

Behavioral medicine treatment for patients with chronic obstructive pulmonary disease

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INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a debilitating respiratory disease characterized by progressive airflow limitation due to small airway disease, parenchymal destruction, and abnormal inflammatory responses in the lung. The primary symptoms of COPD include dyspnea (i.e., breathlessness), cough, and augmented sputum production.¹ COPD is considered one of the most prevalent and debilitating diseases among adults, as it is associated with high levels of morbidity and mortality and a marked deterioration in health-related quality of life (HRQOL).² The most common risk factor for developing COPD is cigarette smoking. Although COPD is not presently curable, the prognosis has improved over the last decade due to advances in medical treatment.³ Despite improvements in prognosis, COPD continues to have deleterious effects on patients' HRQOL due to medical and mental health comorbidities.⁴ Behavioral treatments can be a helpful adjunct in managing COPD and increasing HRQOL.⁵ The present article will discuss COPD's impact on patients' psychosocial functioning and describe behavioral treatments for managing COPD symptoms and increasing HRQOL.

COPD: IMPACT ON PSYCHOSOCIAL FUNCTIONING

COPD is not only physically limiting but also causes psychosocial deterioration.⁶ Research has identified direct physiological (i.e., inflammatory pro-

cesses due to stress) and indirect behavioral (i.e., poor disease management due to psychological symptoms) pathways linking psychosocial aspects with the course of COPD.² Patients with COPD have psychiatric disorders at a greater rate than the general population. Sixty-five percent meet criteria for at least one disorder, with the rates of anxiety and depression disorders at 36% and 40%, respectively.⁷ COPD patients report deficits in activities of daily living (ADLs), which lead to poorer HRQOL. Indeed, COPD patients encounter twice as many physically or mentally impaired days per month and are 70% more likely to encounter more than 14 unhealthy days per month than those without COPD.⁸

BEHAVIORAL HEALTH TREATMENTS FOR COPD

Providing COPD patients with the skills necessary to improve psychosocial functioning can moderate the course of illness and improve HRQOL. The following paragraphs will discuss specific behavioral treatments that can be used as adjunct therapies with routine care and will outline how clinicians can successfully implement each treatment with COPD patients.

Smoking Cessation. Given cigarettes' role in COPD, treatments aimed at smoking cessation are essential. If there is ambivalence about quitting, the use of motivational interviewing (MI) can help patients determine motivations to quit. Briefly, MI is a focused and goal-directed method of intervention in which intrinsic motivation is facilitated to promote change. Motivational interviewing can be used to promote behavior change among patients by any health professional, such as pulmonologists or psychologists.

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Please see reference for Rollnick and colleagues' book for implementing MI in healthcare settings.⁹ Next, it is important to set a specific and realistic quit date. Determine appropriate long-term (e.g., smoke-free in 6 months) and short-term goals (e.g., reduce cigarettes used by 2 each week). Then, teach patients to become aware of personal smoking triggers, to develop healthy coping strategies for stress, and to use alternative behaviors to combat urges to smoke. Also, encourage patients to seek out support; quitting with someone or letting friends know the patients' goals increases the likelihood of success.¹⁰ Please view US Department of Health and Human Services reference for detailed protocols for quitting, helpful smartphone apps, and other informative smoking cessation tools.¹¹

Chronic Pain Management. COPD symptoms can cause pain, which exacerbates ADL deficits and produces a poorer HRQOL.¹² Chronic pain is highly prevalent in COPD patients¹³ with inflammation being the leading cause of neuropathic pain.¹⁴ In patients with COPD, the hyperinflation of the lung can exert pressure on the chest wall, spine, or diaphragm and cause significant pain; severe coughing and osteoporosis can also cause musculoskeletal symptoms. The preferred treatment for pain associated with this inflammatory response is pulmonary rehabilitation, which includes psychoeducation (e.g., understanding treatment plan, medications, diagnosis, and prognosis), breathing retraining, and strengthening chest wall muscles and the abdomen by aerobic exercise and resistance training.¹⁵ It can also be helpful to discuss the differences between acute and chronic pain with patients. Emotional support via psychotherapy or through close interpersonal relationships is imperative for managing chronic pain.¹⁶ Thus, pulmonary rehabilitation programs are doubly important for patients.

Cognitive Restructuring. The distress from COPD symptoms can be overwhelming and often leads to maladaptive thinking. Cognitive behavior therapy (CBT) can be used to help patients manage distress.¹⁷ CBT's underlying theory posits maladaptive thinking which influences mood and behavior and is common to all distress; it is not the situation in and

of itself which determines what people feel, but rather how they construe the situation. For example, (1) when an event occurs (e.g., wheezing) and (2) causes an automatic thought (e.g., I'm going to die), the patient (3) emotionally interprets the event through that lens (e.g., fear; anxiety), which leads to a (4) maladaptive action (e.g., hyperventilation) validating the initial automatic thought. It is important to teach patients this underlying theory and then help them use cognitive restructuring to challenge automatic thoughts, which can lead to a more appropriate emotional reactions (e.g., I'm wheezing so I need to use my inhaler) and better outcomes in the management of distress and symptoms. Please view Beck Institute reference for additional information about how to help patients implement CBT-related skills for COPD.¹⁸

Relaxation Training. Breathing retraining, such as diaphragmatic breathing, involves contracting abdominal wall muscles during exhalation to assist in displacing the diaphragm upward. These can be helpful in pulmonary rehabilitation in COPD patients and can also be used to decrease general stress.¹⁹ Breathing retraining is used to restore normal diaphragm functioning, reduce likelihood of negative symptoms, and decrease the amount of work required to breathe.²⁰ Additionally, interventions such as yoga, tai chi, progressive muscle relaxation, and distraction therapies have all produced significant improvements in COPD patients' forced expiratory volume (FEV1) and in depression, anxiety, and HRQOL.²¹

Biofeedback Training. Biofeedback techniques can be helpful in reducing physical and psychological symptoms which limit patients with COPD in ADLs.²¹ Biofeedback is commonly used in combination with breathing retraining. It involves using strain gauge feedback from abdominal muscles and electromyogram (EMG) feedback from respiratory muscles of the chest wall to facilitate learning efficient diaphragmatic breathing.²² Biofeedback can lead to significant improvements in FEV1 in patients with COPD.²³ Heart rate variability (HRV) biofeedback is also a helpful adjunctive treatment.²² HRV at the frequency of respiration, which is synonymous with respiratory sinus arrhythmia (RSA), refers to the in-

crease and decrease in heart rate with inspiration and expiration. Training patients to voluntarily increase RSA can improve autonomic control of cardiopulmonary function HRQOL of COPD patients.²⁴

Physical Activity Counseling. Physical activity is essential for COPD patients; walking or cycling 2 hours/week is associated with a 30–40% reduction in respiratory mortality.²⁵ Endurance and strength training can also improve skeletal muscle function and mitigate chronic pain, which improves treatment outcomes for COPD patients.²⁶ Helping patients find motivation and determining specific exercise regimens are imperative, as lethargy is a strong predictor of mortality in COPD patients.²⁷

Nutrition Counseling. Meeting nutritional guidelines can reduce the severity of respiratory symptoms; malnutrition often occurs in COPD patients.²⁸ Furthermore, nutritional support that emphasizes essential nutrients, such as calcium, vitamin D, fiber, protein, and water, and seeks to limit consumption of fats, cholesterol, sodium, and foods that cause inflammation or are difficult to swallow or digest, should also be incorporated into diet plans.²⁹ Ultimately, helping patients develop a consistent exercise and dietary regimen is important and encouraging patients to use self-monitoring techniques, such as keeping a daily log that can be reviewed. Also, as mentioned with smoking cessation, MI techniques can help to address physical activity and nutrition concerns in patients with COPD.

CONCLUSION

This article provides an overview of interventions clinicians can use to better manage symptoms of patients with COPD and to improve their psychosocial functioning. While this list of interventions is not exhaustive, it describes the most frequently used behavioral interventions in these patients. There are several options to provide patients with information to utilize these skills. Psychologists and mental health counselors can provide this aspect of care. However, one concern might be the cost of additional treat-

ments for patients; traditional psychotherapy costs vary and depend upon whether they are master's level or doctoral level clinicians, and whether their services are covered by health insurance. In integrated health systems behavioral medicine interventions can be included in the patient's appointment at no additional cost. For example, if a COPD patient attends an appointment and the patient could benefit from cognitive restructuring, the pulmonologist could contact the psychologist and have a "warm hand-off," in which the pulmonologist introduces the psychologist and has the psychologist implement the intervention for 15-30 minutes with no change in cost. Additionally, if appointment length (or cost) is an issue, group meetings based on these interventions at other times could be provided. Alternatively, if a psychologist or mental/behavioral health clinician is not available, other health professionals, such as nurses, allied health professionals, or physicians, could be trained in these interventions. Ideally, regardless of who works with patients on these techniques, all personnel should have a basic understanding of these behavioral treatments. Ultimately, the best strategies for implementation may depend on existing clinic procedure, access to resources, availability of interdisciplinary team members, and time allotted to appointments for each patient. What need not vary, however, is the use of these treatments for COPD as an adjunct to pharmacological treatments, as both approaches can improve the patient's HRQOL.

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