Explore xxx (xxxx) xxx

Contents lists available at ScienceDirect

EXPLORE

journal homepage: www.elsevier.com/locate/jsch

The novel application of the Lightning Process to treat Long COVID in primary care – Case report

F. Finch [a,*], P. Parker [b], C. Nollett [c], S Burns [d]

[a] Independent
[b] London Metropolitan University, UK
[c] Cardiff University, UK
[d] St Clements Surgery, UK

ARTICLE INFO

Keywords:
Case report
Long COVID
Lightning Process
Fatigue
Intervention

ABSTRACT

As a result of the COVID-19 pandemic, Long COVID (LC) is now prevalent in many countries. Little evidence exists regarding how this chronic condition should be treated, but guidelines suggest for most people it can be managed symptomatically in primary care. The Lightning Process is a trademarked positive psychology focused self-management programme which has shown to be effective in reducing fatigue and accompanying symptoms in other chronic conditions including Chronic Fatigue Syndrome/Myalgic Encephalomyelitis. Here we outline its novel application to two patients with LC who both reported improvements in fatigue and a range of physical and emotional symptoms post-treatment and at 3 months follow-up.

Introduction

The SARS-CoV-2 infection referred to as COVID-19 principally results in initial acute respiratory symptoms.[1] However, reports are increasing of more chronic symptoms, as seen before in other viral infections including the coronavirus infection Severe Acute Respiratory Syndrome (SARS).[2–5] Symptoms that persist longer than 4 weeks are generally referred to as Long COVID[6] and, whilst wide ranging, commonly include breathlessness, fatigue and 'brain fog'.[6,7] These symptoms can place severe restrictions on everyday life and may result in an inability to return to work[8] and reduce quality of life.[7] Given the scale of the pandemic and the high number of people infected with COVID-19, this chronic form has the potential to present a significant public health problem. Estimates as of January 2023 suggest that 2 million people (3% of the UK population) are affected by LC.[9] Currently, there is a paucity of evidence on how LC is best treated and it is recommended that most patients are managed symptomatically in primary care through patient self-management and peer support, making use of video technology where possible.[6,10]

The Lightning Process (LP) is a trademarked positive psychology focused mind-body self-management training program which can be delivered in small groups via video technology. It has a growing evidence base for its efficacy in improving outcomes for a range of chronic issues including Chronic Fatigue Syndrome/Myalgic Encephalomyelitis (CFS/ME), Chronic Pain and Fibromyalgia.[11–17] Given the overlap in key symptoms with these conditions, as well as the uncertain and confusing nature of both CFS and LC,[8] the LP points to being a potentially applicable intervention for LC. We present the cases of two patients, based in England, who agreed to try the LP for their LC and report the effects of the intervention on their symptoms and recovery.

Patient information, clinical findings and diagnostic assessment

Case 1

A 60-year-old female with onset of acute symptoms on 25th March 2020. She first contacted her GP on 27th April 2020 with her symptoms of fatigue, shortness of breath, muscle aches, cough and continued fever. The patient was given a SATs probe for remote monitoring of her oxygen saturation, which remained at 97, 98% (normal). She was prescribed oral doxycycline in accordance with the recommendations at the time, and a salbutamol inhaler to treat suspected bronchospasm. At follow-up in July 2020, the GP confirmed the presence of chronic symptoms including fatigue, shortness of breath, loss of taste, headaches, body aches, unrefreshing sleep and impaired concentration.

* Corresponding author.
E-mail address: info@fionafinchcoaching.com (F. Finch).

https://doi.org/10.1016/j.explore.2023.08.009
Received 21 July 2023; Received in revised form 17 August 2023; Accepted 22 August 2023
Available online 23 August 2023

Case 2

A 52-year-old female reported onset of COVID-19 symptoms including a fever, dry cough, breathlessness, headache, fatigue and loss of appetite, starting on 16th March 2020. She was assessed by her GP and treated with oral doxycycline in April 2020. She later attended A&E and was told she was in the recovery phase of COVID-19. Her GP records show in July 2020 she reported headaches, tiredness, recurrent palpitations, fatigue and feeling unwell for the past 3.5 months. The patient added that she was also experiencing a sore throat and low self-confidence at this time.

At the time of diagnosis, laboratory tests were not standard practice for confirmation of diagnosis which was made using the approved procedure for acute COVID diagnosis at that time (March 2020). Due to COVID-19 swab tests being unavailable in primary care at the time of initial presentation, for both cases, a diagnosis of COVID-19 was made by the patients' GPs in April 2020 based on symptomology and this prior COVID-19 status and their symptoms supported a diagnosis of LC. Neither case was hospitalised, and no further diagnostic tests or medical interventions were applied.

Therapeutic intervention

Following a diagnosis of LC the two cases were signposted by an NHS GP to an accredited LP practitioner. The LP is an intervention designed to help individuals to develop conscious influence on their neurological function and affect change in physiological processes.[15] It utilises discussion, gentle movement and meditation-like techniques developed from Positive Psychology, health education theory, mindfulness, and coaching [see full protocol].[18]

The LP concurs with the hypothesis that post-viral syndromes are a consequence of a disruption of the normal recovery process expected after the viral infection.[15] This incomplete recovery places further allostatic load on the individual's unrecovered physiology, triggering further maladaptive responses, including chronic activation of the humoral stress response and central nervous system sensitization, as suggested by Craddock.[19] To help resolve this the LP encourages the development of self-compassion[20] and flourishing,[21,22] through a self-coaching approach, implementation of salutogenic and active language[23] and improved physiology through savoring of memories that recall previous experiences of desired health goals and states.[24,25] It is taught by registered practitioners who undertake an intensive 18-month clinical training programme, run by the Phil Parker Training Institute. The training includes modules on anatomy and physiology; mind-brain-body and neuroplasticity concepts and research; group dynamics management; positive psychology; rapport, communication, linguistics in a clinical setting and group delivery skills; brief-solution-orientated change, state management approaches and humanistic coaching. Trainees are assessed by written and viva examinations and on graduating agree to abide by the LP Register's Code of Conduct, hold up-to-date DBS certificates, and maintain a continual professional development portfolio. The cost of attending the seminar varies by practitioner and country but in the UK the average cost is £650 and has been covered by some insurance companies. The LP was provided at no cost to participants for this study. An RCT evaluated the LP's cost-effectiveness and reported 'The LP is effective and is probably cost-effective when provided in addition to SMC for mild/moderately affected adolescents with CFS/ME'.[11]

Following referral, the two patients received an information sheet about the LP and consented to take part in the intervention with the understanding their cases may be published. They listened to Part 1 of the LP, a 4 h audio program focused on fatigue, prior to discussing their issues with their LP practitioner and receiving some initial coaching. Part 2 consisted of 3 × 4 h interactive online seminars delivered in July 2020. The sessions were designed to help individuals understand and apply the LP technique to their own symptoms. Three hours of post-seminar support was also provided.

Follow-up and outcomes

Outcomes were assessed using two validated measures: the 9-item Fatigue Severity Scale (FSS)[26] and the 14-item Warwick-Edinburgh Mental Well-being Scale (WEMWBS).[27] These were completed prior to commencing the LP training (T1) and then at 2 weeks (T2), 1 month (T3) and 3 months (T4) after the final seminar. The patients also detailed their mental and physical symptoms of LC at baseline using a pre-specified list with the options to add 'other' symptoms. Subsequently, at T2, T3 and T4 they reported whether the symptoms were improved, the same as or worse compared to the previous time point.

Fatigue

Both cases demonstrated sustained improvements on the FSS, where lower scores indicate less fatigue (Fig. 1.). The mean scale scores reduced from 3.89 (T1) to 1.78 (T2), 1.56 (T3) and finally to 1.22 (T4) for Case 1. For Case 2, the baseline mean score of 6.11 fell to 2.67 (T2), 2.56 (T3) and 2.7 (T4).

Mental well-being

For both cases, WEMWBS total scale scores increased at T2, T3 and T4 compared to T1, where higher scores indicate better well-being (Fig. 2). A change of three points is considered a meaningful positive change. This was achieved or exceeded at all follow-up time points for Case 1 and 2. Case 1 scored 44 (T1), 53 (T2), 57 (T3) and 53 (T4) and Case 2 36 (T1), 59 (T2), 50 (T3) and 57 (T4). The 'dip' in improvement for Case 2 at T3, was explored more fully with the participant. She reported experiencing some "serious emotional issues" at 4 weeks post LP including the break up of a relationship and starting a new job, which she felt explained the lowered score at that point.

Self-reported changes

Case 1 initially reported seven symptoms of LC at baseline. All symptoms improved from T1 to T2, with further improvements at T3 (and these were maintained or bettered at T4: Fig. 3). Fig. 4 demonstrates that Case 2 also initially presented to LP with seven symptoms which improved following treatment and further gains were made at each subsequent time point (with the exception of anxiety at T3).

Patient's perspective

The two participants were given the opportunity to feedback on their personal perspectives on the intervention and their understanding of its effects. They were keen to provide this as they felt the intervention had helped their recovery.

At T3 Case 1 wrote: My energy level is significantly better with consistency. I have a greater ability to stay focused in the present. I think this has had a big impact on my general well-being and energy. The compassionate mind model underpins all well-being support in my workplace. Since doing LP I am finding it much easier to shift from negative thought patterns. I think it's been very helpful to me and I have consolidated lots of things I already knew but was not applying in an effective way. I still feel unwell from time to time.

At T4 she said: I am generally more motivated in the face of things that would ordinarily have lowered my mood. My partner has really noticed a difference in the amount of energy I have which is really nice.

Case 2 reported at T3: Only very occasional headaches! For me, it's the harnessing of positive states that's been really good. Believing in my ability to heal myself.

At T4 she commented: I feel even better than two months ago. I notice my mental health and well-being being good. I am happy with the

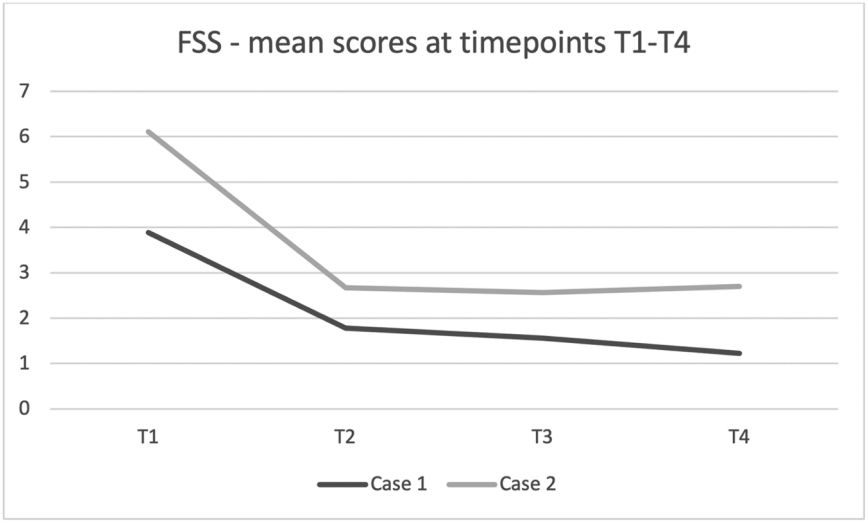

Fig. 1. Mean scores for items on the FSS across all time points.

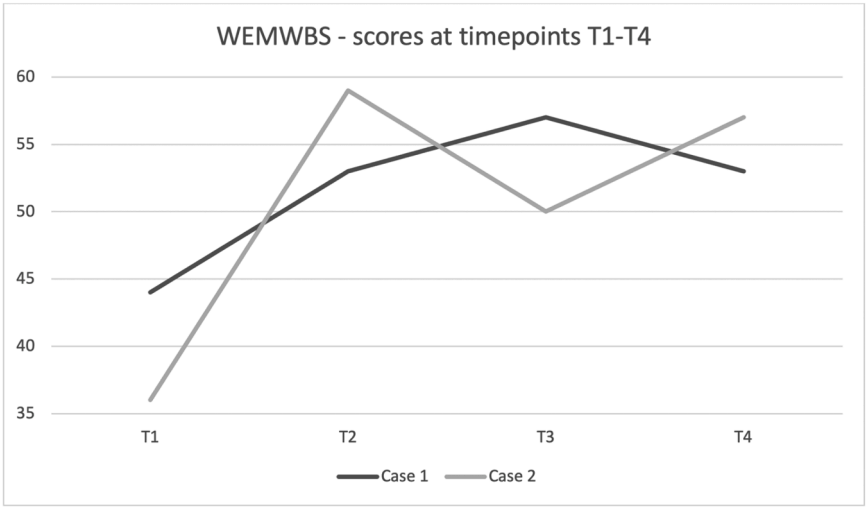

Fig. 2. Total scores on the WEMWBS across all time points.

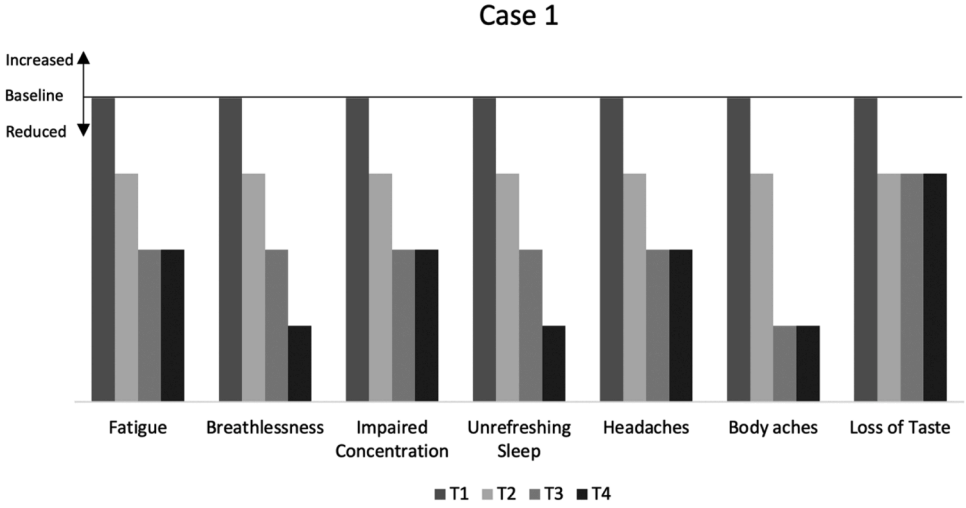

Fig. 3. Case 1 - Change in self-reported Long COVID symptoms across all time points.

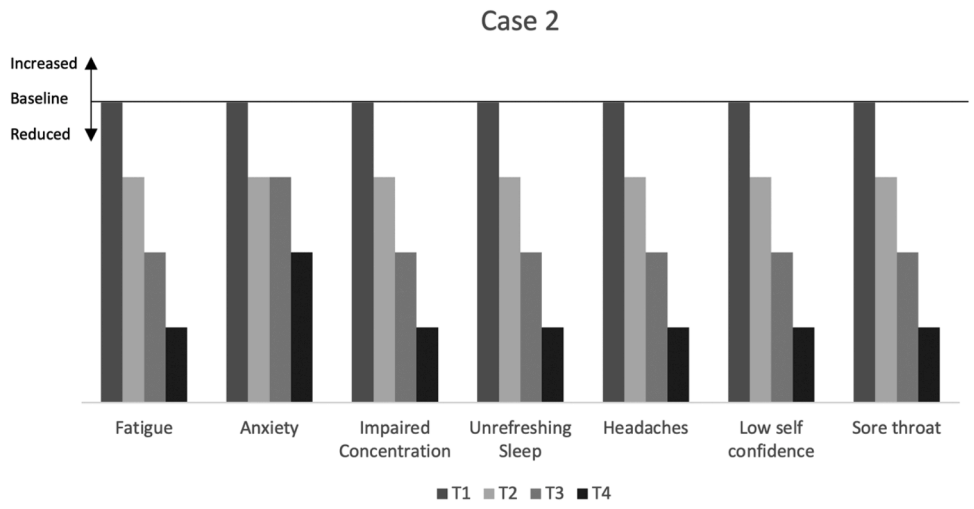

Fig. 4. Case 2 - Change in self-reported Long COVID symptoms across all time points.

way my life has turned out. I achieve what I want. I believe I'm getting better constantly. I feel good! I do LP less. I tend to do it in my head when I need to. The thing I'm doing mostly is NOT looking for symptoms - I check in with myself on how good I feel.

Discussion

LP is an established positive psychology focused self-management intervention used to treat chronic mental and physical health conditions. For the first time, we applied the LP to the management of two cases with the novel condition LC. Both patients reported improvements in fatigue, well-being and a range of emotional and physical symptoms following the intervention, gains which were sustained in the following months. Research on the effects of LC on the mental and physical well-being of healthcare professionals[28] suggests these are important areas to target in addressing the physical consequences of LC and the issues created by the uncertainty of diagnosis and treatment. We acknowledge that with this simple case study presentation, we cannot be sure all improvements were attributable to the LP and not simply a consequence of time. However, the Patients' Perspectives section indicates how the patients believe the intervention led to an improvement in symptoms and warrants further consideration.

Conclusion

The identified potential for an epidemic of LC will place significant demands on the NHS. The evidence for effective interventions is limited,[6] with other case reports and patient journeys forming the majority of the literature at this early stage.[29,30] As access to rehabilitation services for LC is erratic,[8] the LP may be viewed as a promising brief intervention to promote recovery. GPs can easily signpost patients to the Register of Licensed Practitioners for prompt assessment and intervention delivery and the LP's focus on self-management and peer support and the possibility of delivery via digital technology are in line with UK recommendations for treatment.[6,10] These initial case reports on LC and the LP suggest that research to further assess its effectiveness would be beneficial.

Learning points/take home messages

- Novel approaches to the treatment of Long COVID (LC) may provide viable intervention options.
- The Lightning Process (LP) has shown to be effective for a range of chronic health conditions when compared to treatment as usual and maybe transferable to LC.
- LP can be delivered in small groups online, making it suitable for delivery during social distancing and to those who experience difficulty in accessing services.
- Post-LP patients reported improvements in fatigue and other physical and emotional symptoms, indicating recovery from LC and return to work was possible.
- Follow up studies with more patients and control groups are needed to replicate these findings and assess the efficacy and cost-effectiveness of the LP for LC.

CRediT authorship contribution statement

F. Finch: Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Writing – review & editing. **P. Parker:** Conceptualization, Visualization, Writing – review & editing. **C. Nollett:** Conceptualization, Supervision, Visualization, Writing – original draft. **S Burns:** Conceptualization, Writing – review & editing.

References

1. Rothan HA, Byrareddy SN. The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. *J Autoimmun*. 2020;109, 102433. https://doi.org/10.1016/j.jaut.2020.102433.
2. Hickie I, Davenport T, Wakefield D, et al. Post-infective and chronic fatigue syndromes precipitated by viral and non-viral pathogens: prospective cohort study. *BMJ*. 2006;333(7568):575. https://doi.org/10.1136/bmj.38933.585764.AE.
3. Islam MF, Cotler J, Jason LA. Post-viral fatigue and COVID-19: lessons from past epidemics. *Fatigue Biomed Health Behav*. 2020;8(2):61–69. https://doi.org/10.1080/21641846.2020.1778227.
4. Moldofsky H, Patcai J. Chronic widespread musculoskeletal pain, fatigue, depression and disordered sleep in chronic post-SARS syndrome; a case-controlled study. *BMC Neurol*. 2011;11. https://doi.org/10.1186/1471-2377-11-37.
5. RCOT. Recovering from COVID-19: Post viral-fatigue and conserving energy - RCOT. Published 2020. Accessed July 21, 2020. https://www.rcot.co.uk/recovering-covid-19-post-viral-fatigue-and-conserving-energy.
6. NICE. COVID-19 rapid guideline: managing the long-term effects of COVID-19. Published November 11, 2021. Accessed March 9, 2023. https://www.nice.org.uk/guidance/ng188.
7. Jacobs LG, Gourna Paleoudis E, Lesky-Di Bari D, et al. Persistence of symptoms and quality of life at 35 days after hospitalization for COVID-19 infection. Madeddu G, ed. *PLOS ONE*. 2020;15(12), e0243882. https://doi.org/10.1371/journal.pone.0243882
8. Ladds E, Rushforth A, Wieringa S, et al. Persistent symptoms after Covid-19: qualitative study of 114 "long Covid" patients and draft quality principles for services. *BMC Health Serv Res*. 2020;20(1):1144. https://doi.org/10.1186/s12913-020-06001-y.
9. Office for National Statistics (ONS). *Prevalence of ongoing symptoms following coronavirus (COVID-19) infection in the UK* -.; 2023. Accessed March 9, 2023. https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/prevalenceofongoingsymptomsfollowingcoronaviruscovid19infectionintheuk/2february2023.

10. Greenhalgh T, Knight M, A'Court C, Buxton M, Husain L. Management of post-acute covid-19 in primary care. *BMJ*. 2020:m3026. https://doi.org/10.1136/bmj.m3026. Published online August 11.
11. Crawley E, Gaunt D, Garfield K, et al. Clinical and cost-effectiveness of the Lightning Process in addition to specialist medical care for paediatric chronic fatigue syndrome: randomised controlled trial. *Arch Dis Child*. 2018;103:155–164. https://doi.org/10.1136/archdischild-2017-313375.
12. Finch F. *LP snapshot survey for clients*.; 2010. Accessed July 16, 2013. doi:10.13140/RG.2.2.23107.35366.
13. Finch F. *Outcomes measures study*.; 2013. Accessed June 5, 2018. doi:10.13140/RG.2.2.29818.24002.
14. Finch F. *MS proof of concept study*.; 2014. Accessed June 5, 2018. doi:10.13140/RG.2.2.26462.79686.
15. Parker P, Aston J, Finch F. Understanding the Lightning Process approach to CFS/ME; a review of the disease process and the approach. *J Exp Psychother*. 2018;21(2):8. https://doi.org/10.1007/s11469-021-00520-3.
16. Parker P, Aston J, de Rijk L. A systematic review of the evidence base for the lightning process. *Explore*. 2020:1–30. https://doi.org/10.1016/j.explore.2020.07.014.
17. Fauske L, Bruland ØS, Dahl AA, Myklebostad A, Reme SE. Does the Lightning Process training programme reduce chronic fatigue in adolescent and young adult cancer survivors? A mixed-methods pilot study. *Cancers*. 2021;13(16):4076. https://doi.org/10.3390/cancers13164076.
18. Parker P. LP protocol 2020. Published online 2020. doi:10.13140/RG.2.2.22761.72801.
19. Craddock TJA, Fritsch P, Rice MA, et al. A role for homeostatic drive in the perpetuation of complex chronic illness: gulf war illness and chronic fatigue syndrome. slominski AT, ed. *PLoS ONE*. 2014;9(1):e84839. https://doi.org/10.1371/journal.pone.0084839
20. Neff KD, Kirkpatrick KL, Rude SS. Self-compassion and adaptive psychological functioning. *J Res Pers*. 2007;41(1):139–154. https://doi.org/10.1016/j.jrp.2006.03.004.
21. Parker P., Banbury S., Chandler C. Efficacy of the rediscovery process on alcohol use, impulsivity and flourishing: a preliminary randomised controlled study and preliminary cohort study. *EJAPP*. 2020;4(13). https://www.nationalwellbeingservice.org/volumes/volume-4-2020/volume-4-article-13/.
22. Parker P, Banbury S, de Rijk L. Self-control or flourishing? A thematic analysis of experiences of alcohol users of the rediscovery process. *Int J Ment Health Addict*. 2021;8. https://doi.org/10.1007/s11469-021-00520-3. Published online March.
23. Antonovsky A. The salutogenic model as a theory to guide health promotion. *Health Promot Int*. 1996;11(1):11–18.
24. Bryant FB, Smart CM, King SP. Using the past to enhance the present: boosting happiness through positive reminiscence. *J Happiness Stud*. 2005;6(3):227–260. https://doi.org/10.1007/s10902-005-3889-4.
25. Speer ME, Delgado MR. Reminiscing about positive memories buffers acute stress responses. *Nat Hum Behav*. 2017;1(5). https://doi.org/10.1038/s41562-017-0093.s41562-017-0093-017.
26. Krupp LB. The fatigue severity scale: application to patients with multiple sclerosis and systemic lupus erythematosus. *Arch Neurol*. 1989;46(10):1121. https://doi.org/10.1001/archneur.1989.00520460115022.
27. Tennant R, Hiller L, Fishwick R, et al. The Warwick-Edinburgh mental well-being Scale (WEMWBS): development and UK validation. *Health Qual Life Outcomes*. 2007;5(1):63. https://doi.org/10.1186/1477-7525-5-63.
28. Ladds E, Rushforth A, Wieringa S, et al. Developing services for long COVID: lessons from a study of wounded healers. *Clin Med*. 2021;21(1):59–65. https://doi.org/10.7861/clinmed.2020-0962.
29. Perrin R, Riste L, Hann M, Walther A, Mukherjee A, Heald A. Into the looking glass: post-viral syndrome post COVID-19. *Med Hypotheses*. 2020;144, 110055. https://doi.org/10.1016/j.mehy.2020.110055.
30. Garner P. Paul Garner: on his recovery from long covid. The BMJ. Published January 25, 2021. Accessed April 28, 2021. https://blogs.bmj.com/bmj/2021/01/25/paul-garner-on-his-recovery-from-long-covid/.