

REVIEW

Treatments for anxiety and depression in patients with chronic obstructive pulmonary disease: A literature review

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ABSTRACT

Chronic obstructive pulmonary disease (COPD) is a serious contemporary health issue. Psychological co-morbidities such as anxiety and depression are common in COPD. Current evidence for treatment options to reduce anxiety and depression in patients with COPD was examined. There is evidence available for the efficacy of pharmacological treatments, cognitive behavioural therapy, pulmonary rehabilitation, relaxation therapy and palliative care in COPD. Therapeutic modalities that have not been proven effective in decreasing anxiety and depression in COPD, but which have theoretical potential among patients, include interpersonal psychotherapy, self-management programmes, more extensive disease management programmes, supportive therapy and self-help groups. Besides pulmonary rehabilitation that is only available for a small percentage of patients, management guidelines make scant reference to other options for the treatment of mental health problems. The quantity and quality of research on mental health treatments in COPD have historically been insufficient to support their inclusion in COPD treatment guidelines. In this review, recommendations regarding assessment, treatment and future research in this important field were made.

Key words: anxiety, chronic obstructive pulmonary disease, depression, review, therapy.

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is predominantly caused by tobacco smoking and is an important cause of disability and poor health

outcomes globally.¹ Whilst a high prevalence of mental health problems in COPD and their impact on physical outcomes have been documented,^{2,3} there has been inadequate attention to the management of these problems in guidelines.⁴ Apart from rehabilitation, non-medical treatments have been largely ignored in clinical guidelines, most likely because there is a paucity of evidence regarding the treatment of mental health problems in the COPD population.^{4,5}

This review is directed towards an in-depth discussion of treatment for anxiety and depression in patients with COPD. It also includes a discussion of treatment options that have been proven to be effective with anxiety and depression among non-COPD populations and the potential role and applicability of these interventions to the management of anxiety and depression among patients with COPD. We provide recommendations regarding assessment, treatment and future research of anxiety and depression in patients with COPD.

COPD AND MENTAL HEALTH

Severity of depression and anxiety is determined by both the number and level of symptoms, as well as the degree of functional impairment.⁶ Different subtypes of depression and anxiety disorders have been defined within the Diagnostic and Statistical Manual of Mental Disorders IV (Tables 1,2).⁷ The clinical course of depression and anxiety disorders is acknowledged to be variable, and people can move in and out of diagnostic subtypes over time.⁸

Estimates of the prevalence of depression in COPD vary considerably (10% to 42%)⁹ due to differences in sampling and variability in diagnostic instruments used and cut-off scores.¹⁰ Prevalence of depression increases with the severity of COPD;¹¹ it is reported that patients with severe COPD have 2.5 times greater risk of developing depression than controls.¹² There is a higher likelihood of exacerbations,¹³ frequent readmissions¹⁴ and a worse survival¹⁵ reported in COPD patients with depressive symptoms.

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Box 1 Key notes regarding prevalence and assessment of mental health problems in chronic obstructive pulmonary disease (COPD)

- There is a high prevalence of depression and anxiety among patients with COPD
- Depression and anxiety are associated with poorer health outcomes
- In patients with COPD, mental health problems are underdiagnosed
- A high co-morbidity exists between depression and anxiety in COPD
- Measures of psychological distress, questionnaires assessing anxiety and depression symptoms, and quality-of-life scales are related but not interchangeable.
- Accurate assessment will ensure that treatment modalities are targeting the specific mental health problems

Box 2 Possible treatment options for mental health problems in chronic obstructive pulmonary disease (COPD)

Cognitive behavioural therapy
 Pharmacological treatment
 Pulmonary rehabilitation
 Relaxation therapy
 Palliative care
 Interpersonal psychotherapy
 Self-management programmes
 More extensive disease management programmes
 Supportive therapy
 Self-help groups

The literature is unclear on the prevalence rates of anxiety in patients with COPD, with reports ranging between 10% and 19% in patients with stable disease and between 9.3% and 58% in patients who have recently recovered from an acute COPD exacerbation.⁹ These rates are high compared with the general population¹⁶ and patients with other chronic medical conditions.^{9,16,17} With regard to anxiety-related disorders, these are often characterized by chronicity,¹⁸ relapses¹⁹ and periods of disability.²⁰ In COPD, anxiety has been linked to greater disability,²¹ an increased frequency of hospital admissions for acute exacerbations²² and dyspnoea.²³ Anxiety symptoms in patients with COPD may include hyperventilation,²⁴ and this has been associated with dynamic hyperinflation,²⁵ which further increases dyspnoea and exercise intolerance.²⁶

A high co-morbidity (>50%) exists between depression and anxiety.²⁷ Furthermore, depression and anxiety are often co-morbid with other medical conditions, compounding disability and imposing even greater burden on the daily lives on both patients and health-care services.²⁸

Table 1 The categories of types of mood disorders with depression as the dominant symptom

Mood disorder	Characteristics
MDD is the most severe form of depression.	One or more MDE of at least 2 weeks of depressed mood and at least four additional symptoms of depression
DD is a milder form of depression than MDD	The presence of at least 2 years of depressed mood accompanied by additional symptoms
DDNOS	Covers mood symptoms that do not meet the criteria for any specific mood disorder
Bipolar I	One or more manic or mixed episodes usually accompanied by MDE
Bipolar II	One or more MDE accompanied by at least one hypomanic episode
Subthreshold bipolar disorder	At least 2 years of numerous periods of hypomanic symptoms and numerous periods of depressive symptoms

DD, dysthymic disorder; DDNOS, depressive disorder not otherwise specified; MDD, major depressive disorder; MDE, major depressive episode.

Assessment of mental health

Screening for mental health symptoms has still not become standard practice. It is relatively easy to screen for symptoms of anxiety and depression in comparison with investigating an accurate diagnosis of the specific disorder subtype.^{29,30}

Severe symptoms are more likely to be indicative of a mental disorder.^{29,30} Therefore, a more comprehensive diagnostic assessment, rather than merely a symptom count, needs to be conducted with these patients.^{29,30} Referral to a specialist may be needed to establish diagnosis and to guide therapy.

In the COPD literature, anxiety and depression *symptoms* are often used as a surrogate for the existence of a mental *disorder*. Diagnostic and Statistical Manual of Mental Disorders-IV diagnosis,⁷ measures of psychological distress, questionnaires assessing anxiety and depression symptoms, and quality-of-life scales with mental health components are frequently used in a somewhat interchangeable manner. Whilst these mental health assessment tools are related, they are not the same. For example, generic measures of psychological distress are not designed to be diagnostic.

Accurate assessment will ensure that treatment modalities are targeting the specific mental health problem. Clinical guidelines indicate that treatment optimization of anxiety is more likely to be achieved when treatment methods are associated with specific subtypes (Table 2).³¹

Table 2 Overview of the five major subtypes of anxiety and recommended treatment

Anxiety disorder	Characteristics	Treatment [†]
Panic disorder	The presence of anxiety with recurrent panic attacks	Psychological therapies (CBT); medication (SSRI & TCA); self-help
Phobic disorders	Includes agoraphobia, social phobia as well as a range of other phobias	Psychological therapies (CBT); medication (SSRI)
Obsessive-compulsive disorder	Characterized by obsessions that cause stress and compulsions	Stepped care model including low- or high-intensity psychological therapy (CBT); SSRI or clomipramine
Generalized anxiety disorder	Diagnosed by 6 months of persistent and excessive anxiety and worry	Stepped care model including low- or high-intensity psychological therapy (CBT, applied relaxation); SSRI or SNRI
Post-traumatic stress disorder	The re-experiencing of an extremely stressful event	Psychological therapies (CBT, eye movement desensitisation and reprocessing); medication (mirtazapine, amitriptyline, phenelzine, paroxetine)

[†] Based on the National Institute for Health and Clinical Excellence (NICE) guidelines:

- Clinical Guideline 26: <http://www.nice.org.uk/nicemedia/live/10966/29769/29769.pdf>
- Clinical Guideline 31: <http://www.nice.org.uk/nicemedia/live/10976/29947/29947.pdf>
- Clinical guideline 113: <http://www.nice.org.uk/nicemedia/live/13314/52599/52599.pdf>

CBT, cognitive behavioural therapy; SNRI, serotonin and norepinephrine re-uptake inhibitor; SSRI, selective serotonin re-uptake inhibitor; TCA, tricyclic antidepressant.

Mental health and smoking cessation

There is a significant association between smoking and mental health problems.³² Depression, in particular, has been associated with a failure to quit smoking.³³ Conversely, smoking cessation increases the risk of relapse of major depression during quitting.³⁴ People with mental illnesses may well be motivated to quit smoking, and a spectrum of strategies has proven beneficial in motivated people with mental health conditions.³⁵⁻³⁹ It is therefore important that mental health problems be monitored carefully among current smokers and people with COPD, and treated actively during smoking cessation.

Mental health and end-of-life process

Both depression and anxiety have been correlated with pain severity⁴⁰ and the desire for a hastened death⁴¹ in patients with terminal illnesses, especially those with end-stage COPD.⁴² Reported prevalence of anxiety and depression in end-stage COPD is 90%, much higher than the 52% reported in lung cancer.⁴³ Provision of palliative care in those with COPD is sadly deficient when compared with cancer.⁴⁴ A systematic review found that only 17% of COPD guidelines had significant palliative-care content.⁴⁵ Further, only 18% of patients with late-stage COPD received specific treatment for low mood.⁴⁶

TREATMENTS FOR DEPRESSION AND ANXIETY IN COPD PATIENTS

There is a paucity of research of the effects regarding pharmacological and non-pharmacological therapies

used to treat depression and anxiety in COPD, accounting for the absence of recommendations regarding the treatment of anxiety and depression in global and national COPD guidelines. Besides pulmonary rehabilitation, which is only available for a small percentage of patients,⁴⁷ the updated Global Initiative for Chronic Obstructive Lung Disease guideline does not mention other treatment options for mental health issues.¹ It is therefore not surprising that only a minority of patients with depression or anxiety are receiving appropriate treatment.⁴⁸

Despite the lack of direct evidence in COPD populations, several effective and potentially effective treatment regimens for reduction of depression and/or anxiety symptoms in COPD can be proposed based on experiences in patients with other chronic diseases. These are considered later with descriptions of study results regarding the chronic disease population and COPD (if available).

Cognitive behavioural therapy

Cognitive Behavioural Therapy (CBT) is a structured, psychological intervention in which the patient works collaboratively with the therapist to identify the types and effects of thoughts, beliefs and interpretations on current symptoms, feelings states and/or problem areas.⁴⁹ Its aim is to develop skills to enable the patient to control their symptoms and manage their disorder by utilizing a combination of behavioural and cognitive techniques to counteract problematic thoughts, beliefs and interpretations related to the target symptoms and problems.^{6,29}

Given its strong evidence base, mental health guidelines recommend CBT as the treatment of choice for a range of mood and anxiety disorders and as an adjunct

to others (e.g. National Institute for Health and Clinical Excellence (NICE)^{6,29}). Low-intensity CBT-based psychosocial interventions (e.g. computerized CBT or a structured group physical activity programme using principles of CBT) are recommended for people with mild to moderate anxiety and/or depression.⁶ High-intensity psychological intervention using CBT in combination with medication is recommended for people with moderate to severe depression.⁶

The potential for CBT to ameliorate depression associated with chronic illness has recently been more widely recognized. Positive health outcomes from implementing CBT with chronic diseases and cancer have been reported.^{50–52} Positive effects have also been found in evaluating CBT for anxiety in clinical studies on a range of patient populations.⁵³ It has been reported that the use of CBT either as a single-treatment modality or in combination with pharmacotherapy is well tolerated, cost-effective and produces substantial treatment gains for individuals with panic disorder over the short and long term.⁵⁴

A recent review evaluated four small studies involving the use of CBT with COPD. It was concluded that when used with exercise and education, there is only limited evidence that CBT contributes to significant reductions in anxiety and depression among patients with COPD.⁵⁵ Further, a recent large randomized controlled trial showed that CBT group treatment and COPD education can both achieve improvements in quality of life, anxiety and depression, with little difference between them.⁵⁶ Another recent study indicated that a brief, specifically targeted CBT intervention can control panic attacks in patients and prevent the development and worsening of panic-spectrum psychopathology and anxiety symptoms.⁵⁷ However, further randomized controlled trials studies are necessary to provide evidence on the effectiveness of CBT in COPD.⁵⁵

A recent meta-analysis concluded that behavioural therapy, an approach that uses a conditioning formulation to develop a daily structured plan, may be as effective in ameliorating depression as the more comprehensive CBT model.⁵⁸ This briefer approach may have potential benefits for people with co-morbid chronic disease and depression because it focuses on developing a short-term structure that could, for example, include organizing social activities into the daily plan to alleviate the isolation that is often a symptom of depression and illness.

Pharmacological treatment

Pharmacological interventions are commonly used to treat depression and anxiety in patients with COPD. Evidence for antidepressant therapy to overcome these mood disorders in COPD is limited.^{59–61} There is a lack of randomized controlled trials to assess the effects of pharmacological interventions in this population. In addition, most of the available studies have small sample sizes, large dropout rates or a short follow-up period.⁵⁹

Despite the relative lack of scientifically rigorous evidence, pharmacotherapy appears to be as com-

monly used for anxiety and depression in patients with COPD as in other chronic disease groups. Medications used in standard clinical practice for depression include antidepressants, benzodiazepines, azapirones and less commonly, antipsychotic agents and anticonvulsants. The antidepressants are further classified into groups based on which chemicals in the brain they affect. The main classes of antidepressants include non-selective antidepressants (tricyclic antidepressants, e.g. nortriptyline, and monamine oxidase inhibitors, e.g. selegiline) and selective antidepressants (selective serotonin re-uptake inhibitors (SSRI, e.g. citalopram); serotonin and norepinephrine re-uptake inhibitors (e.g. venlafaxine) and norepinephrine and dopamine re-uptake inhibitors (e.g. bupropion).⁵⁹

SSRIs are generally considered as preferred first-line agents for control of depressive symptoms in patients with COPD,²⁹ with some evidence pointing to better depression scores and quality-of-life outcomes.^{62–64} A two-phase trial (6 weeks randomized and 6 weeks open labelled) has shown significant reductions in depression scores (Hospital Anxiety and Depression scale, Beck Depression Inventory), improved walking distance and health-related quality of life (the disease-specific St George's Respiratory Questionnaire) at 3 months follow-up.⁶² SSRIs are considered to be relatively selective in their pharmacological effects,⁶⁵ although many inhibit cytochrome P450s (CYP). The CYP are members of a superfamily of oxidative enzymes, which represent the major system for oxidative metabolism of therapeutic substances, accounting for around 75% of the total.^{66,67} Human CYP are primarily membrane-associated proteins, located either in the inner membrane of mitochondria or in the endoplasmic reticulum of cells. They affect half-life, adverse effects and rates of clearance of other drugs.^{68,69}

Either venlafaxine or mirtazapine are considered first-line drugs that are useful for patients who are not responsive to SSRI or with patients who previously had a good response to these drugs.⁷⁰ Tricyclic antidepressants and monamine oxidase inhibitors can also be used with caution.⁷¹ One small, randomized, placebo-controlled trial of treatment in patients with major depression reported high efficacy for nortriptyline in improving short-term outcomes for depression, anxiety, panic attacks, cognitive function and overall disability.⁷² However, tricyclic antidepressants have significant adverse effects and are associated with clinically significant pharmacodynamic interactions with many medications frequently prescribed to elderly patients⁷¹ as well as those with chronic illnesses (Table 1).

Pharmacological interventions, in particular antidepressants and benzodiazepines, are commonly used to treat anxiety in patients with COPD. A recent systematic review shows a non-significant but clinically relevant benefit (minimum improvement of 1.5 points in Hospital Anxiety and Depression scale score or a change from baseline of 20% in patients with COPD⁷³) with the use of SSRI to control anxiety symptoms in patients with COPD.^{59,62} Case reports have also reported an improvement in anxiety symptoms

Table 3 Important adverse effects from antidepressant therapy[†]

Adverse effects	SSRI	Venlafaxine	Mirtazapine	Tricyclic antidepressants	Monoamine oxidase inhibitors
Agitation	++	~	~	++	++
Anticholinergic delirium	~	~	~	++	~
Anxiety	++	++	~	++	~
Blurred vision	~	~	~	++	+
Cardiac dysrhythmias	+	+	~	++	+
Confusion	+	~	~	++	~
Constipation	~	+	~	++	++
Diarrhoea	++	~	~	~	~
Dizziness	++	++	~	++	~
Dry mouth	++	+	~	++	++
Elevated serum aminotransferases	~	~	~	~	++
Fatigue	~	++	~	~	++
Headache	++	++	~	~	++
Hypertension	~	++	~	~	~
Lacrimation ↓	~	~	~	++	~
Myoclonus, twitching, tremor	++	++	~	++	++
Myalgia	++	~	~	~	~
Nausea, vomiting	++	++	~	+	~
Orthostatic hypotension	+	+	~	++	++
Peripheral oedema	~	~	++	~	+
Rhinitis	++	~	~	~	~
Sedation and/or drowsiness	++	+	++	++	++
Sexual dysfunction	++	+	~	++	++
Skin problems	++	++	~	+	+
Sleep disturbance	++	+	~	++	++
Sweating	++	++	~	++	+
Urine hesitancy or retention	~	~	~	++	~
Weakness	++	~	++	~	++
Weight gain	++	~	++	++	++
Weight loss	++	++	~	~	~

[†] Based on the Australian Medicines Handbook 2010.

Frequency of adverse effects: ~, rare (incidence less than 0.1%) or non-reported; +, infrequent (incidence between 0.1%–1.0%); ++, common (incidence of 1% or more). This classification should not be interpreted too strictly as the incidence of adverse effects often depends on the risk factors presented by a specific population and the dose of the drugs administered.

among patients treated with sertraline.⁷⁴ However, little or no difference has been evident from trials for other classes of medications such as tricyclic antidepressants and azapirone.^{60,75} It is interesting to note that although benzodiazepines have been commonly used in clinical practice for control of anxiety in patients with COPD, no randomized controlled trials are available to assess the efficacy of benzodiazepines in this population.

Current recommendations in anxiety management are for CBT to be used as a front-line treatment for generalized anxiety disorder and generalized social anxiety disorder,³¹ whilst adding SSRIs are recommended (notably escitalopram or paroxetine) if CBT is ineffective or unsuitable. If there is no improvement in the first 3 months, an alternative SSRI or imipramine or venlafaxine is recommended for general-

ized anxiety disorder and either sertraline, fluvoxamine or venlafaxine for generalized social anxiety disorder.²⁹ Benzodiazepines are recommended only for short-term use for acute flare of anxiety symptoms.⁷⁶

Numerous adverse effects from the use of antidepressant therapy have been reported^{70,77–82} (Table 3). Serotonin toxicity (symptoms such as, e.g. tremor, confusion, sweating, diarrhoea) may occur with a high dose of a single drug or when more than one serotonergic agents are used together or when changing antidepressants with an inadequate washout period between drugs.⁷⁰ In the elderly, the commonly reported adverse effect of sedation may increase the risk of falls and fractures.^{83–85} Weight gain, which can occur with longer-term antidepressant therapy,⁷⁰ may benefit those patients with more severe COPD in

Table 4 Side-effects of antidepressant drug therapy in patients with COPD and co-morbid anxiety and/or depression as reported by various studies

Study	Study type	Study size (n)	Medication	Side-effects reported [†]
Gordon <i>et al.</i> ⁶¹	Cross-over trial	13	Desipramine (TCA)	Intolerable side-effects [‡] (two), dry [§] mouth [§] , fatigue [§] , tremor [§]
Light <i>et al.</i> ⁶⁰	Cross-over trial	12	Doxepin (TCA)	Blurred vision (five), drowsiness (three), dry mouth (two), headache (one).
Borson <i>et al.</i> ⁷²	Randomized controlled trial	36	Nortriptyline (TCA)	Dry mouth (one), sedation (one), orthostatic hypotension (one)
Singh <i>et al.</i> ⁷⁵	Randomized controlled trial	11	Buspirone (azapirone)	Nausea, diarrhoea and dyspnoea (two), dizziness and fatigue (one)
Lacasse <i>et al.</i> ⁶⁴	Randomized controlled trial	23	Paroxetine (SSRI)	Somnolence (five), tremor (two), constipation (two), nausea (two), headache (two), dry mouth (one), taste perversion (one)
Subbe <i>et al.</i> ⁶³	Randomized controlled trial	8	Citalopram (SSRI)	Insomnia, restlessness and worsening anxiety (one), minor side-effects [†] (six)
Eiser <i>et al.</i> ⁶²	Randomized controlled trial	28	Paroxetine (SSRI)	Nausea and vomiting (four)

[†] Numbers refer to number of patients that reported these side-effects.

[‡] No further explanation was provided about the nature of side-effects.

[§] No number-wise distribution was provided for these side-effects.

SSRI, selective serotonin re-uptake inhibitor; TCA, tricyclic antidepressant.

whom low body mass is frequent and contributes to a poorer prognosis.⁸⁶ Caution should be taken while prescribing certain antidepressants (tricyclic antidepressants and mirtazapine) and benzodiazepines in patients with moderate to severe COPD, and especially for patients with COPD who are CO₂ retainers, as there is an increased risk of respiratory centre depression and resulting respiratory failure. In addition, benzodiazepines have a high risk of tolerance and dependence and hence should only be used for short-term periods and/or for acute exacerbation of mood symptoms.^{76,87} Side-effects of various antidepressant medications used for treatment of anxiety and/or depression in COPD are summarized in Table 4.

Pulmonary rehabilitation

Pulmonary rehabilitation has extensive evidence supporting its benefits and is a highly recommended core component of treatment in COPD.⁸⁸ Pulmonary rehabilitation programmes involve assessment of patient problems and goals, exercise training, education, nutritional intervention and psychosocial support.⁴⁷ The aim is to restore the patient to the highest possible level of independent functioning.⁸⁹ Documented benefits from pulmonary rehabilitation include improvements in quality of life and exercise tolerance, and a reduction in dyspnoea and fatigue.⁹⁰ Over the last decade, evidence has also confirmed that pulmonary rehabilitation can reduce symptoms of anxiety and depression in patients with moderate to severe COPD.^{88,91} However, it is not clear which

component(s) confer psychosocial benefits.⁹² Rehabilitation commencing soon after initial recovery from a severe exacerbation of COPD has been shown to have substantial benefits for patients' exercise capacity, fatigue and emotional function.⁹³ It is not established whether home-based exercise and nontraditional rehabilitation programmes (e.g. community-based rehabilitation) produce the same benefits for mental health. It is also not known whether combining CBT with pulmonary rehabilitation may provide even greater benefits in improving symptoms, self-confidence, quality of life and/or psychological symptomatology.

Relaxation therapy

Relaxation is often a component of pulmonary rehabilitation, and it can be used as an adjunct to other forms of therapy (e.g. CBT and self-management programmes). Relaxation therapy encompasses a range of techniques such as autogenic training, breathing exercises, progressive muscle relaxation, isometric muscle relaxation, biofeedback, hypnosis and meditation. The purpose of these techniques is to facilitate the relaxation response by effectively managing the group of physiological changes accompanying anxiety. This allows regulation of the sympathetic nervous system and management of the stimulation of certain regions of the hypothalamus.⁹⁴

A review of relaxation therapy concluded that it is effective in reducing hypertension, insomnia, anxiety, pain, and medication use across multiple populations, diagnostic categories and settings.⁹⁵ A

meta-analysis of trial with relaxation therapy in COPD found statistically significant beneficial effects on both dyspnoea and psychological well-being.⁹⁶

Palliative care

Palliative care is delivered in a range of settings. A typical palliative-care team may include varying combinations of physician, mental health and palliative-care nurses, auxiliary staff, a pharmacist, bereavement counsellor, psychologist, chaplain, social worker and volunteers.⁴⁴ The purpose is to maximize care, relieve suffering and improve quality of life for the patients and provide support for the family and carers.⁴⁴

Successful approaches to the assessment and management of pain and some physical and psychological symptoms have been established in controlled trials.⁹⁷ Promising improvements in mental health were also found for COPD in a study of an intensive home-based case management programme which included support for their psychological needs.⁹⁸

ADDITIONAL THERAPEUTIC MODALITIES OF POTENTIAL USE WITH COPD PATIENTS

A number of therapeutic modalities have been found effective in reducing anxiety and depression symptomatology among chronic disease groups. The efficacy of these modalities in COPD remains largely untested, but they are presented here because they are used by respiratory patients or because they have potential to ameliorate symptoms of anxiety and depression.

Interpersonal psychotherapy

Interpersonal psychotherapy (IPT) uses an interpersonal conceptualization of depression. This treatment makes an assumption that the development of clinical depression occurs in the social and interpersonal context and that the onset, response to treatment and outcomes are influenced by the relations between the patient and significant others.⁹⁹ The therapy focuses upon four specific interpersonal problem areas—unresolved loss or grief, disputes, role transitions and social deficits.¹⁰⁰ The therapist emphatically engages the patient, helps the patient to feel understood, arouses affect, presents a clear rationale and treatment ritual, and yields success experiences.¹⁰¹ Among psychotherapeutic options, CBT and IPT have the strongest evidence in terms of treatment efficacy with major depressive disorder.^{6,49}

IPT has shown positive results in a variety of patient populations. For example, it reduced social anxiety symptoms and associated impairments in patients with social anxiety disorders¹⁰² and depressive symptoms in older adults.¹⁰³ The conversational style and the 'tell your story' opportunity along with the interest

shown in exploring all relevant relationships in detail are often perceived as comfortable and helpful by the elderly.¹⁰³ In addition, the foci of unresolved grief, role transitions (e.g. increasing medical disability) or role disputes, particularly those secondary to caregiver burden, are common themes that dovetail easily with the IPT structure.¹⁰³ Unfortunately, studies evaluating the effectiveness of IPT in patients with COPD could not be found in the published literature, and further research with this potentially useful treatment modality is warranted due to the strength of its evidence base among non-COPD populations. Furthermore, there are logical connections between IPT, depression, COPD and ageing issues.

Self-management programmes

Self-management programmes have been developed for a variety of medical populations and implemented in a wide range of clinical and primary care settings. They aim at teaching skills needed to carry out medical regimens specific to a long-term disease and guide health behaviour change to help patients to control their disease and improve their well-being.¹⁰⁴

Generic self-management programmes focus not so much on the problems related to one specific disease, but on the problems encountered during the course of the disease, such as fatigue, pain and anxiety.¹⁰⁵ Surprisingly, a review of a Chronic Disease Self-Management Programme in vulnerable older people showed no improvement in well-being.¹⁰⁵ A recent study in which antidepressant therapy was combined with a pain self-management programme showed substantial improvement in depression as well as moderate reductions in pain severity and disability in primary care patients with depression and musculoskeletal pain.¹⁰⁶

Most COPD self-management programmes focus mainly upon physiological outcomes and health-care use.¹⁰⁷ COPD-specific self-management studies that have presented data of anxiety and/or depression reported no effects.^{108,109}

More extensive disease management programmes

Chronic disease management programmes not only include self-management, but also incorporate evidence-based guidelines, provider education and screening processes. Wagner's chronic care model recommends, for example: (i) the use of explicit plans and protocols; (ii) a reorganization to meet the needs of the patients who require more time, a broad array of resources and closer follow-up; (iii) systematic attention for the information and behavioural change needs of patients; (iv) ready access to necessary expertise; and (v) supportive information systems.¹¹⁰

Chronic disease management programmes directed towards anxiety and depression have shown improved mental health outcomes in patients with anxiety¹¹¹ and depression.¹¹² However, we did not find

any studies of COPD chronic disease management programmes that were specifically directed towards mental health problems.

Hospital at home is an alternative to acute hospital care. In a systematic review with the primary endpoints of readmission and death, 'hospital at home' care was found to be as safe as inpatient care and cost analysis data suggest considerable financial savings with this form of care.¹¹³ More recent studies reported significantly greater improvements in depression and quality-of-life scores for 'patients hospitalized at home' compared with the acute hospital group.^{114,115} However, there is need for further randomized controlled trials to gain more insight into effects regarding mental health.

Supportive therapy

Supportive therapy focuses upon a particular problem such as depression using an overarching therapeutic paradigm in which a range of specific therapeutic techniques can be utilized.¹¹⁶ The purpose of supportive therapy is to use techniques to maintain, restore or improve self-esteem, adaptive skills and psychological function.¹¹⁷

A small review of evidence-based psychological treatments for late-life anxiety in older adults concluded that there was some evidence that supportive therapy is efficacious in the reduction of anxiety and depression.¹¹⁸ No studies reporting use of supportive therapy in COPD were found.

Self-help groups

Self-help groups are voluntary small groups, structured for the mutual help and the attainment of a specific purpose.¹¹⁹ These groups are widely used in COPD. Patient support groups are, for example, facilitated by the Australian Lung Foundation and attended by people with a common interest in managing lung disease, whether patient, carer or health-care provider.

In these groups, face-to-face social interactions and assumption of personal responsibility by each of the members are emphasized.¹¹⁹ Social support creates in individuals a feeling of being able to have help in the event of needing it. This might lead to a general increase of positive emotions, self-esteem and feelings of stability and control of the environment¹²⁰ and result in reduced anxiety and panic. The groups commonly have a high degree of lay involvement, although not all are exclusively lay-facilitated and organized, and may or may not be assisted by professionals.¹²¹

The non-standardized and largely unregulated nature of these groups has resulted in considerable heterogeneity.¹²¹ Various benefits of self-help groups have been reported though, including enhanced perceived social support and associated psychological benefits.¹²² A recent review of self-help groups in patients with chronic heart failure concludes that

limited quantity and a variable quality of studies prevent reliable conclusions being made regarding effects and outcomes.¹²¹

Group sessions are often used in COPD treatment (e.g. rehabilitation, self-management and chronic disease programmes). However, an intervention that only consists of a self-help/support group has, as far as we can discover, not been reported in literature.

SUMMARY AND RECOMMENDATIONS

Just as there is widespread underdiagnosis of COPD itself, mental health problems in COPD remain underdiagnosed and under-treated. In this paper, we have provided an overview of the impact of mental health problems in patients with COPD, how they can be better identified and treatments that are, or could be useful, for patients who have mental health problems. Whilst some research on mental health treatments among these patients exists, the quantity and methodological difficulties have impeded the integration of their use in formal COPD treatment guidelines. Nevertheless, there is sufficient information to formulate suggestions and recommendations regarding assessment, treatment and future research:

Assessment

1 Screening for mental health symptoms should become standard practice. Clinicians should be aware of the somatic overlap between anxiety and/or depression and COPD.

2 Mild to moderate symptoms of anxiety and/or depression should not be ignored, and treatment should be considered.

3 Patients reporting severe symptoms are more likely to have a mental disorder, so a more comprehensive diagnostic assessment should be conducted in these patients. Referral may be needed to establish diagnosis and to guide therapy.

4 Accurate assessment will ensure that treatment modalities are targeting the specific mental health problem. Whilst there is little evidence to guide the prescription of medications in relation to depression subtypes, the identification of anxiety subtypes should guide the choice of pharmacological and psychological intervention.

5 Individual factors (e.g. genetic predisposition, nicotine addiction, grief reaction, social isolation, the effects of the disease and its consequences on the central nervous system) contributing to the development of mental health problems in the COPD patient should be evaluated because this may influence selection of an appropriate treatment method.

6 It is especially important to assess mental health problems among smokers and those currently withdrawing from their nicotine addiction.

Treatment

1 For COPD of mild to moderate anxiety and/or depression, low-intensity psychosocial interventions are recommended.

2 High-intensity psychological interventions using CBT in combination with antidepressant medication for patients with moderate anxiety and/or severe depression are warranted. Pulmonary rehabilitation is an ideal setting for introducing more intensive psychological support. Among psychotherapeutic options, CBT and IPT have the strongest evidence in terms of treatment efficacy with major depressive disorder.

3 Mental health problems need to be monitored, and when necessary, treated during smoking cessation in COPD.

4 Appropriate mental health diagnosis and treatment approaches need to be integrated into COPD guidelines as depression and anxiety have important detrimental effects in this condition.

5 There is a need for a continuum of services throughout the trajectory of COPD.

- Most people with COPD are managed in primary care when stable, where attention to mental health is increasing. When hospitalization is needed for treatment of exacerbations, mental health issues should be more systematically addressed.

- There are advantages for home management over hospitalization, including a reduction in depressive symptoms.

6 There is a need to develop properly 'evidence-based' COPD care programmes that proactively address mental health in order to optimize physical and mental health outcomes.

Future research

1 More rigorous randomized controlled trials are necessary on the impact of mental health problems in COPD. This research should:

- Include a range of patients in which the disease severity and the type and severity of co-morbid mental health problems are well defined, so the efficacy of treatments in different subgroups can be assessed.

- Have a large sample size, low risk of methodological bias and longer follow-up period.

- Compare and evaluate in the COPD population the relative strengths and weaknesses of screening tools for anxiety and depression in order to provide a stronger evidence base for tool selection in clinical practice.

- Investigate a range of treatment options in COPD across all care settings, including comparison of different treatment options and various combinations (e.g. relaxation therapy in combination with IPT).

- Address the cost-effectiveness of the different programmes (e.g. optimal length of therapy; when to stop treatment in non-responders; identifying predictors of success and failure).

- Investigate the efficacy of restarting programmes in case of relapses.

2 Self-management programmes and chronic disease management programmes for patients with COPD need to be designed to incorporate mental health problems, as symptoms overlap and can be

confused. In addition, appropriate outcome measures that are specific to mental health should be used to assess the impact on mental health from these programmes.

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