up data, 75% showed a reduction in their admission frequency following intervention. The estimated savings to the wider NHS exceeded the costs of providing psychology input. In light of existing literature, national guidance, and the present findings, we highlight the need for those commissioning and managing respiratory services to consider the various potential benefits of integrating psychological provision for a patient group with high levels of psychological need.

Keywords: respiratory; service development; service evaluation; hospital admissions; long term conditions;

Learning objectives

- To understand the frequency and impact of psychological difficulties in the context of chronic respiratory disease.
- To consider the procedures and interventions used to develop, implement, and evaluate psychological input in the acute respiratory setting.
- To develop knowledge around the benefits and challenges of delivering a psychology service in this context.

Introduction

Chronic respiratory problems such as chronic obstructive pulmonary disease (COPD), asthma, and bronchiectasis are frequently complicated by the presence of psychological difficulties such as anxiety and depression; prevalence studies suggest about half of patients experience difficulties of this type (Dowson, Kuijer, & Mulder, 2004; Mikkelsen, Middelboe, Pisinger, & Stage, 2004). Studies highlight that these difficulties are associated with problems in symptom self-management, lower quality of life, and an increased risk of respiratory exacerbations, hospital admissions and healthcare use (Atlantis, Fahey, Cochrane, & Smith, 2013; Cao, Ong, Eng, Tan, & Ng, 2006; Coventry, Gemmell, & Todd, 2011; Felker et al., 2010; Goodman, Firouzi, Banya, Lau-Walker, & Cowie, 2013; Gudmundsson et al., 2005; Hallas, Howard, Theadom, & Wray, 2012; Hallas, Howard, & Wray, 2009; Kitagawa, Yasui-Furukori, Tsushima, Kaneko, & Fukuda, 2011; Xu et al., 2008).

From a service-level perspective, these difficulties thus place significant pressure on those providing respiratory services, particularly in acute settings where resources can be costly and already in high demand. Financially, the physical healthcare costs for someone with a chronic physical health problem are approximately 50% greater if they are also experiencing psychological difficulties (Hutter, Schnurr, & Baumeister, 2010; Katon, 2003; Layard & Clark, 2014; Naylor et al., 2012). It is clear that new approaches are urgently required to support patients in the ongoing management of these conditions.

The health burden and economic costs of psychological problems co-occurring with chronic health conditions have been arguments central to the upcoming long-term conditions strand of the Improving Access to Psychological Therapies (IAPT) programme, which aims to provide evidence-based psychological interventions tailored to the needs of the different chronic health conditions. Overall there is good evidence to suggest that the provision of psychological intervention serves to reduce the costs of physical healthcare (see Chiles, Lambert, & Hatch, 1999; Layard & Clark, 2014 ch.11), and this is a key directive within the cross-government ‘No Health Without Mental Health’ policy (Department of Health, 2011).

While there are fewer studies evaluating the direct provision of psychological interventions in respiratory conditions, there is initial evidence suggesting this can reduce psychological distress, improve patient quality of life and reduce healthcare costs such as emergency hospital attendances (Howard & Dupont, 2014; Howard, Dupont, Haselden, Lynch, & Wills, 2010; Livermore, Sharpe, & McKenzie, 2010; Spurgeon, Hicks, Barwell, Walton, & Spurgeon, 2005). However, despite these potential benefits, it remains the case that psychological intervention is rarely provided routinely in respiratory services (Kunik et al., 2005).

As a result, the methods and processes of delivering and evaluating psychological services in acute respiratory contexts have yet to be described in the literature. This paper aims to address this by outlining the development and implementation of a psychology service in an acute respiratory department, describing the processes and results of evaluating this work, and reflecting on what worked well along with the challenges experienced.

Service description and background

The respiratory department serves a local population of 450,000 people, of whom approximately 75,000 have respiratory conditions. Around 1300 patients are admitted to the 33-bed ward per year, with many more seen in outpatient clinics. Approximately 70 staff work in the department, across medicine, nursing, physiotherapy, occupational therapy, palliative care, and social work, including liaison to colleagues in primary care, social care, and community healthcare teams as appropriate.

The provision of psychology input to the department's Pulmonary Hypertension service led to an increased recognition of the need to assess and support patients' psychological wellbeing, mood, and coping ability, and the benefits this can have, including improved treatment adherence, and patients' self-management of the condition. Consequently, the question was raised as to how psychology can be applied more widely in the respiratory department and whether this may help to reduce the burden caused by frequent and sometimes medically inappropriate hospital admissions.

A nine-month clinical psychologist post was created with the following aims:

- To identify levels of psychological need within the department
- To provide interventions to address these needs
- To evaluate the impact of psychology provision, particularly on hospital attendance and readmissions, demonstrating reductions where possible
- To provide a psychological perspective within the MDT

Methods

Participants

In total, psychological intervention was provided to 79 inpatients and 8 outpatients over the study period (49% female, mean age 67, range 19-90), all of whom had a chronic respiratory condition (COPD, asthma, bronchiectasis, lung cancer, interstitial lung disease, or idiopathic pulmonary fibrosis).

Design

All appropriate referrals were accepted and received at least one session with the clinical psychologist. The sample was therefore a single group of consecutive referrals. As this was an evaluation of routine service provision it was not ethically appropriate to include a control group of patients with psychological difficulties who did not receive an intervention. As the study was evaluating the service being provided, additional ethical approval was not required.

Procedure

Following consultation with staff, brief referral procedures were established for both the ward and outpatient clinics. A case-by-case discussion of potential referrals was encouraged, though general criteria were 1) Psychological or emotional difficulties relating to the respiratory condition (other psychological difficulties were referred to the hospital liaison psychiatry team, or via the GP for referral to other local services), 2) The patient has

consented to speak to the psychologist, and 3) The difficulties are not in relation to end of life (where a palliative care referral may be more appropriate). Following referral, individual clinical input was provided either on the ward during admission, with outpatient or telephone follow-up as appropriate, or directly as an outpatient. Interventions were predominantly cognitive-behavioural and most commonly focused on breathlessness-related anxiety and panic, mood management, and adjustment to chronic conditions, all of which were negatively impacting on patient wellbeing and disease self-management. Inpatient input varied based on need, and length of admission but on average consisted of two to three sessions. Outpatients received between six and ten sessions approximately weekly.

Wider clinical input to the staff team consisted of consultation regarding the management of patients with complex needs, contribution to ward multidisciplinary team meetings, and training sessions to staff on the identification and management of common psychological difficulties in the respiratory context. Three patient information leaflets were also developed based on cognitive-behavioural principles, focusing on breathlessness-related anxiety and panic, expectations following discharge, and general wellbeing in respiratory conditions. These were used to supplement the direct clinical work provided.

Data on admissions and emergency attendances were provided by the hospital business intelligence unit in order to identify patterns of frequent healthcare use and evaluate the ongoing healthcare use of patients who had received psychology input. Patients' average monthly admission frequency was calculated using data from the 12 months prior to the admission in which they received psychology input. This was then compared to their monthly admission frequency in the period following discharge. The financial implications of any changes in admission frequency were then estimated using NHS Reference Costs 2013-14.

Lastly, brief feedback tools were developed and implemented with both patients and staff to obtain some qualitative information on their experience of psychological provision in the department.

Results

Impact on healthcare use

Of the 79 inpatients who had received 1:1 psychology input, 16% were readmitted within 30 days of discharge, lower than the ward average for all inpatients which peaked at 25% in 2014. Of the total sample (n=87), and after excluding patients who died in hospital (n=8) and those with less than one month of post-discharge admissions data (n=6), 75% of patients showed a decrease in their admission frequency following psychology input.

Twenty-two patients from the total sample had attended the hospital emergency department (ED) without being admitted in the 12 months prior to psychology input. Of these, 16 (73%) showed a reduction in their monthly ED attendance frequency following psychology input.

Financial evaluation

Using an average admission cost (including average excess bed days) of £2160 (based on NHS reference costs 2013/14) cost reductions were estimated to be a total of £72,360, or an average of £822 per patient. The observed reductions in ED attendances without admission following psychology input were associated with negligible cost savings at that timepoint.

These estimates indicate that the costs of providing psychology input for the nine month period were likely to have been more than offset by savings made through reduced admission frequency. When combined with the income generated from outpatient activity (which represented approximately 30% of the psychologist's time, and offset 44% of the total cost of psychology input in that period), it is estimated that the net savings to the wider NHS arising from the project were £56,561 at the time of project completion. The nature of psychological intervention, in particular the focus on ongoing disease management, means it may be reasonable to anticipate longer-term benefits for some patients, and therefore the continued accrual of savings in the future linked to reduced healthcare costs.

Clinical outcomes

The high uptake of psychological input when it was offered suggests a strong level of acceptability to patients, though systematic monitoring of this is recommended for future studies. As this work involved the development of appropriate treatment pathways across the study period, the evaluation of clinical outcomes could not be fully standardised in the time available. We therefore present two illustrative case examples below, noting that across the participants seen, the range of improvements reported included quality of life, mood, coping ability, and functional capacity. Additionally, many highlighted the value of having time and space allocated to discuss and address issues around these topics as part of their care.

Case example one.

Mrs B had a history of frequent respiratory admissions for her asthma and bronchiectasis, including four in the past year. The most recent of these required an eight-day admission and treatment for an infection. A psychology referral was made for Mrs B while an inpatient due to low mood. Psychology input both on the ward and following discharge identified that Mrs B's most recent infection was likely to have come about due to a lapse in her medication regime. She reported struggling to cope with the chronic and restrictive nature of her conditions and the related programmes of exercise and medication.

Psychology sessions, totalling 12 over a four to five month period focussed on addressing low mood, concordance with treatment programmes, and Mrs B's beliefs and behaviours around illness. Through implementing changes to her routine and strategies to address patterns of negative thinking, Mrs B reported feeling better able to manage the demands of her conditions, along with improvements in mood and quality of life. The duration of episodes between admissions increased as a result, leading to an overall drop in admission frequency during and following the intervention.

Case example two.

Mr R had attended the ED seven times in the past year with shortness of breath, two of which resulted in admission. During the most recent admission Mr R experienced significant anxiety and frequent panic attacks linked to breathlessness. This led to increased use of medical oxygen and high levels of distress such that he was refusing nursing care for fear that any movement could bring on an attack of breathlessness.

Following liaison with physiotherapy and Mr R's consultant physician, psychology input focused on addressing the anxious beliefs underpinning his anxiety, and associated unhelpful behaviours. This helped Mr R to manage his anxieties around moving, and build his confidence to the point he felt ready for discharge, which occurred two days earlier than anticipated. Seven outpatient follow up sessions over the subsequent three months have consolidated this change and further helped Mr R to understand and manage his COPD, including more frequent exercise. He had no further panic attacks, emergency attendances or hospital admissions in the seven-month remainder of the study period.

Patient and clinician feedback

Patient feedback was extremely positive, with comments suggesting this meets an important need in their holistic care and their experience of healthcare. Twelve patients completed a survey about their experiences of psychology post-intervention. All patients described psychology sessions as helpful, with 83% reporting they had helped a great deal in better understanding their concerns, worries or emotions regarding their respiratory condition. All patients reported that sessions had helped them manage these issues better, either 'a little' (33%) or 'a great deal' (67%). All patients would recommend psychological support to a friend in a similar position, and 92% felt it is 'extremely important' that psychological provision is continued in the department. Example comments are below:

> *"Helpful - Brought things to your attention that you may not have thought about. Looked at the whole person"*
>
> *"It is so nice to have someone to talk to who can help you coping with your health problem. I look forward to talking and it has helped me deal with my health issues."*
>
> *"The support and understanding has been invaluable. I sincerely hope the service can be offered to those in need."*

Nine members of respiratory staff also completed a feedback survey. All respondents rated that having psychology input available in the department had benefitted both patients and the multidisciplinary team 'a great deal', and all rated it 'extremely important' that psychological provision is continued in the department. Example comments are below:

> *"Many patients with long term respiratory conditions suffer with health related anxiety, and being able to refer to an appropriately trained professional to help manage and follow them up post-discharge has been very useful."*
>
> *"Supportive role with anxious patients particularly helpful. Enables more holistic approach to patient care. Really beneficial with complex patients at risk of reattending."*

Discussion

The approach described here represents one method for initiating, implementing and evaluating psychological provision in an acute medical setting. Results indicated that this model of service delivery was associated with a number of benefits for patients and the service, including improved psychological functioning, reduced hospital admissions and cost

savings. Staff feedback highlighted ways in which psychology had a valued impact in the department, suggesting it was and can be readily integrated into the acute multidisciplinary context. In particular, the feedback suggested that psychology provision has enabled an enhanced focus on the holistic care of patients, assessing and supporting emotional and psychological needs as appropriate. This is consistent with best practice recommendations in a number of national guidelines (Bolton et al., 2013; National Institute for Health and Care Excellence, 2009, 2010, 2011, 2013; Pasteur, Bilton, & Hill, 2010).

Alongside the clinical benefits for patients, the observed reductions in healthcare use and associated cost savings also appear to support the value of the psychological provision implemented, and strengthen the case for this to be considered a routine part of acute respiratory care. The findings here were broadly consistent with existing literature, in that the costs of psychology provision were offset by subsequent savings arising from reduced admissions. Unlike other studies, cost savings linked to reduced emergency attendances were negligible among our sample. It is hypothesised that similar findings around the clinical and economic benefits of psychology provision may occur for other chronic health conditions, and research across a wider range of diagnoses is warranted.

As a small-scale study of the early stages of implementing psychology provision, there are a number of limitations. Firstly, while the results demonstrated an association between psychology provision and reduced admissions, the absence of a waitlist control group of patients makes it difficult to state confidently that one leads to the other. Temporal factors within this study, i.e. that no psychology input was provided prior to the study, and that admission frequency was measured after psychology input, suggest this is likely to be the case, but other designs, such as extended pre-therapy baselines, or randomised controlled trials would be particularly important to examine this more closely. Secondly, the nature of the service provided meant that patients received different types and amounts of intervention according to clinical need, meaning only broader conclusions can be drawn rather than those specific to the effects of a standardised intervention. Third, the study timeframe meant that opportunities for obtaining longer term follow up data were limited; this would be recommended for future studies to explore the ongoing psychological and financial effects. Lastly, feedback was only obtained from a small number of patients, which may have increased the risk of bias.

The process of implementing and evaluating this work has generated a number of reflections and recommendations, which are included here should they assist those developing or delivering services in similar settings. One element that seemed key to the effectiveness of the study was the integration of psychology within the team, which occurred through attendance at team meetings and case discussions, consultation with staff of all disciplines, and being present and accessible within the ward environment. Keeping referral processes as straightforward as possible worked well (e.g. through discussions on the ward or in team meetings), as did updating the team on the progress of the post. Working across the inpatient-outpatient boundary meant psychology was able to provide a continuity of care that patients found helpful when admitted or discharged. Practically, it was helpful to protect time for the evaluation elements of the post, and we benefitted from excellent support and data from the hospital business intelligence unit.

The principal challenge in undertaking this work has been time; over the nine month period it was possible to implement many procedures and provide a range of clinical interventions, but the ability to allow these to establish and to collect follow up data has been limited. Additionally there were other possible interventions that could not be implemented within the timeframe that may further develop the role and benefits of psychology in the department, for example staff training and consultation, group interventions, guided self-help approaches, further liaison with community services, and staff support and supervision.

Other challenges include the need for flexibility in how and when interventions are delivered; inpatient work means referral rates can be inconsistent, input may be requested within a short timeframe, and work must accommodate factors such as medical status, visiting hours, and input from other professionals. The large catchment area for the hospital creates potential challenges in ensuring that psychological provision is equitable for patients regardless of their distance from hospital. We found that providing support and intervention via telephone was a reasonable solution, though can carry difficulties such as maintaining a therapeutic focus in the absence of face-to-face contact.

This project has outlined a set of procedures for a delivering a psychology service within an acute respiratory context. It has demonstrated the need for psychological provision within this client group, and described a framework for implementing and evaluating interventions in this setting. We suggest it is important for those commissioning and managing services to consider the potential benefits that psychological provision can offer to patients, staff, and services as a whole.

Summary

- Psychological difficulties are a common comorbidity among people with chronic respiratory conditions.
- Provision of psychological intervention in respiratory settings is not routine, despite recommendations from national guidelines.
- This nine month pilot project developed, implemented, and evaluated psychology input to a hospital respiratory department.
- Results indicated that providing psychological support for patients was cost-effective, and was associated with reductions in emotional distress, positive patient experience of healthcare and staff feedback, increased staff awareness and willingness for addressing patients' psychological needs, and reduced hospital admissions.
- For further reading, see Layard and Clark (2014), Kunik et al. (2005), Coventry et al. (2011), and Howard & Dupont (2014).

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