

## **PSYCHOLOGICAL MANAGEMENT OF COVID-19 RESPIRATORY ANXIETY: EMOTION-FOCUSED NORMALIZATION, PSYCHOEDUCATION, AND RESPIRATORY TECHNIQUES APPROACH**

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### **Abstract**

*The COVID-19 pandemic has presented many challenges for healthcare workers and patients dealing with the physical and emotional toll of this disease. Patients suffering from the effects of COVID-19 pneumonia often experience dyspnoea, or breathlessness, which has increased the prevalence of respiratory anxiety among these cases. The symptoms of pulmonary disease and anxiety overlap, and the effects of these elements exacerbate one another. Drawing from the clinical psychological treatment of 68 COVID-19 patients in the acute phase of disease in standard- and intensive-care units, as well as those post-COVID, this study describes targeted interventions applied over 178 sessions during 3.5 months at the University Hospital in Pilsen, Czech Republic. This study outlines a three-step treatment process designed to address COVID-19-related respiratory anxiety using emotion- and breathing-focused techniques. As part of this brief review, two case studies are offered to illustrate the physiological and psychological experiences common among these patients. The presented three-phased approach may offer targeted and effective treatment for COVID-related respiratory anxiety.*

**Keywords:** *anxiety, COVID-19, diaphragmatic breathing, psychological intervention, respiratory distress*

### **Acknowledgments**

This work was supported by the Ministry of Health Care of Czech Republic, Agency for Medical Research in Czech Republic, under Grant AZV 17–32445, SVV 260516; and Research Centre of Charles University, program number 9 under Grant Progress =C4 = 8D. Q 06/LF1 = 20.

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*Received: 23. 1. 2022*

*Approved: 17. 8. 2022*

*Published online: 30. 9. 2022*

## Introduction

The COVID-19 pandemic has presented many challenges for healthcare workers and patients dealing with the physical and emotional toll of this disease. The nature of this respiratory illness has yielded dramatic physiological and psychological effects, which often compound one another. There is more than 20 years of research establishing relationships between respiratory health and psychological status (Leyro et al., 2021). A significant correlation has been found between anxiety and the report of asthma-related symptoms, such as attacks of breathlessness, chest tightness, and wheezing (Janson et al., 1994; Pappens et al., 2012). Similar anxiety symptoms are observed in chronic obstructive pulmonary disease (COPD) patients; for example, a meta-analytic study found a prevalence of clinic anxiety among in-patients ranged from 10 to 55% (Willgoss & Yohannes, 2013).

The symptoms of pulmonary disease and anxiety overlap, and the effects of these elements exacerbate one another. Incipient pulmonary deficiency and the subjective experience of suffocating may trigger anxiety; furthermore, panic attacks and anxiety could be displayed as cardiopulmonary symptomatology, such as tachypnoea, tachycardia, palpitations, etc. (Yohannes & Alexopoulos, 2014). Therefore, dyspnoea, hyperventilation, and panic anxiety could reflect either somatic or psychiatric diagnosis. Interestingly, the pathogenesis of panic attacks may correlate with several respiratory mechanisms: hyperventilation with its' anxiogenic potential, interpreting respiratory symptoms in a catastrophic and life-threatening manner, and neurobiological impact of CO<sub>2</sub> sensitivity, lactate levels, and other markers of suffocating (Smoller et al., 1996). This reciprocal influence could be a vicious circle for a patient, where anxiety causes deficits in physical functioning and provokes an increase in healthcare utilization. Then, the perception of worsened health triggers anxiety.

Dyspnoea, or breathlessness, causes severe suffering in a person. The experience of suffocating is often described as one of the worst and most frightening experiences (De Peuter et al., 2004). If a patient faces critical illness, anxiety and depression become very frequent comorbidity. In critically ill patients who survived Acute Respiratory Distress Syndrome (ARDS), anxiety was present in 23% and 24% of cases in 1- and 2-year follow-up examinations respectively. Oxygenation measurements were the only significant predictors of anxiety (Hopkins et al., 2010). In patients with Severe Acute Respiratory Syndrome (SARS), one-month post-release from the hospital, 10-18% reported symptoms related to a post-traumatic stress disorder, anxiety, and depression. Symptom severity positively correlated with perceived life threat and negatively correlated with social support (Wu et al., 2005). Pneumonia in COVID-19 patients could cause ARDS and/or SARS, therefore these patients are at higher risk of developing anxiety related to breathing.

A gold-standard treatment for anxiety is cognitive-behavioral intervention techniques, accompanied by psychopharmacotherapy (Bandelow et al., 2017); however, in spite of their theoretical elements and broad clinical accessibility, these approaches do not directly address respiratory components (Leyro et al., 2021). In cases of respiratory anxiety, respiratory distress symptoms are often present, which suggests a need to specifically account for the respiratory component of anxiety. The clinical effectiveness of respiratory interventions (i.e., interventions that directly target respiration abnormalities) yielded significantly greater improvements in treating anxiety symptoms (Leyro et al., 2021). Therefore, the current study sought to outline and apply interventions designed to target COVID-19-related respiratory anxiety using emotion- and breathing-focused techniques.

## Methods

The University Hospital in Pilsen, Czech Republic assigned a clinical psychologist to be a core part of several clinics (Clinic of Infectious Diseases, Clinic of Internal Medicine, Clinic of Pneumology, and Department of Internal Medicine) treating COVID-19 patients in the acute phase of disease in standard- and intensive-care units, as well as post-COVID patients. The psychologist was functioning in an on-call manner, a psychological consultation was requested for patients who displayed a significant decrease in well-being or symptoms of severe anxiety, depression, or being non-compliant. Each session took between 10 to 60 minutes based on the medical condition and motivation of the patient. The group of patients was greatly heterogeneous in gender, age, the severity of the respiratory failure, the severity of ventilation support, and the number of sessions that varied between 1 to 12. There were 178 sessions for 68 patients during a 3.5-month period in total.

A noticeable similarity was found in patients, especially those who experienced higher severity of the respiratory failure. These patients were usually referred to as anxious, fearful, non-motivated to rehabilitation, or even actively avoiding any physical activity. Fear of breathlessness or suffocating, anxiety, and respiratory components of anxiety were present in these patients.

The psychotherapeutic approach was in a supportive and non-directive manner, where an integrative methodology was applied. The core part of the treatment was cognitive-behavioral therapy and breathing techniques. The clinical psychologist, who provided the treatment, was also experienced in logotherapy and existential analysis, and certified in coaching (neuro-linguistic programming), crisis intervention, and psychological first aid.

## Case Presentation

### *Case 1*

A 66-year-old male, chronically ill with hypertension, was hospitalized due to COVID-19 pneumonia with Acute Respiratory Distress Syndrome, he needed artificial pulmonary ventilation and underwent a tracheostomy. The hospitalization was 71-days long, he suffered from hypokalaemia, and urinary tract infection, and he was diagnosed with depression and anxiety. There is persistent pulmonary fibrosis.

During 3 sessions with a psychologist, the patient described the hospitalization from his perspective as a long, traumatic experience with "ups and downs" switching between several departments. During the treatment experience, he was able to see small improvements in physical health, such as the ability to sit, stand, and walk several steps on a walker. More importantly, he conveyed a fear of not being able to breathe; for example, when he tried to sit, walk, or defecate, he experienced shortness of breath and tachypnoea. This triggered anxiety and fear he might suffocate, which drove him to call a nurse and ask for oxygen. He expressed that he was "mentally stuck" between his motivation to regain strength through physical therapy, so he may return home, and his debilitating respiratory anxiety.

The psychotherapeutic work started with support in acceptance and abreaction of emotions related to dyspnoea and lack of breath (e.g., acknowledging fear associated with not being able to breathe properly, challenges associated with weaning from artificial ventilation and embracing current fears and anxiety as normal emotions during a long, difficult, and potentially life-threatening hospitalization). The second part of the psychological intervention focused on educating the patient about anxiety and its physiological and psychological effects. The patient described his symptoms

to the therapist, and they discussed them together, focusing on not only accepting anxiety as a normal part of his life now but also as a sign of his progress as he works through a difficult and stressful challenge. The third main part of the treatment was dedicated to techniques designed to relieve anxiety and manage to breathe. This approach employed a Diaphragmatic Breathing (DB) technique, which has been shown to reduce physiological and psychological stress and anxiety (e.g., Chen et al., 2017; Hopper et al., 2019; Ma et al., 2017). This approach had the patient place one hand on his chest, with the other hand on his abdomen (along his diaphragm) and take deep and long inhales for up to four seconds. The patient then held his breath for approximately four seconds, and finally exhaled slow breaths for another four seconds. The exsorption should be as long and deep as inspiration; however, patients affected by COVID-19 pneumonia often experience breathing difficulties. Thus, this technique aimed to slow and calm down the breathing and change the perception of the breathing, although it does not meet the rigorous criteria for a DB (as the inhales and exhales can be shorter in the group of patients after COVID-19 pneumonia).

Following this treatment which included 3 sessions in a total length of two hours, the patient, as well as medical personnel and his family, noticed significant mitigation in the anxiety symptoms. The patient was released from the hospital within a week after the first psychological session without dependency on oxygen therapy.

## **Case 2**

A 62-year-old male patient, chronically ill with hypertension, was hospitalized due to COVID-19 pneumonia with acute respiratory failure, and diagnosed with Acute Respiratory Distress Syndrome, which required artificial pulmonary ventilation for five days. During the patient's 31-day-long hospitalization, he suffered from anaemia, and urinary tract infection, and was diagnosed with depression and anxiety—which was medicated with SSRI and anxiolytics.

The patient's psychological treatment included 4 one-on-one sessions with a psychologist and 2 additional sessions that included the patient's family member. Total time spent with the patient did not exceed 2 hours. During the first session, the patient was very tired and showed signs of depression. The main topic of discussion was the patient's lack of ability to take care of himself. In subsequent sessions, he presented symptoms of moderate anxiety, mostly linked to the fear of being unable to breathe properly, but also a fear of being transferred between departments or not being able to go home.

The psychotherapeutic procedure began with the normalization of emotional reactions (e.g., feeling sad, incapable, frustrated, and afraid). Sessions provided support for accepting anxiety as a part of treatment and progress. Next, psychoeducation focused on psychological reactions to serious illness and long hospitalization. This also addressed different signs of anxiety and provided a better understanding of the purpose of anxiety. The patient was also asked to measure his anxiety on a scale from 0 to 10, where 0 means no anxiety and 10 is the highest, unbearable level of anxiety. The third core step focused on reframing the perspective of breathing difficulties and managing anxiety through Diaphragmatic Breathing techniques. As a part of DB treatment, the patient was asked to measure anxiety and subjective well-being before and after this breathing technique.

The patient noticed a decrease in anxiety levels, and also higher activity and willingness to be more active in physiotherapeutic sessions. Lung fibrosis was present in the patient, and he remained dependent on low-dosage oxygen therapy (3l/min) but was sufficiently stable to be released to home

care. The patient's family sent an email two weeks later stating the patient was getting better, and his anxiety symptoms were present only occasionally, but these symptoms were not interfering with daily activities.

## Results

Both case reports illustrate the onset of respiratory anxiety in patients with COVID-19 disease. Experiences of respiratory deficit or respiratory distress, and the need for ventilation-support-triggered anxiety. Presented symptoms were general nervousness or uncertainty, fear of breathlessness or suffocation, fear of inability to breathe without artificial support, higher dependence on oxygen therapy (or at least availability of this support), avoidance of physical activity (e.g., standing and walking), and physiological symptoms (specifically tachypnoea, tachycardia, sweating, and trembling). The psychological intervention procedures employed in the current study can be divided into three basic steps. The first was encouragement in emotion abreaction, then normalization and validation of these emotions with the aim to help patients accept their fears and negative emotionality as a normal reaction to an abnormal situation. The second step was psycho-education about anxiety and its behavioral, cognitive, emotional, and, most importantly, physiological component related to respiratory anxiety and their interactions or mutual potencing. The third basic step included respiratory DB (Diaphragmatic Breathing) techniques, including long and slow inhales and even longer and slower exhales. Both patients showed improvement and were released from the hospital without long-term high-dose oxygen therapy dependency and both referred to a decrease in anxiety symptoms, along with the ability to overcome a subjective experience of breathlessness.

In both presented cases, the provided psychological care was very short; 3 and 4 sessions, in total length of approximately 2 hours per patient. A specific time needed for each step (emotion ventilation, psycho-education, and DB) depends on the current needs of a patient and is unable to be predicted or measured due to the clinical factors and overlap of the steps.

## Discussion

This report highlights a potential treatment approach to manage COVID-19 respiratory anxiety using emotional normalization, psychoeducation, and DB techniques. These case studies offer potential procedures to address critical challenges faced by many patients suffering as a result of this global pandemic. The basic approach used in these case studies is rooted in cognitive-behavioral therapy (CBT). Methods used in CBT, particularly education about anxiety, self-monitoring of anxiety, and training in relaxation techniques are validated as effective techniques to mitigate generalized anxiety disorder symptoms (Borkovec & Ruscio, 2001). Therefore, these methods were used in the current study as a direct application for treating COVID-related respiratory anxiety. The treatment of anxiety disorders is also often combined with pharmacotherapy, particularly anxiolytics such as proven SSRI-type treatments (Bandelow et al., 2014), which was the medicinal approach used in the current study.

While this brief report may help guide treatment options and approaches for respiratory anxiety, it is not without limitations. This study was developed and measured through clinical experience and observation only, due to the pandemic's restrictions and requirements. The limits include a lack of specific description of each step as it was extrapolated from clinical records. Further, the evaluation of the impact of the procedure did not include other intervening factors, and it was provided by a patient, medical personnel, and family members. The mechanism of the procedure also remains



unspecified, it is unable to verify if the effect was caused by the breathing technique, or through the emotion ventilation, or by increasing the patients' competencies. Thus, it provides only preliminary findings and potential suggestions for COVID-19 respiratory anxiety treatment procedures that should be assessed through experimental design and explored more thoroughly in future research.

Other methods might also be useful in managing respiratory-related anxiety. For example, psychodynamic psychotherapy or short-term psychotherapeutic approaches (Bandelow et al., 2014; Bressi et al., 2010) showed an evidence-based positive impact on anxiety symptoms. The choice of therapeutic approach should follow, and be consistent with, the strengths of the psychotherapist and the background of the patient. For example, religious-culture psychotherapy shows rapid results, even after a six-month period of time and no significant differences have been found between psychotherapy and religious-culture psychotherapy approaches (Razali et al., 2002). The use of this kind of treatment might be efficacious in religious patients and may offer more tailored relief. This study did not integrate this approach as these patients were non-religious. Future studies may account for and assess the role of these individual differences when choosing treatment options.

In terms of the COVID-19 pandemic, remote social-distancing requirements, and expectations of many patients in need of psychotherapeutic support due to increased anxiety levels, it may be appropriate and advantageous to take self-help procedures into consideration. Previous research suggests there are no statistically significant differences between face-to-face psychotherapy and guided self-help approaches in managing anxiety and depression (Cuijpers et al., 2010). Therefore, the three-step model outlined in this study may potentially be incorporated into a self-help manual to support the mitigation of COVID-related respiratory anxiety for more patients—even those separated from medical treatment facilities.

## Conclusion

This case report suggests a potential psychological intervention for respiratory anxiety in COVID-19 patients that includes three basic steps. First, ventilation and normalization of emotions. Second, educating patients about the relationship between anxiety and respiratory distress. Third and finally, incorporating evidence-based respiratory techniques to manage anxiety. While further research is needed to examine these preliminary findings in other contexts and conditions, this three-phased approach may offer targeted and effective treatment for COVID-related respiratory anxiety.

## References

- Bandelow, B., Lichte, T., Rudolf, S., Wiltink, J., & Beutel, E. M. (2014). The diagnosis of and treatment recommendations for anxiety disorders. *Deutsches Ärzteblatt International*, 111(27–28), 473–480. <https://doi.org/10.3238/arztebl.2014.0473>
- Bandelow, B., Michaelis, S., & Wedekind, D. (2017). Treatment of anxiety disorders. *Dialogues in Clinical Neuroscience*, 19(2), 93–107. <https://doi.org/10.31887/DCNS.2017.19.2/bbandelow>
- Borkovec, T. D., & Ruscio, A. M. (2001). Psychotherapy for generalized anxiety disorder. *The Journal of Clinical Psychiatry*, 62(11), 37–42; discussion 43–45.
- Bressi, C., Porcellana, M., Marinaccio, P. M., Nocito, E. P., & Magri, L. (2010). Short-term psychodynamic psychotherapy versus treatment as usual for depressive and anxiety disorders: A randomized clinical trial of efficacy. *The Journal of Nervous and Mental Disease*, 198(9), 647–652. <https://doi.org/10.1097/NMD.0b013e3181ef3ebb>

- Chen, Y. F., Huang, X. Y., Chien, C. H., & Cheng, J. F. (2017). The effectiveness of diaphragmatic breathing relaxation training for reducing anxiety. *Perspectives in Psychiatric Care*, 53(4), 329–336. <https://doi.org/10.1111/ppc.12184>
- Cuijpers, P., Donker, T., Straten, A. van, Li, J., & Andersson, G. (2010). Is guided self-help as effective as face-to-face psychotherapy for depression and anxiety disorders? A systematic review and meta-analysis of comparative outcome studies. *Psychological Medicine*, 40(12), 1943–1957. <https://doi.org/10.1017/S0033291710000772>
- De Peuter, S., Van Diest, I., Lemaigre, V., Verleden, G., Demedts, M., & Van den Bergh, O. (2004). Dyspnea: The role of psychological processes. *Clinical Psychology Review*, 24(5), 557–581. <https://doi.org/10.1016/j.cpr.2004.05.001>
- Hopkins, R. O., Key, C. W., Suchyta, M. R., Weaver, L. K., & Orme, J. F. (2010). Risk factors for depression and anxiety in survivors of acute respiratory distress syndrome. *General Hospital Psychiatry*, 32(2), 147–155. <https://doi.org/10.1016/j.genhosppsych.2009.11.003>
- Hopper, S. I., Murray, S. L., Ferrara, L. R., & Singleton, J. K. (2019). Effectiveness of diaphragmatic breathing for reducing physiological and psychological stress in adults: a quantitative systematic review. *JBIS Evidence Synthesis*, 17(9), 1855–1876. <https://doi.org/10.11124/JBISRIR-2017-003848>
- Janson, C., Björnsson, E., Hetta, J., & Boman, G. (1994). Anxiety and depression in relation to respiratory symptoms and asthma. *American Journal of Respiratory and Critical Care Medicine*, 149(4), 930–934. <https://doi.org/10.1164/ajrccm.149.4.8143058>
- Leyro, T. M., Versella, M. V., Yang, M.-J., Brinkman, H. R., Hoyt, D. L., & Lehrer, P. (2021). Respiratory therapy for the treatment of anxiety: Meta-analytic review and regression. *Clinical Psychology Review*, 84, 101980. <https://doi.org/10.1016/j.cpr.2021.101980>
- Ma, X., Yue, Z. Q., Gong, Z. Q., Zhang, H., Duan, N. Y., Shi, Y. T., ... & Li, Y. F. (2017). The effect of diaphragmatic breathing on attention, negative affect and stress in healthy adults. *Frontiers in Psychology*, 8, 874–886. <https://doi.org/10.3389/fpsyg.2017.00874>
- Pappens, M., Smets, E., Bergh, O. V. D., & Diest, I. V. (2012). Fear of suffocation alters respiration during obstructed breathing. *Psychophysiology*, 49(6), 829–832. <https://doi.org/10.1111/j.1469-8986.2012.01355.x>
- Razali, S. Mohd., Aminah, K., & Khan, U. A. (2002). Religious–cultural psychotherapy in the management of anxiety patients. *Transcultural Psychiatry*, 39(1), 130–136. <https://doi.org/10.1177/136346150203900106>
- Smoller, J. W., Pollack, M. H., Otto, M. W., Rosenbaum, J. F., & Kradin, R. L. (1996). Panic anxiety, dyspnea, and respiratory disease. Theoretical and clinical considerations. *American Journal of Respiratory and Critical Care Medicine*, 154(1), 6–17. <https://doi.org/10.1164/ajrccm.154.1.8680700>
- Willgoss, T. G., & Yohannes, A. M. (2013). Anxiety disorders in patients with COPD: A systematic review. *Respiratory Care*, 58(5), 858–866. <https://doi.org/10.4187/respcare.01862>
- Wu, K. K., Chan, S. K., & Ma, T. M. (2005). Posttraumatic stress, anxiety, and depression in survivors of severe acute respiratory syndrome (SARS). *Journal of Traumatic Stress*, 18(1), 39–42. <https://doi.org/10.1002/jts.20004>
- Yohannes, A. M., & Alexopoulos, G. S. (2014). Depression and anxiety in patients with COPD. *European Respiratory Review*, 23(133), 345–349. <https://doi.org/10.1183/09059180.00007813>

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Zajícová, M., Reiley, P. J., Fiala, L., & Vevera, J. (2022). Psychological Management of COVID-19 Respiratory Anxiety: Emotion-Focused Normalization, Psychoeducation, and Respiratory Techniques Approach. *E-psychologie*, 16(3), 39-46. <https://doi.org/10.29364/epsy.449>