SOCIETÀ ITALIANA
G.U.I.D.A.
PER LA GESTIONE UNIFICATA E INTERDISCIPLINARE DEL DOLORE MUSCOLO-SCHELETRICO E DELL'ALGODISTROFIA

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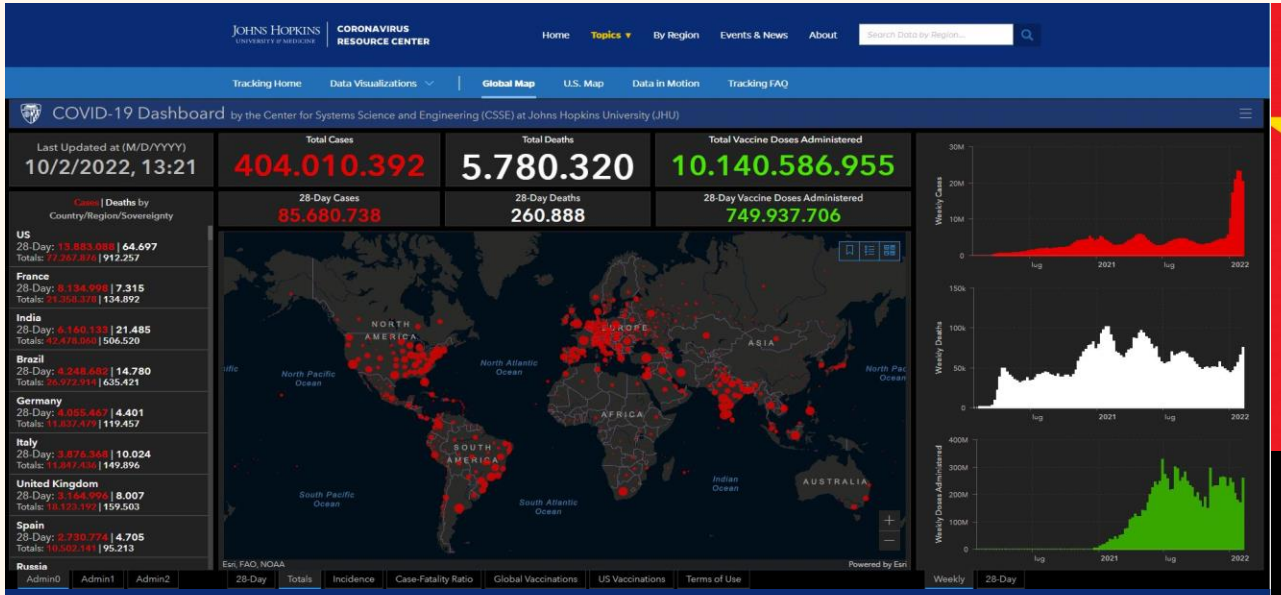
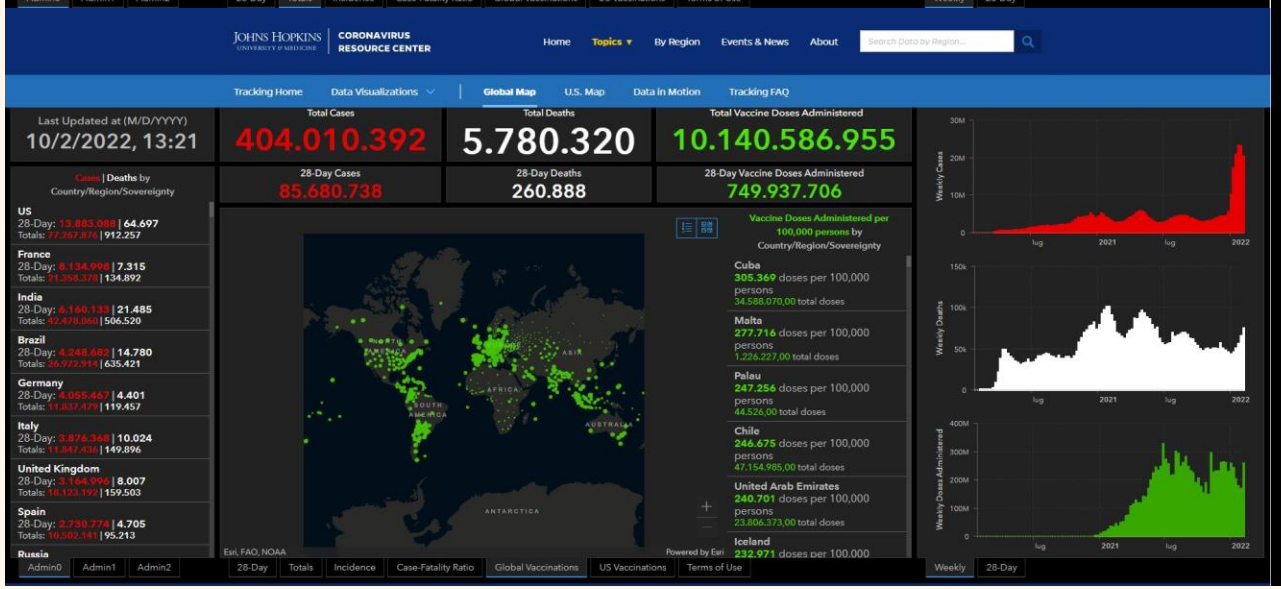
La sindrome Long Covid
La Valutazione Funzionale

Centro Congressi Unione Industriali
TORINO 11-13 MAGGIO 2023





La malattia da SARS CoV 2 è la nuova peste del XXI secolo?

Più di 20.000 anni fa, le popolazioni dell'Asia orientale dovettero affrontare un'epidemia da coronavirus che lasciò nel loro DNA le tracce genetiche di una lunga convivenza forzata.

Uno studio pubblicato su *Current Biology* ricostruisce quelle circostanze e dimostra che i coronavirus umani capaci di causare malattie gravi non sono soltanto una minaccia degli ultimi 20 anni.

Questo studio sull'evoluzione del genoma umano, condotto dall'Università dell'Arizona, Università della California San Francisco e Università di Adelaide (Australia) riporta quindi alla luce un'altra, molto più antica epidemia da coronavirus localizzata in Asia orientale, nell'area oggi occupata da Cina, Giappone, Mongolia, Corea del Nord, Corea del Sud e Taiwan.

CellPress
OPEN ACCESS

Current Biology

Article

An ancient viral epidemic involving host coronavirus interacting genes more than 20,000 years ago in East Asia

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SUMMARY

The current severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic has emphasized the vulnerability of human populations to novel viral pressures, despite the vast array of epidemiological and biomedical tools now available. Notably, modern human genomes contain evolutionary information tracing back tens of thousands of years, which may help identify the viruses that have impacted our ancestors—pointing to which viruses have future pandemic potential. Here, we apply evolutionary analyses to human genomic datasets to recover selection events involving tens of human genes that interact with coronaviruses, including SARS-CoV-2, that likely started more than 20,000 years ago. These adaptive events were limited to the population ancestral to East Asian populations. Multiple lines of functional evidence support an ancient viral selective pressure, and East Asia is the geographical origin of several modern coronavirus epidemics. An arms race with an ancient coronavirus, or with a different virus that happened to use similar interactions as coronaviruses with human hosts, may thus have taken place in ancestral East Asian populations. By learning more about our ancient viral foes, our study highlights the promise of evolutionary information to better predict the pandemics of the future. Importantly, adaptation to ancient viral epidemics in specific human populations does not necessarily imply any difference in genetic susceptibility between different human populations, and the current evidence points toward an overwhelming impact of socioeconomic factors in the case of coronavirus disease 2019 (COVID-19).

INTRODUCTION

Coronaviruses have been behind three major zoonotic outbreaks.[1] The first outbreak, known as SARS-CoV (severe acute respiratory syndrome coronavirus), originated in China in 2002 and infected more than 8,000 and killed more than 800 people.[2] Four years later, MERS-CoV (Middle East respiratory syndrome coronavirus) affected >2,400 and killed over 850 people (https://www.who.int). The most recent outbreak began in late 2019 when SARS-CoV-2 emerged in China, triggering an ongoing pandemic (coronavirus disease 2019 [COVID-19]).[3]

The research on SARS-CoV-2 epidemiology has revealed that socioeconomic (e.g., access to healthcare, testing, and exposure at work), demographic, and personal health factors all play a major role in SARS-CoV-2 epidemiology.[4–6] Additionally, several genetic loci that mediate SARS-CoV-2 susceptibility and severity have been found in contemporary European populations,[7–10] one of which contains a genetic variant that increases SARS-CoV-2 susceptibility that likely increased in frequency in the ancestors of modern Europeans after interbreeding with Neanderthals.[11]

Throughout the evolutionary history of our species, positive natural selection has frequently targeted proteins that physically interact with viruses—e.g., those involved in immunity or used by viruses to hijack the host cellular machinery.[12–14] In the millions of years of human evolution, selection has led to the fixation of gene variants encoding virus-interacting proteins (VIPs) (Data S1A) at three times the rate observed for other classes of genes.[15,16] Strong selection on VIPs has continued in human populations during the past 50,000 years, as evidenced by VIP

Editorials

nature

Let patients help define long-lasting COVID symptoms

The terminology for long-lasting COVID symptoms – and the definition of recovery – must incorporate patients' perspectives.

The BMJ

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http://dx.doi.org/10.1136/bmj.m2815
Published: 14 July 2020

Covid-19: What do we know about "long covid"?

As recognition grows that many patients have long lasting effects, **Elisabeth Mahase** examines the evidence and the response

Elisabeth Mahase *clinical reporter*

What does the evidence say?

Aside from anecdotal evidence, there is as yet little research on this issue. However, it is being actively discussed within the research community. Writing in *JAMA*, a team of researchers from Italy reported that nearly nine in 10 patients (87%) discharged from a Rome hospital after recovering from covid-19 were still experiencing at least one symptom 60 days after onset. They found that 13% of the 143 people were completely free of any symptoms, while 32% had one or two symptoms, and 55% had three or more.[3] Although none of the patients had fever or any signs or symptoms of acute illness, many still reported fatigue (53%), dyspnoea (43%), joint pain (27%), and chest pain (22%). Two fifths of patients reported a worsened quality of life.

WHO's post COVID-19 condition case definition as of October 2021

"La condizione Post COVID-19 si verifica in individui con una storia di probabile o confermata infezione da SARS- CoV-2, di solito 3 mesi dall'inizio della COVID-19, con sintomi che durano per almeno 2 mesi e non possono essere spiegati da una diagnosi alternativa.
I sintomi comuni includono, tra gli altri, affaticamento, mancanza di respiro, disfunzioni cognitive e generalmente hanno un impatto sul funzionamento quotidiano. I sintomi possono essere di nuova insorgenza dopo il recupero iniziale da un episodio acuto di COVID-19 o persistere della malattia iniziale. I sintomi possono anche fluttuare o recidivare nel tempo."

* **Una definizione differente può essere applicata ai bambini**

World Health Organization

Blue: Achieved consensus in Round 1
Purple: Achieved consensus in Round 2
Orange: Achieved consensus in Delphi panel group discussion

HEALTH EMERGENCIES programme

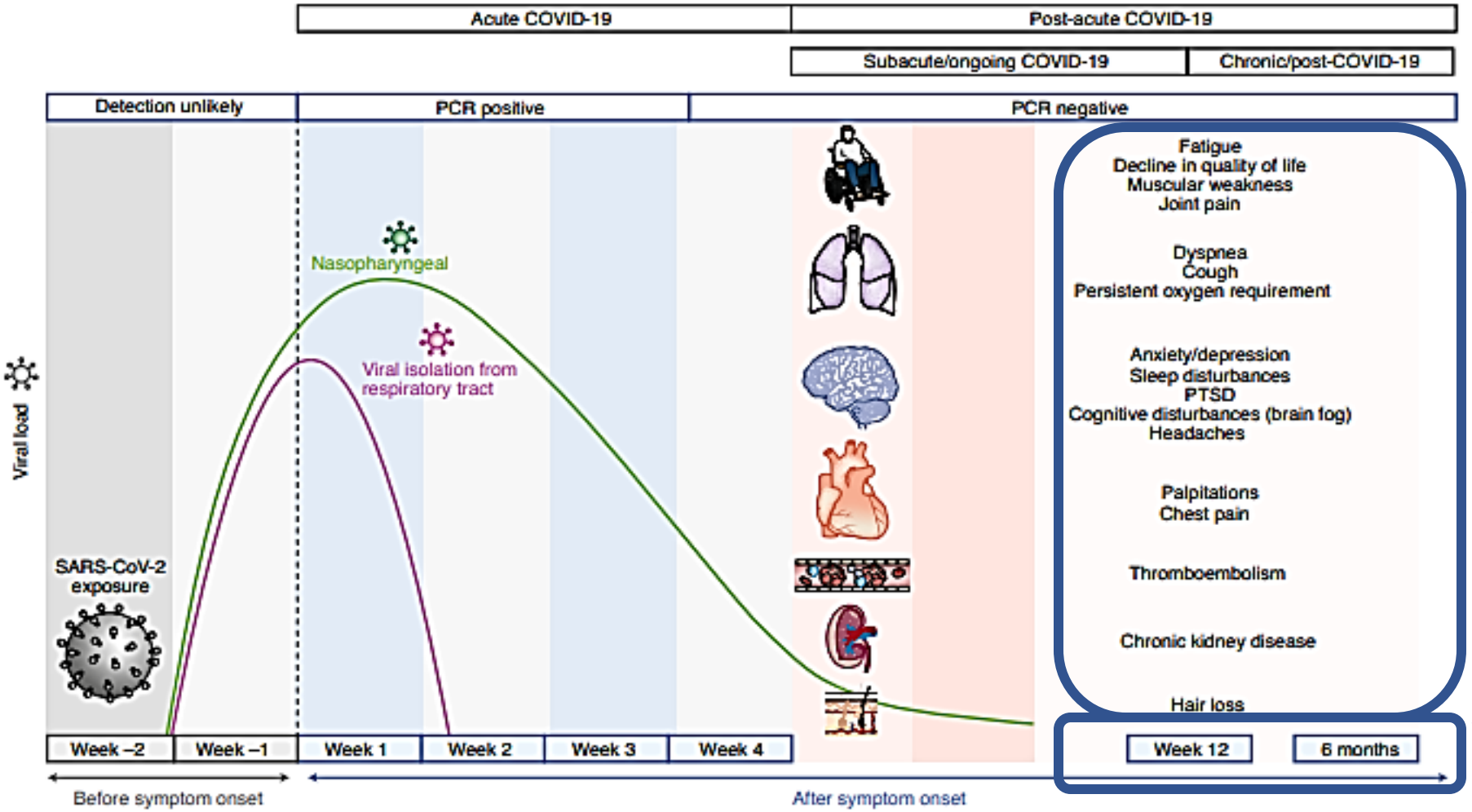


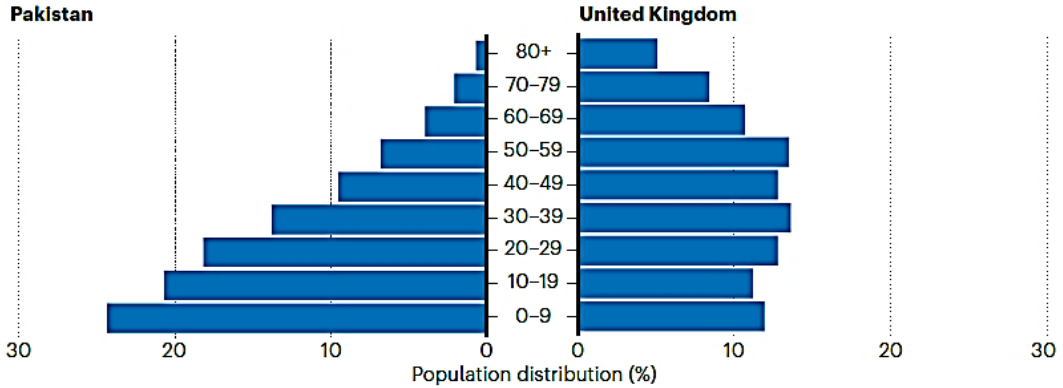
Fig. 1 | Timeline of post-acute COVID-19. Acute COVID-19 usually lasts until 4 weeks from the onset of symptoms, beyond which replication-competent SARS-CoV-2 has not been isolated. Post-acute COVID-19 is defined as persistent symptoms and/or delayed or long-term complications beyond 4 weeks from the onset of symptoms. The common symptoms observed in post-acute COVID-19 are summarized.

LIFE AND HEALTH LOST

Metrics that capture the overall burden of ill health, rather than simply counting deaths, hint at how COVID-19 might affect populations in Pakistan and the United Kingdom in the long term.

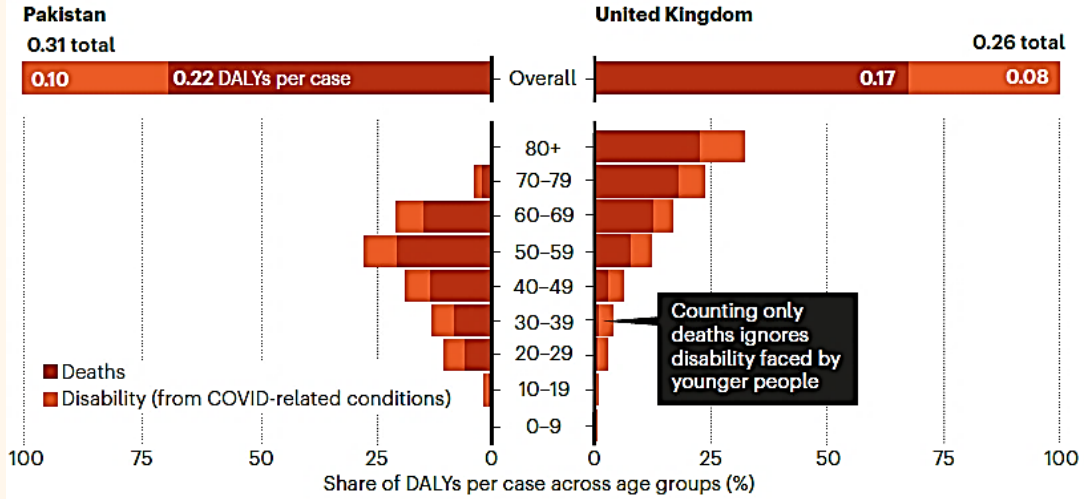
Different demographics

Pakistan's population is predominantly young; the United Kingdom's is more evenly distributed across age groups.



DALYs lost to COVID-19

Estimates using disability-adjusted life years (DALYs) suggest that, in Pakistan, most of the health burden of COVID-19 could fall on people aged 60 or under.

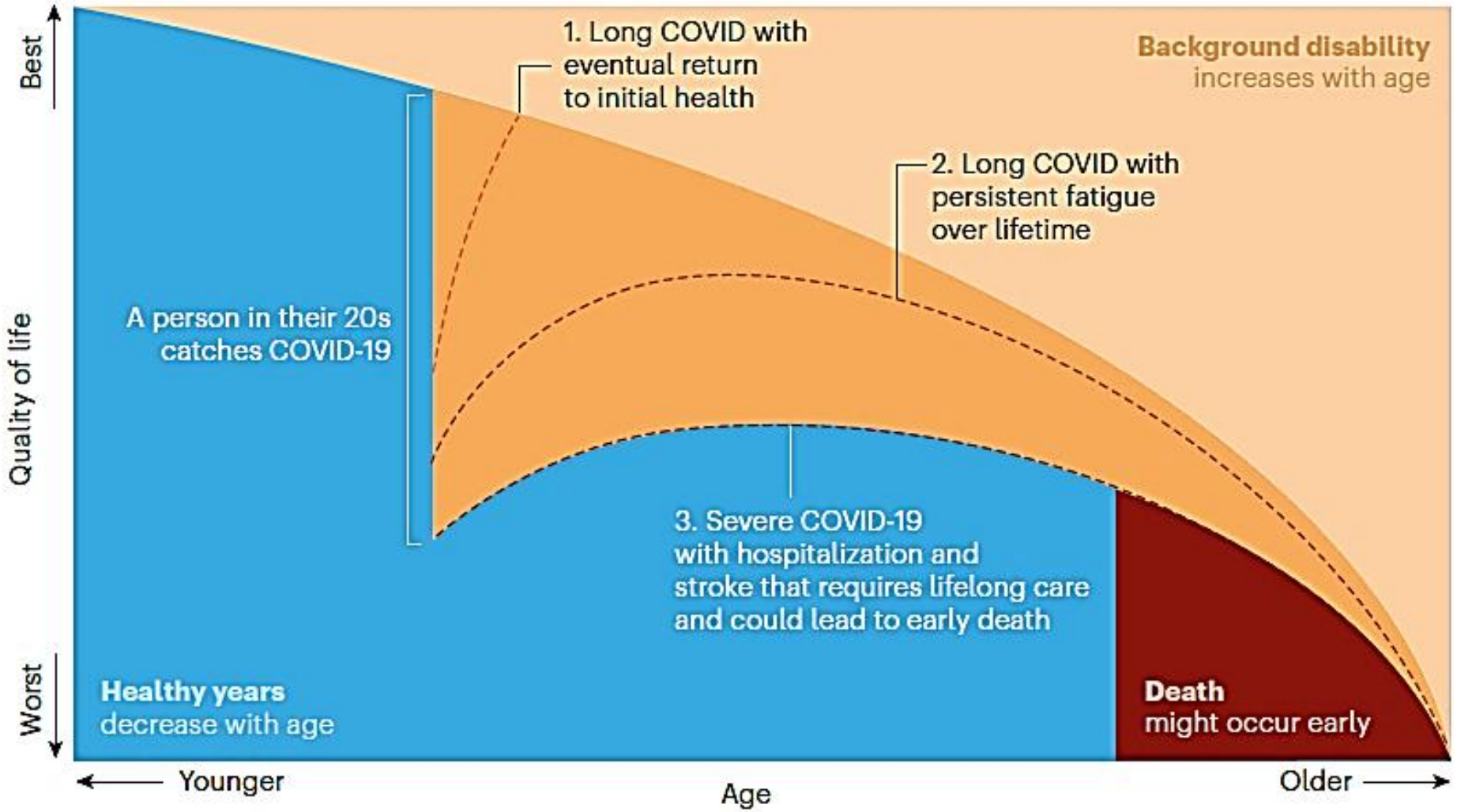


Andrew Briggs , Anna Vassall Nature | Vol 593 | 27 May 2021

https://media.nature.com/original/magazine-assets/d41586-021-01392-2/d41586-021-01392-2.pdf

COVID CASTS A LONG SHADOW

Conditions such as heart disease gradually decrease a person's quality of life (blue) and increase their disability burden (pale orange) over their lifetime. Catching COVID-19 adds an immediate disability burden (dark orange). The disease can have a wide range of outcomes; three illustrative scenarios are shown (dashed lines).



Andrew Briggs , Anna Vassall Nature | Vol 593 | 27 May 2021

https://media.nature.com/original/magazine-assets/d41586-021-01392-2/d41586-021-01392-2.pdf

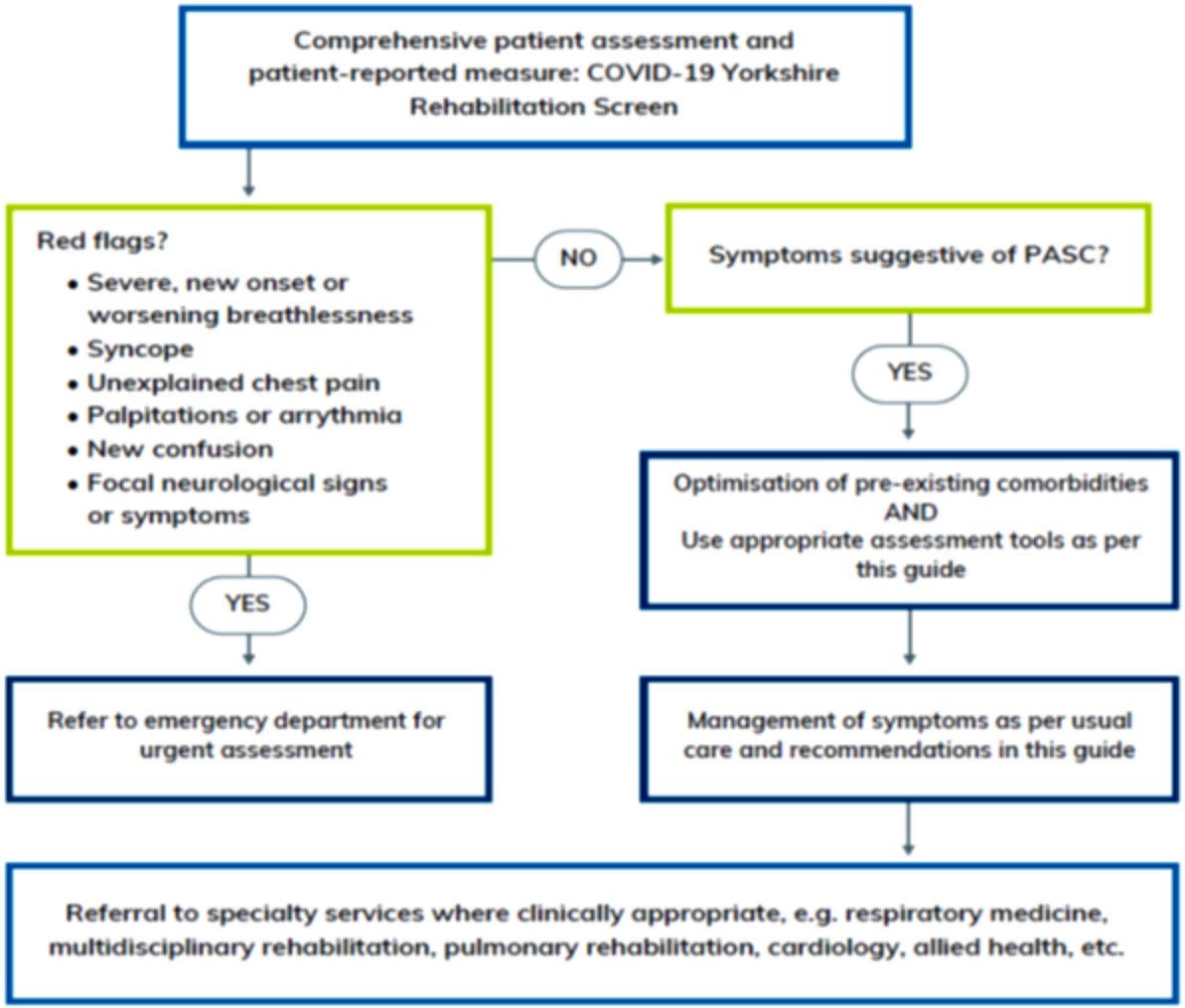
Guide to patient assessment for symptoms of PASC

aci.health.nsw.gov.au

Clinical practice guide for assessment and management of adults with post-acute sequelae of COVID-19

Guidance for NSW health clinicians

This clinical practice guide is intended for use by clinicians who provide care to adults aged 16 years and older with a history of COVID-19 diagnosis, regardless of severity or COVID-19 variant of concern.



GUIDELINES

Managing the long term effects of covid-19: summary of NICE, SIGN, and RCGP rapid guideline

Waqaar Shah, [1] Toby Hillman, [2] E Diane Playford, [3] Lyth Hishmeh

RACCOMANDAZIONI:

-Da applicare a persone in ogni SETTING SANITARIO (ospedalizzate o non ospedalizzate)

-Fornire INFORMAZIONI per la completa comprensione dei sintomi

-L'ASSESSMENT deve essere FUNZIONALE E GLOBALE: fisico, cognitivo, psicologico, psichiatrico e funzionale

-La RIABILITAZIONE deve fornire servizi multidisciplinari, integrati, sulla base dei bisogni e delle risorse disponibili

the bmj | *BMJ* 2021;372:n136 | doi: 10.1136/bmj.n136

A proposed care pathway for Long COVID

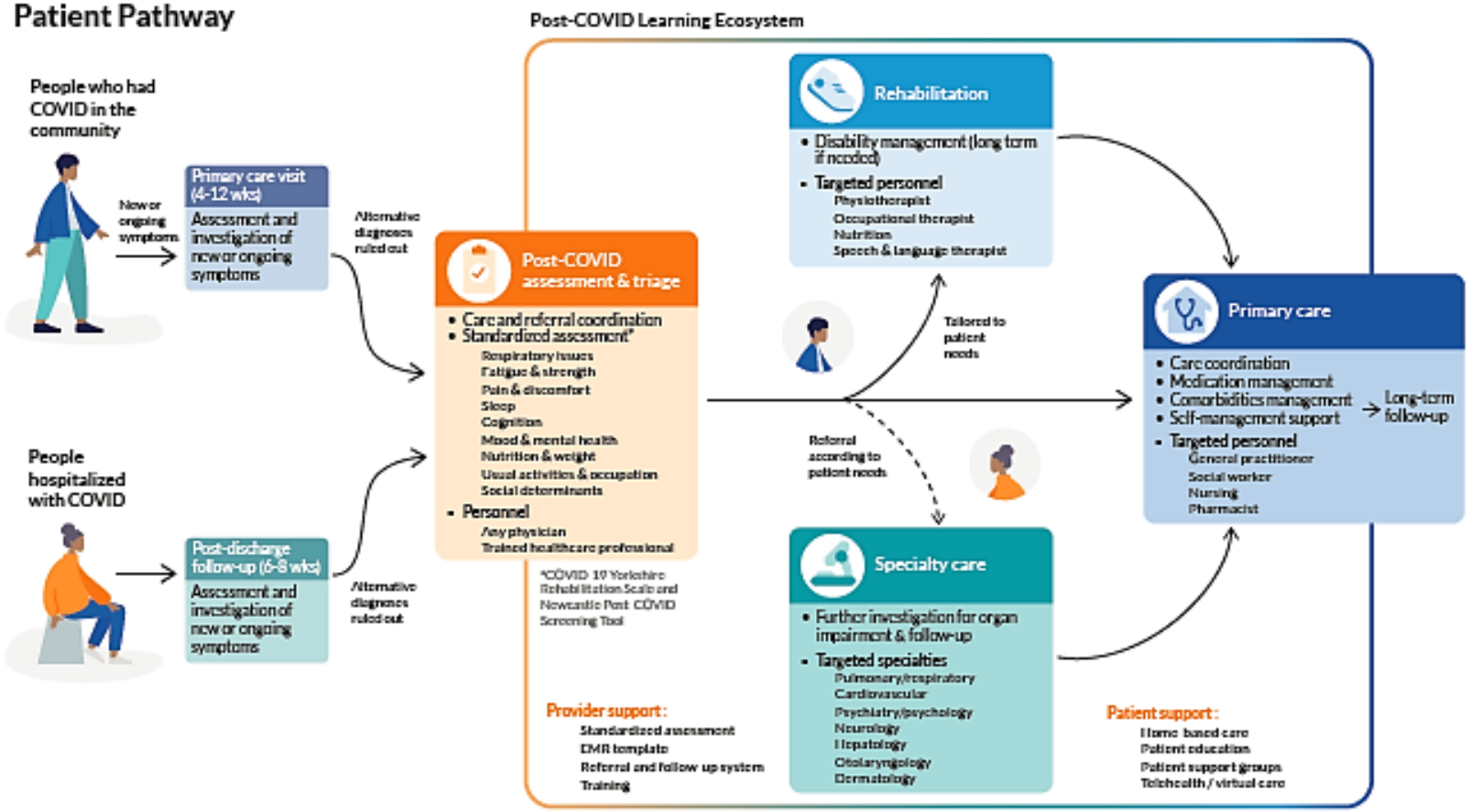
based on a rapid systematic review of care models for Long COVID - June 2021

SPOR EVIDENCE ALLIANCE · SPOR · COVID-END

OVERARCHING PRINCIPLES

- Patient-centered care
- Patient empowerment
- Evidence-based care
- Integrated & coordinated care
- Shared & multidisciplinary care

Patient Pathway



OUTCOMES

- Quality of life
- Patient experience
- Provider experience
- Sustainable cost

Components were included in the proposed pathway based on the frequency of their occurrence in the literature ; efficacy data was not available at the time of the review.
Source : Decary S, Dugas M, Stefan T, Langlois L, Skidmore B, Bhérer A, and LeBlanc A. (2021). Care Models for Long COVID – A Rapid Systematic Review. SPOR Evidence Alliance, COVID-END Network.

Gli strumenti per la valutazione multidimensionale: la valutazione clinica di base

storia di COVID-19 acuto (sospetto o confermato)

natura e gravità dei sintomi precedenti e attuali

tempistica e durata dei sintomi dall'inizio del COVID-19 acuto

storia di altre condizioni di salute e comorbidità tramite la CUMULATIVE ILLNESS RATING SCALE (CIRS)

trattamento farmacologico attuale e pregresso

METODOLOGIA PER LA STRATIFICAZIONE DEL PAZIENTE

Le caratteristiche del Post-COVID nei pazienti anziani sono in generale sovrapponibili ai pazienti delle fasce di età inferiori seppure spesso di gravità maggiore. La presenza di alcune condizioni è però di particolare rilevanza negli anziani.

Speciale attenzione va dedicata infatti all'insorgenza di sintomi della sfera cognitiva ed al peggioramento di disturbi neurocognitivi già presenti che a causa della malattia da Covid ed al conseguente isolamento subiscono una accelerazione peggiorativa.

Infine uno stato di malnutrizione è stato osservato nel 26-45% dei pazienti dopo COVID-19, e gli anziani sono particolarmente a rischio per questa condizione e per le conseguenze ad essa associate, quali fragilità e disabilità, debolezza/atrofia muscolare e sarcopenia.

Gli strumenti per la valutazione multidimensionale di aspetti importanti della fragilità

valutazione dello stato di fragilità tramite la CLINICAL FRAILTY SCALE (CFS)

valutazione dell'impatto psicologico/affettivo del COVID-19 e del Post-COVID, con particolare attenzione alla comparsa di sintomi di ansia, depressione e all'isolamento sociale. In casi selezionati andrà eseguita una valutazione formale tramite GERIATRIC DEPRESSION SCALE (GDS) a 15 item.

valutazione dell'impatto del COVID-19 e del Post-COVID sugli aspetti nutrizionali tramite il MINI NUTRITIONAL ASSESSMENT (MNA)

Gli strumenti per la valutazione multidimensionale delle menomazioni e disabilità

Test clinici per la capacità di esercizio (TimedUp&Go, Two/Six Minutes Walking Test, Sit to Stand)

Test per identificare l'intensità target per l'allenamento di forza per i vari distretti muscolari (1RM – one repetition maximum)

Scale di valutazione per la dispnea e lo sforzo percepito (mBorg).

Per una valutazione funzionale globale che permetta anche di indirizzare il paziente verso percorsi di cura differenziati si dovranno utilizzare le scale di valutazione dello stato funzionale SHORT PHYSICAL PERFORMANCE BATTERY (SPPB) e POST COVID FUNCTIONAL SCALE (PCFS)

Strumenti di valutazione validati a livello internazionale

Utili sia per le persone in fase di dimissione dall'ospedale sia per quelle ambulatoriali e domiciliari.

Vanno utilizzati in relazione ai problemi prevalenti presentati dal paziente preso in cura riabilitativa, per completare la valutazione funzionale di base.

IMPAIRMENTS	Tool	Scoring	ICF	Reference
Pain	Numeric Rating Scale	0–10	b280	Farrar JT et al.,Pain 2000
	Douleur Neurophatique 4 questions	0–10	b280	Bouhassira D et al.,Pain 2005
Anxiety	Hospital Anxiety and Depression Scale	0–21	b152	Zigmond AS et al., Acta PsychiatrScand. 1983
Dyspnea	Modified Dyspnea Borg Scale	0–10	b460	Muza SR et al.,AmRevRespirDis. 1990
Muscle strength	MRC muscleTesting	0–5	b730	MedicalResearchCouncil, Memorandum no.45 1976
Dysphagia	Three oz-Water Swallow Test	Yes/no	B510.5	De Pippo KL et al.,ArchNeurol. 1992
Fatigue	Fatigue Severity Scale	mean score	b455	Krupp LB et al.,ArchNeurol. 1989
ACTIVITIES				
Mobility and Walking	Timed Up and Go Test	≤12 ss	b510	Podsiadlo D et al., J AmGeriatrSoc. 1991
	6 Minute Walking Test	meters/6 min	b450	ATS, Am J RespirCrit Care Med. 2002
DISABILITY				
Activities of Daily Living	Modified Barthel Index	0–100	d450< x > d560	Shah S et al., J ClinEpidemiol. 1989
PROMs (Patient Reported Outcomes Measures)				
Quality of Life	SF-12	Physical (PCS) and Mental (MCS) composite scores 0–100		Gandek B et al., J ClinEpidemiol. 1998
	EQ-5D	Score 1 (no problem) to 3 (the worstproblem) in the 5 items		EuroQoL Group, Health Policy 1990 Rabin R et al., www.euroqol.org 2011

Pinto M et al Int J Environ Res Public Health 2020, 17, 9339

Punteggio	0	1	2	3	4
Equilibrio Prova	Piedi paralleli	Semitandem 0 – 9"	Tandem 0-2"	Tandem 3" – 9"	Tandem 10"
Cammino m 4 Tempo	Incapace	>7,5"	7,4" - 5,4"	5,3" - 4,1"	<4,1"
SIT to STAND Tempo	Incapace	<16,6"	16,6" - 13,7"	13,6" - 11,2"	<11,2"

SCORE SPPB E STRATIFICAZIONE DEI PAZIENTI

Normalmente la **stratificazione dei pazienti** può essere così suddivisa

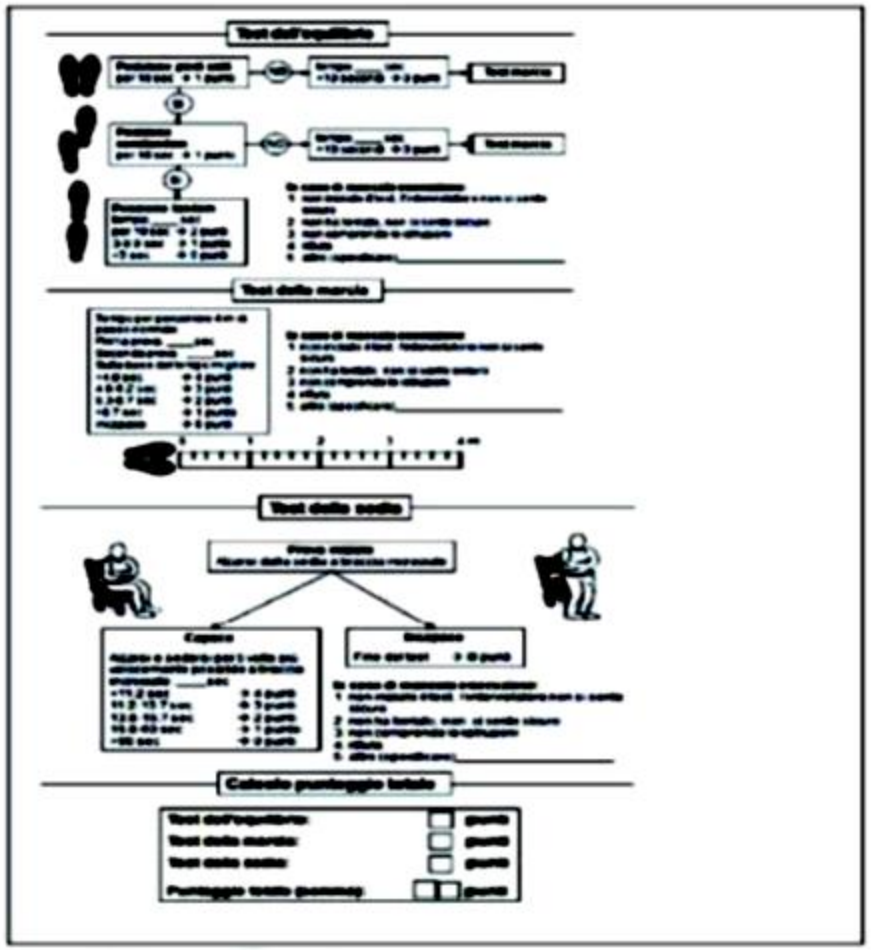
0-6 Altissimo grado di fragilità clinica

7-9 Grado intermedio di fragilità clinica

10-12 Assenza di fragilità clinica

Va sempre considerata la **concomitanza di una situazione di sarcopenia**

SPPB: Short Physical Performance Battery



Guralnik JM, Simonsick EM, Ferrucci L, et al. A short physical performance battery assessing lower extremity function: association with self-reported disability and prediction of mortality and nursing home admission. *J Gerontol*. 1994 Mar 1;49(2):M85-94.

SPPB Guide

Novartis Pharmaceuticals Corporation

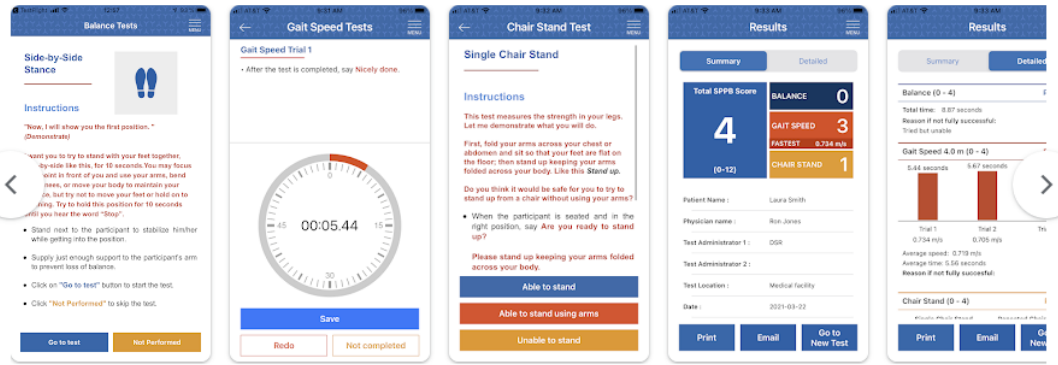
500+
Download

PEGI 3

Installa

Aggiungi alla lista desideri

Questa app è disponibile per alcuni dei tuoi dispositivi

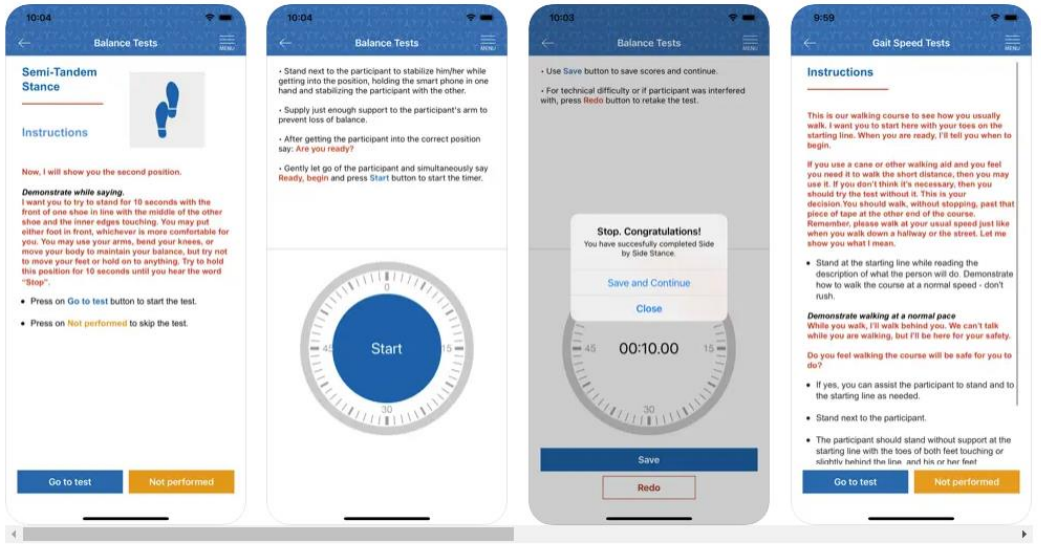


SPPB Guide 4+

Novartis Pharmaceuticals Corporation

Gratis

Screenshot iPhone



SCALA RPE	SCALA CR10
6	0
7	0
8	0,5
9	1
10	1,5
11	2
12	3
13	3,5
14	4,5
15	5,5
16	6,5
17	7,5
18	9
19	10
20	°

ISTRUZIONI COMPLEMENTARI DA DARE AL PAZIENTE PER LA PERCEZIONE DELLO SFORZO USANDO LA SCALA CR10

Noi vogliamo che valuti la sua percezione dello sforzo cioè quanto faticoso ed estenuante sente l'esercizio. La percezione dello sforzo dipende soprattutto dallo stiramento e dalla fatica dei suoi muscoli e dalla sua sensazione di mancanza di respiro o dolore al petto.

Noi vogliamo che usi questa scala da 0 a 10 e °, dove 0 significa " *nessuno sforzo*" e 10 significa "*estremamente forte-max P*" cioè il massimo sforzo che ha precedentemente sperimentato.

1 corrisponde ad esercizio "*molto leggero*". Per una persona normale e sana è come camminare lentamente al suo passo per diversi minuti

3 sulla scala è un esercizio "*moderato*". Non è poi così duro, va tutto bene e non ci sono problemi a continuare l'esercizio

5 corrisponde ad un esercizio "*pesante*". È faticoso e si sente stanco, ma non ci sono ancora grosse difficoltà a continuare.

7 è "*molto pesante*" è veramente faticoso. Una persona sana può continuare ma deve sforzarsi molto.

10 sulla scala è un livello d'esercizio estremamente faticoso. È "max P". Per molte persone questo è un esercizio così faticoso che non avevano mai sperimentato prima nella loro vita.

° il pallino denota una percezione dello sforzo che è più forte di 10, "*estremamente faticoso*".
È il tuo "massimo assoluto", p. es. 12, 13, o anche più alto. È il livello più alto possibile di sforzo.
Qual è il "massimo sforzo" (il suo "max P") di cui ha precedentemente fatto esperienza nella vita?
Lo usi come il suo 10.

Cerchi di valutare le sue sensazioni il più onestamente possibile senza pensare all'effettivo carico fisico. Cerchi di non sottostimare ma nemmeno sovrastimare. Ciò che è importante è la sua sensazione di impegno e di sforzo, non il paragone con le altre persone. Cosa pensano le altre persone non è importante.
Guardi la scala, scelga l'espressione e poi assegni un numero.
Ha domande da fare?

Brain, Behavior, and Immunity 101 (2022) 93–135

Contents lists available at ScienceDirect

Brain Behavior and Immunity

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

Review Article

Fatigue and cognitive impairment in Post-COVID-19 Syndrome: A systematic review and meta-analysis

Felicia Ceban [a,b], Susan Ling [a,d], Leanna M.W. Lui [a], Yena Lee [a,c], Hartej Gill [a], Kayla M. Teopiz [a], Nelson B. Rodrigues [a], Mehala Subramaniapillai [a], Joshua D. Di Vincenzo [a,d], Bing Cao [e], Kangguang Lin [f,g], Rodrigo B. Mansur [a,h], Roger C. Ho [i,j], Joshua D. Rosenblat [a,d,h], Kamilla W. Miskowiak [k,l], Maj Vinberg [m,n], Vladimir Maletic [o], Roger S. McIntyre [a,b,c,d,h,*]

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CLINICAL GUIDANCE

PM&R

Multidisciplinary collaborative consensus guidance statement on the assessment and treatment of fatigue in postacute sequelae of SARS-CoV-2 infection (PASC) patients

Journal of Psychosomatic Research 154 (2022) 110726

Contents lists available at ScienceDirect

Journal of Psychosomatic Research

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

Editorial

A research agenda for post-COVID-19 fatigue

I LUOGHI DELLA CURA online

Numero 2-2021

Programma di ricondizionamento motorio del paziente con sindrome post Covid-19

In seguito all'infezione da Covid, le persone possono avere per molti mesi una malattia cronica debilitante, il cosiddetto "Covid lungo". La sua gestione è una nuova sfida, perché ad oggi le esperienze sono limitate. Iniziano ad essere adottati approcci riabilitativi non farmacologici, che includono programmi di ricondizionamento per coloro che soffrono di stanchezza cronica, e sessioni con neuropsicologi per coloro che soffrono di problemi cognitivi.

di Marina Simoncelli (MD Direttore UOC Medicina Riabilitativa- Azienda Ospedaliera "Ospedali Riuniti Marche Nord"), Lucia Paoloni (MD Medicina Riabilitativa- Azienda Ospedaliera "Ospedali Riuniti Marche Nord")

Patient Name: _____ DOB: _____ Date: _____

Fatigue Severity Scale (FSS)

The Fatigue Severity Scale (FSS) is a method of evaluating the impact of fatigue on you. The FSS is a short questionnaire that requires you to rate your level of fatigue.

The FSS questionnaire contains nine statements that rate the severity of your fatigue symptoms. Read each statement and circle a number from 1 to 7, based on how accurately it reflects your condition during the past week and the extent to which you agree or disagree that the statement applies to you.

- A low value (e.g., 1) indicates strong disagreement with the statement, whereas a high value (e.g., 7) indicates strong agreement.
- It is important that you circle a number (1 to 7) for every question.

FSS Questionnaire

During the past week, I have found that:	Disagree ← → Agree						
1. My motivation is lower when I am fatigued.	1	2	3	4	5	6	7
2. Exercise brings on my fatigue.	1	2	3	4	5	6	7
3. I am easily fatigued.	1	2	3	4	5	6	7
4. Fatigue interferes with my physical functioning.	1	2	3	4	5	6	7
5. Fatigue causes frequent problems for me.	1	2	3	4	5	6	7
6. My fatigue prevents sustained physical functioning.	1	2	3	4	5	6	7
7. Fatigue interferes with carrying out certain duties and responsibilities.	1	2	3	4	5	6	7
8. Fatigue is among my three most disabling symptoms.	1	2	3	4	5	6	7
9. Fatigue interferes with my work, family, or social life.	1	2	3	4	5	6	7
					Total Score:		

Scoring your results
Now that you have completed the questionnaire, it is time to score your results and evaluate your level of fatigue. It's simple: Add all the numbers you circled to get your score.

The fatigue Severity Scale key
A total score of less than 36 suggests that you may not be suffering from fatigue.
A total score of 36 or more suggests that you may need further evaluation by a physician.

Your next steps
This scale should not be used to make your own diagnosis.
If your score is 36 or more, please share this information with your physician. Be sure to describe all your symptoms as clearly as possible to aid in your diagnosis and treatment.

Patient Name: _____ DOB: _____ Date: _____

Epworth Sleepiness Scale (ESS)

The following questionnaire will help you measure your general level of daytime sleepiness. You are to rate the chance that you would doze off or fall asleep during different routine daytime situations. Answers to the questions are rated on a reliable scale called the Epworth Sleepiness Scale (ESS). Each item is rated from 0 to 3, with 0 meaning you would never doze or fall asleep in a given situation, and 3 meaning that there is a very high chance that you would doze or fall asleep in that situation.

How likely are you to doze off or fall asleep in the following situations, in contrast to just feeling tired? Even if you haven't done some of these activities recently, think about how they would have affected you.

Use this scale to choose the most appropriate number for each situation:
0 = would never dose
1 = slight chance of dozing
2 = moderate chance of dozing
3 = high chance of dozing

It is important that you circle a number (0 to 3) on each of the questions.

Situation	Chance of dozing (0-3)			
Sitting and reading	0	1	2	3
Watching television	0	1	2	3
Sitting inactive in a public place --- for example, a theater or meeting	0	1	2	3
As a passenger in a car for an hour without a break	0	1	2	3
Lying down to rest in the afternoon	0	1	2	3
Sitting and talking to someone	0	1	2	3
Sitting quietly after lunch (when you've had no alcohol)	0	1	2	3
In a car, while stopped in traffic	0	1	2	3
	Total Score:			

Scoring your results
Now that you have completed the questionnaire, it is time to score your results and evaluate your own level of daytime sleepiness. It's simple. Just add up the numbers you put in each box to get your total score.

The Epworth Sleepiness Scale key
A total score of less than 10 suggests that you may not be suffering from excessive daytime sleepiness.
A total score of 10 or more suggests that you may need further evaluation by a physician to determine the cause of your excessive daytime sleepiness and whether you have an underlying sleep disorder.

Your next steps
This scale should not be used to make your own diagnosis. It is intended as a tool to help you identify your own level of daytime sleepiness, which is a symptom of many sleep disorders.
If your score is 10 or more, please share this information with your physician. Be sure to describe all your symptoms, as clearly as possible, to aid in your diagnosis and treatment.
It is important to remember that true excessive daytime sleepiness is almost always caused by an underlying medical condition that can be easily diagnosed and effectively treated.

TABLE 1 PASC fatigue assessment recommendations

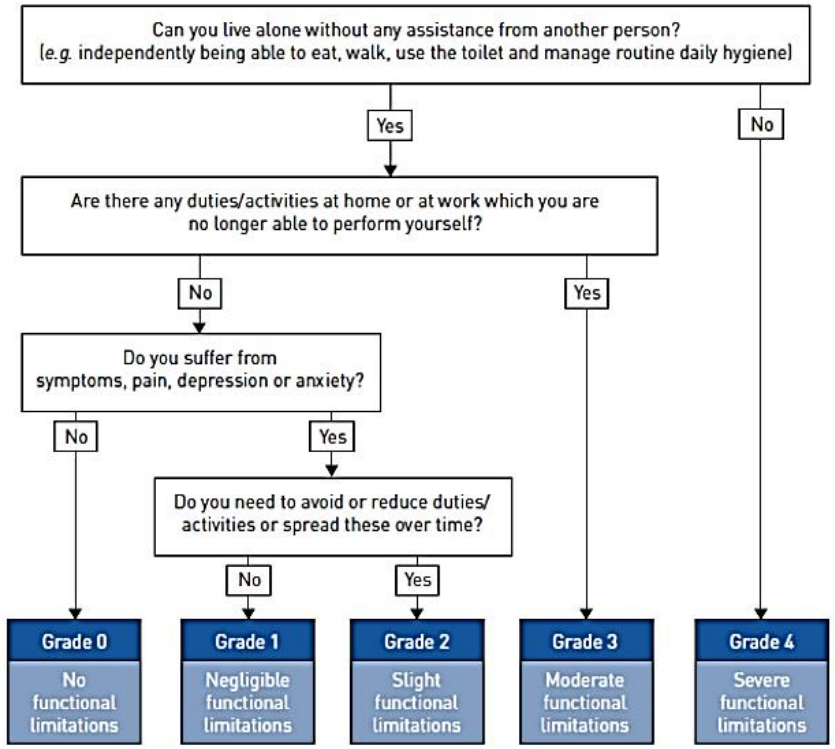
#	Statement
1	Patients should be assessed for fatigue patterns throughout their normal day to guide activity recommendations.
1a	Patients should be assessed for their responses to initiating and escalating activity on their fatigue.
1b	Patients should be evaluated for changes in daily functioning and activity levels.
1c	Patients' physical functioning and endurance should be assessed to inform activity and therapy recommendations. (Examples of tests that can be chosen based on an individual's activity tolerance: 30 s sit to stand[55]; 2-min step (seated or standing)[56]; 6 min walk test[57]; 10 m walk test[58]).
2	Clinicians should assess for changes in activities of daily living, independent activities of daily living, school, work, and avocational (ie, hobbies)
3	A full patient history with review of preexisting conditions should be conducted
4	Patients should be evaluated for conditions that may exacerbate fatigue symptoms and warrant further testing and potential subspecialty referral (see Table 2). Particular areas include: • Sleep • Mood, including anxiety, depression and PTSD. Note: Patients often report dissatisfaction with their care because of their persistent symptoms being attributed to psychological factors. It is important to note that mood disorders may be secondary to persistent medical issues or one of many factors leading to fatigue. • Cardiopulmonary • Autoimmune • Endocrine
5	A medication review should be conducted to investigate medications that may be contributing to fatigue. Of note, antihistamine, anticholinergic, and antidepressant/anxiolytic medications can contribute to fatigue in patients with PASC.
6	The following basic lab workup should be considered in new patients or those without lab workup in the 3 months before visit including complete blood count with differential, chemistries including renal and hepatic function tests, thyroid stimulating hormone, c-reactive protein or erythrocyte sedimentation rate, and creatinine kinase. Other laboratory tests may be considered based on the results of these tests or if there is specific concern for comorbid conditions as outlined in Table 2.

Abbreviations: PASC, postacute sequelae of SARS-CoV-2 infection; PTSD, posttraumatic stress disorder.

Herrera JE, Niehaus WN, Whiteson J, et al. Multidisciplinary collaborative consensus guidance statement on the assessment and treatment of fatigue in postacute sequelae of SARS-CoV-2 infection (PASC) patients. PM&R. 2021;13(9):1027-1043

Part 1: Post COVID Functional Status Scale (PCFS)

a)



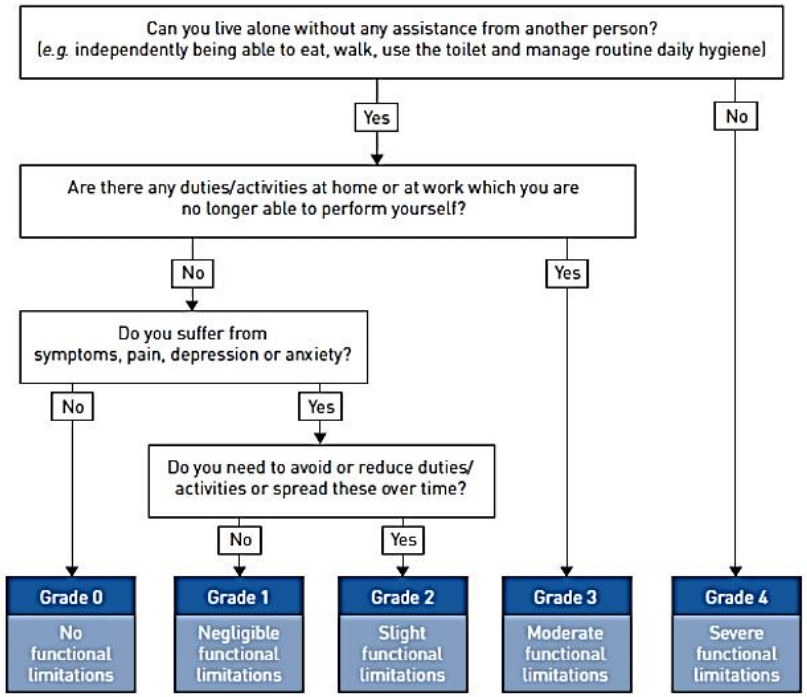
b)

How much are you currently affected in your everyday life by COVID-19? (Please indicate which one of the following statements applies to you most)	Corresponding PCFS scale grade
I have no limitations in my everyday life and no symptoms, pain, depression or anxiety related to the infection.	0
I have negligible limitations in my everyday life as I can perform all usual duties/ activities, although I still have persistent symptoms, pain, depression or anxiety.	1
I suffer from limitations in my everyday life as I occasionally need to avoid or reduce usual duties/activities or need to spread these over time due to symptoms, pain, depression or anxiety. I am, however, able to perform all activities without any assistance.	2
I suffer from limitations in my everyday life as I am not able to perform all usual duties/ activities due to symptoms, pain, depression or anxiety. I am, however, able to take care of myself without any assistance.	3
I suffer from severe limitations in my everyday life: I am not able to take care of myself and therefore I am dependent on nursing care and/or assistance from another person due to symptoms, pain, depression or anxiety.	4

FIGURE 1 Patient self-report methods for the Post-COVID-19 Functional Status (PCFS) scale. a) Flowchart. b) Patient questionnaire. Instructions for use: 1) to assess recovery after the SARS-CoV-2 infection, this PCFS scale covers the entire range of functional limitations, including changes in lifestyle, sports and social activities; 2) assignment of a PCFS scale grade concerns the average situation of the past week (exception: when assessed at discharge, it concerns the situation of the day of discharge); 3) symptoms include (but are not limited to) dyspnoea, pain, fatigue, muscle weakness, memory loss, depression and anxiety; 4) in case two grades seem to be appropriate, always choose the highest grade with the most limitations; 5) measuring functional status before the infection is optional; 6) alternatively to this flowchart and patient questionnaire, an extensive structured interview is available. The full manual for patients and physicians or study personnel is available from https://osf.io/qgpdv/ (free of charge).

Part 1: Post COVID Functional Status Scale (PCFS)

a)



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I have no limitations in my everyday life and no symptoms, pain, depression or anxiety related to the infection.	0
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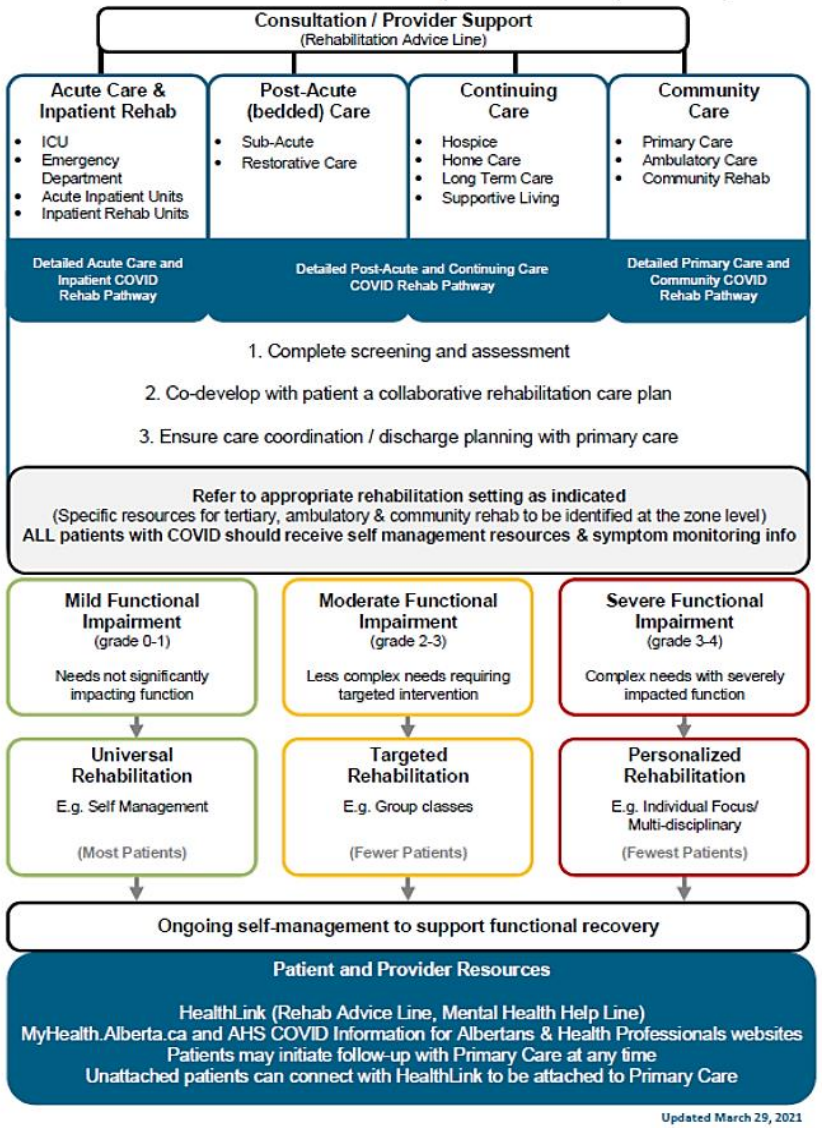
FIGURE 1 Patient self-report methods for the Post-COVID-19 Functional Status (PCFS) scale. a) Flowchart. b) Patient questionnaire. Instructions for use: 1) to assess recovery after the SARS-CoV-2 infection, this PCFS scale covers the entire range of functional limitations, including changes in lifestyle, sports and social activities; 2) assignment of a PCFS scale grade concerns the average situation of the past week (exception: when assessed at discharge, it concerns the situation of the day of discharge); 3) symptoms include (but are not limited to) dyspnoea, pain, fatigue, muscle weakness, memory loss, depression and anxiety; 4) in case two grades seem to be appropriate, always choose the highest grade with the most limitations; 5) measuring functional status before the infection is optional; 6) alternatively to this flowchart and patient questionnaire, an extensive structured interview is available. The full manual for patients and physicians or study personnel is available from https://osf.io/qgpdv/ (free of charge).

Provincial COVID Rehabilitation Response Overview (for Adults)



https://www.albertahealthservices.ca/assets/info/ppih/if-ppih-covid-19-post-covid-rehab-response-framework-summary.pdf

Methods PCFS Scale was evaluated in 121 patients together with quality of life and dyspnoea questionnaires, pulmonary function tests and CT scans.

Results We observed a high correlation with multiple questionnaires (Short Form-36, Hospital Anxiety and Depression Scale, modified Medical Research Council, end Borg Six-Minute Walk Test), making the PCFS Scale a quick and global tool to evaluate functional limitations related to various persistent symptoms following COVID-19 pneumonia.

Discussion The PCFS Scale seems to be a suitable instrument to screen for patients who will require careful follow-up after COVID-19 hypoxemic pneumonia even in the absence of pulmonary sequelae.

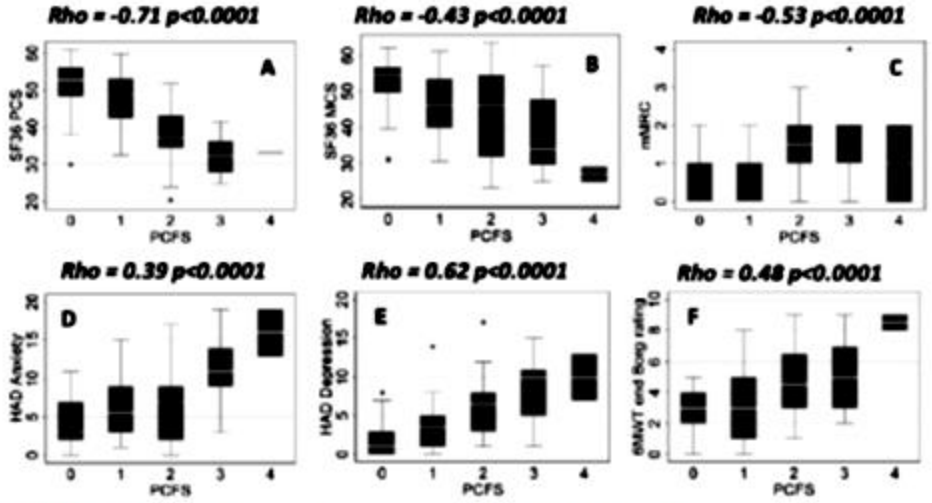
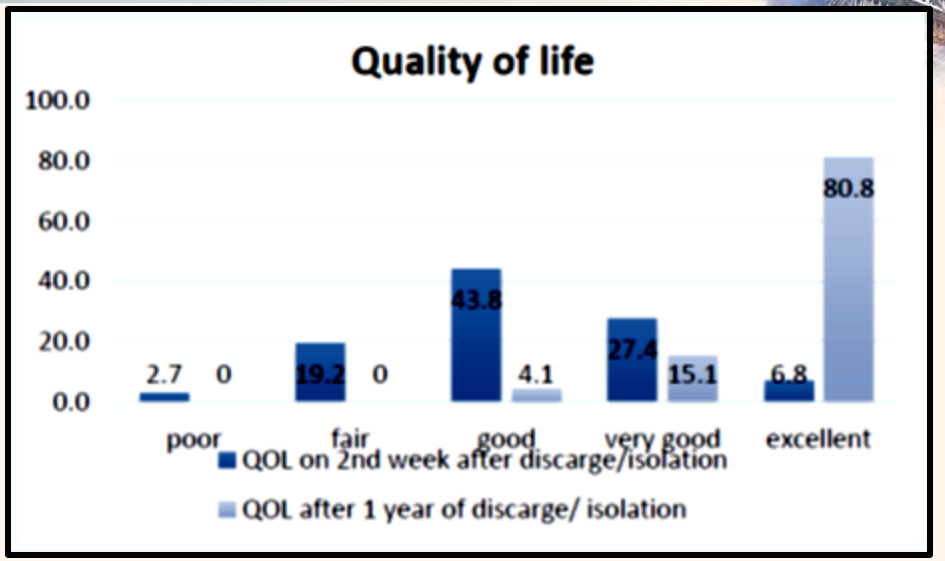
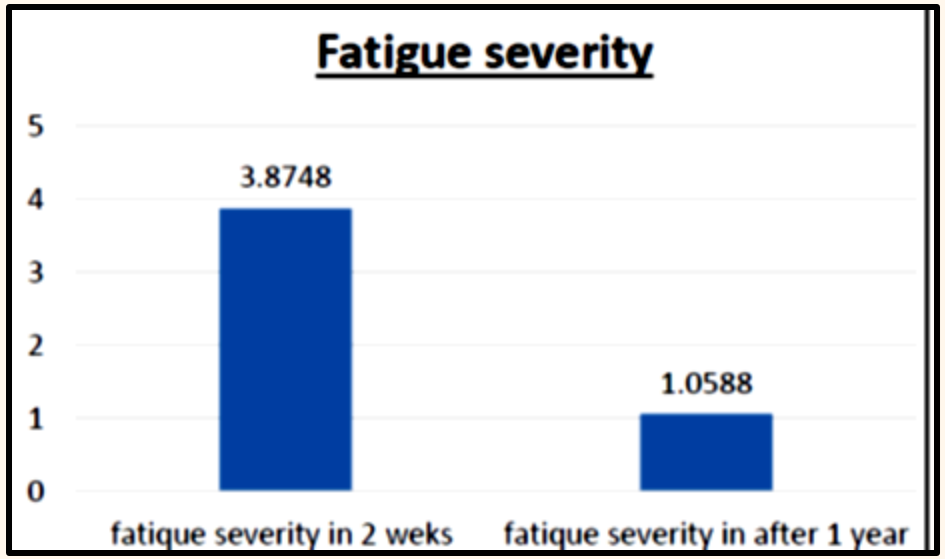


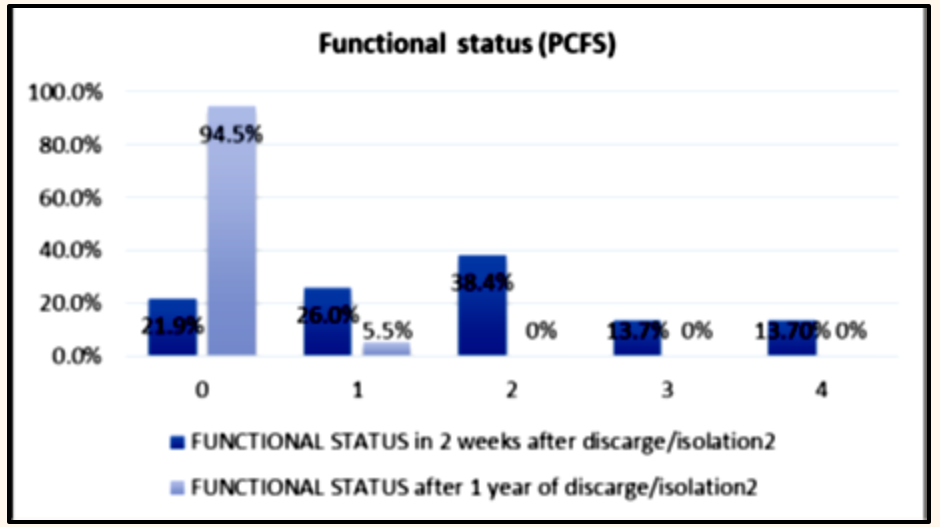
Figure 1 PCFS Scale correlates with SF-36 scores, mMRC dyspnoea scale, HAD Scale and the 6MWT end Borg rating. (A) Correlation between the SF-36 physical composite score and the PCFS scale. (B) Correlation between the SF-36 mental composite score and the PCFS scale. (C) Correlation between the mMRC and the PCFS Scale. (D) Correlation between the HAD A and the PCFS scale. (E) Correlation between the HAD D and the PCFS scale. (F) Correlation between the end 6MWT Borg scale and the PCFS Scale. 6MWT, Six-Minute Walk Test; HAD, Hospital Anxiety and Depression; mMRC, modified Medical Research Council; PCFS, Post-COVID-19 Functional Status; SF-36, Short Form-36.

Benkalfate N, *et al*. *BMJ Open Resp Res* 2022;9:e001136. doi:10.1136/bmjresp-2021-001136

CONCLUSION: The quality of life and Functional status in post COVID-19 patients is improved after 1 year as compare to 2nd week.
Fatigue severity is less after 1 year of covid-19 as compared to 2nd week. But fatigue still persists in negligible percentage after 1 year of covid-19.
So the study concludes that covid-19 might lead to long term physical illness.







Renuka Sarap et.al. Evaluation of quality of life, fatigue severity and functional status in post covid-19 patients - cross over longitudinal study International Journal of Health Sciences and Research Vol.12; Issue: 9; September 2022 Website: www.ijhsr.org

C19-YRS

The C19-YRS outcome measure is a clinically validated screening tool recommended for use by NHS England to routinely capture the severity of symptoms that persist longer than 4 or more weeks after contracting COVID-19.

The original format was developed by clinical academics at The University of Leeds, Leeds Community Healthcare, and Leeds Teaching Hospitals NHS Trusts based on clinical research across the West Yorkshire region. It has now been adopted across the UK in the NHS and globally, with significant supporting evidence and references in the literature.

The digital platform has been developed by the digital health company, ELAROS, in a partnership with The University of Leeds, and both Leeds NHS Trusts. The digital system has been:

- **Recommended by NHS England**
- **Funded by the National Institute for Health Research**
- **Recognised by NICE**
- **Developed with several NHS Trusts and is currently live across the UK**
- **Endorsed by the British Society for Rehabilitation Medicine**
- **Featured on BBC North West, ITV News, Daily Mail online and more, to demonstrate its success with patients and clinics**

This is a not for profit initiative for all NHS organisations.

Photo credit: ITV News

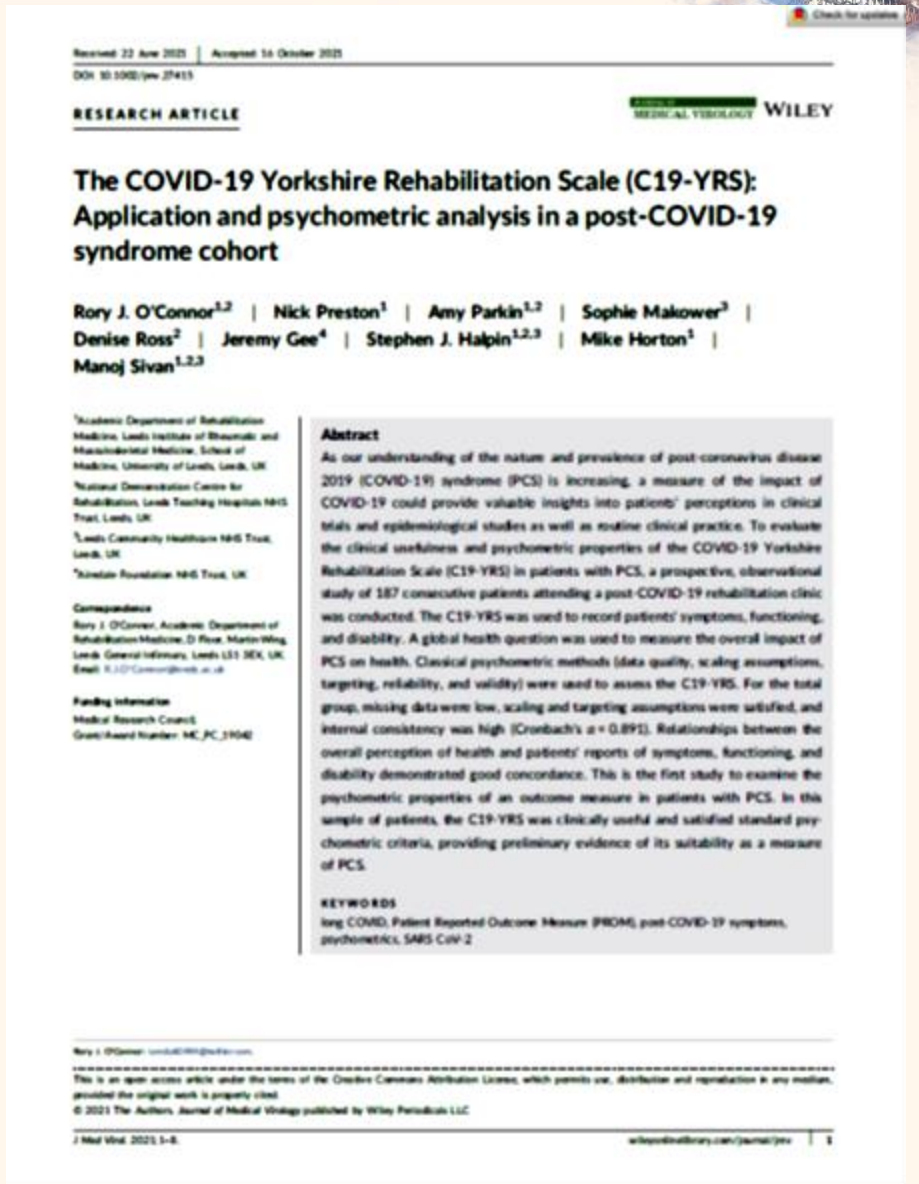
'Ground-breaking' new app to help Long Covid patients first used in Salford

The COVID-19 Yorkshire Rehabilitation Scale (C19-YRS) is a 22-item patient-reported outcome measure designed to evaluate the long-term impact of COVID-19 across the domains of Activities and Participation of the International Classification of Functioning, Disability, and Health and evaluate the impact of PCS rehabilitation.

The C19-YRS now includes clinician-completed, self-report, and digital versions.

Content validity of the C19-YRS has been demonstrated and the C19-YRS is now used in the UK's first specialist PCS community rehabilitation service and 26 other National Health Service (NHS) PCS services in the UK.

This article describes the first stage in establishing the initial psychometric properties of the C19-YRS as an outcome measure for PCS using classical test theory.



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DOI: 10.1002/jmv.27415

RESEARCH ARTICLE

JOURNAL OF MEDICAL VIROLOGY WILEY

The COVID-19 Yorkshire Rehabilitation Scale (C19-YRS): Application and psychometric analysis in a post-COVID-19 syndrome cohort

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Abstract

As our understanding of the nature and prevalence of post-coronavirus disease 2019 (COVID-19) syndrome (PCS) is increasing, a measure of the impact of COVID-19 could provide valuable insights into patients' perceptions in clinical trials and epidemiological studies as well as routine clinical practice. To evaluate the clinical usefulness and psychometric properties of the COVID-19 Yorkshire Rehabilitation Scale (C19-YRS) in patients with PCS, a prospective, observational study of 187 consecutive patients attending a post-COVID-19 rehabilitation clinic was conducted. The C19-YRS was used to record patients' symptoms, functioning, and disability. A global health question was used to measure the overall impact of PCS on health. Classical psychometric methods (data quality, scaling assumptions, targeting, reliability, and validity) were used to assess the C19-YRS. For the total group, missing data were low, scaling and targeting assumptions were satisfied, and internal consistency was high (Cronbach's $\alpha = 0.891$). Relationships between the overall perception of health and patients' reports of symptoms, functioning, and disability demonstrated good concordance. This is the first study to examine the psychometric properties of an outcome measure in patients with PCS. In this sample of patients, the C19-YRS was clinically useful and satisfied standard psychometric criteria, providing preliminary evidence of its suitability as a measure of PCS.

KEYWORDS
long COVID, Patient Reported Outcome Measure (PROM), post-COVID-19 symptoms, psychometrics, SARS CoV-2

Rory J. O'Connor

This is the first study to examine the psychometric properties of a PCS-specific outcome measure that captures and evaluates the symptoms experienced by patients.

In this sample of patients, the C19-YRS was clinically useful and satisfied standard psychometric criteria.

The C19-YRS shows good internal consistency, and scaling and targeting assumptions were satisfied.

This provides preliminary evidence that the C19-YRS outcome measure of PCS patients has satisfactory Psychometric properties

TABLE 2 Patients' scores on the C19-YRS sub-scales

Subscale (scale range)	Valid scores	Mean (*SD*)	Median (IQR)	Score range	Skewness
Symptom severity (0–100)	125	42.7 (0.36)	40.0 (31.0–54.5)	10–81	0.232
Functional disability (0–50)	153	18.8 (10.7)	17 (11.0–26.5)	0–48	0.535
Additional symptoms (0–60)	155	18.8 (10.8)	18.0 (10.0–28.0)	0–48	0.246
Overall health (0–10)	183	4.6 (2.1)	4.0 (3.0–6.0)	0–10	0.265

Note: Data are only presented for patients with complete subscale scores.

Abbreviations: C19-YRS, COVID-19 Yorkshire Rehabilitation Scale; COVID-19, coronavirus disease 2019; IQR, interquartile range; *SD*, standard deviation.

TABLE 3 Psychometric properties of the C19-YRS sub-scales

	Symptom severity	Functional disability	Additional symptoms	Overall health
Scaling assumptions				
Item means: range	0.9–7.2	3.5–4.9	3.5–4.6	4.0–4.9
Item *SD*: range	1.9–3.3	0.3–1.5	1.1–1.6	0.8–1.1
Item-total correlations	0.24–0.62	0.39–0.67	0.16–0.62	
Targeting				
Missing data (%): range	0.5–19.8	0.5–15.5	5.9–12.3	2.1
Floor effects (%): range	5.3–72.7	16.4–61.0	15.0–66.8	2.1
Ceiling effects (%): range	0.0–9.6	0.5–4.8	0.0–10.2	1.1
Reliability				
Cronbach's α	0.79	0.79	0.70	

Abbreviations: C19-YRS, COVID-19 Yorkshire Rehabilitation Scale; COVID-19, coronavirus disease 2019; *SD*, standard deviation.

TABLE 4 Correlation of the C19-YRS sub-scales with the overall health scale*

	Pearson's correlation (significance) across subscales		
	Symptom severity	Functional disability	Additional symptoms
Overall health	−0.322 (<0.001)	−0.352 (<0.001)	−0.208 (0.010)
Additional symptoms	0.657 (<0.001)	0.515 (<0.001)	
Functional disability	0.772 (<0.001)		

Abbreviations: C19-YRS, COVID-19 Yorkshire Rehabilitation Scale; COVID-19, coronavirus disease 2019.

*Overall health was reversed scored compared to item severity, so that an overall health score of "10" reflected the best possible health, in contrast to item severity where "10" reflected the worst possible severity of the symptom.

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RESEARCH ARTICLE

JOURNAL OF MEDICAL VIROLOGY WILEY

The modified COVID-19 Yorkshire Rehabilitation Scale (C19-YRSm) patient-reported outcome measure for Long Covid or Post-COVID-19 syndrome

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Abstract

Background: The C19-YRS is the literature's first condition-specific, validated scale for patient assessment and monitoring in Post-COVID-19 syndrome (PCS). The 22-item scale's subscales (scores) are symptom severity (0–100), functional disability (0–50), additional symptoms (0–60), and overall health (0–10).

Objectives: This study aimed to test the scale's psychometric properties using Rasch analysis and modify the scale based on analysis findings, emerging information on essential PCS symptoms, and feedback from a working group of patients and professionals.

Methods: Data from 370 PCS patients were assessed using a Rasch Measurement Theory framework to test model fit, local dependency, response category functioning, differential item functioning, targeting, reliability, and unidimensionality. The working group undertook iterative changes to the scale based on the psychometric results and including essential symptoms.

Results: Symptom severity and functional disability subscales showed good targeting and reliability. Post hoc rescoring suggested that a 4-point response category structure would be more appropriate than an 11-point response for both subscales. Symptoms with binary responses were placed in the other symptoms subscale. The overall health single-item subscale remained unchanged.

Conclusion: A 17-item C19-YRSm was developed with subscales (scores): symptom severity (0–30), functional disability (0–15), other symptoms (0–25), and overall health (0–10).

KEYWORDS
COVID-19, instrument, PACS, phenotype, PROM, SARS-CoV2, scale, traits

TABLE 3 Summary of changes made to the C19-YRSm (compared to the original C19-YRS)

	Changes made in C19-YRSm	Reason for change
Q1–15	Response categories changed from 11 to 4 for each of the items of the symptom severity subscale and functional disability subscale	Rasch analysis suggested disordered thresholds for these items (Figure 1) that improved thresholds post hoc with rescoring (Figure 2)
Q1–10	Provided the four response categories to each of the symptoms within each single item	Working group suggested it would be easier for respondents to rate each symptom rather than rating only the worst symptom (in the original scale). This change would also help those struggling with brain fog to understand and respond to the question
Q4	Capturing altered smell and taste	Working group highlighted the importance of this symptom and emerging evidence on rehabilitation strategies that can be used for these symptoms
Q7	Palpitation and dizziness introduced as a core symptom	Working group suggested that dysautonomia has emerged as one of core mechanisms linked to many of the Long Covid symptoms
Q8	Included post-exertional malaise as a core symptom	Working group and emerging literature recognized this as one of the characteristic features of Long Covid which explains the fluctuating nature of the condition
Q9	Merged anxiety, mood and post-traumatic stress in one single item	Rasch analysis showed the local dependence of these items when scored separately (as in the original scale)
Q10	Sleep introduced as a core symptom	Working group suggested to introduce this as one of the key symptoms that characterizes Long Covid and was closely related to fatigue and other symptoms
Other symptoms	Moving swallowing, continence and suicidal idea items to this section	Rasch analysis and working group suggested these symptoms worked more in a dichotomous fashion rather than graded severity of symptom severity scale. Such symptoms with dichotomous responses were placed in the other symptoms section
Other symptoms	Introduction of new symptoms: allergy, hair loss, skin sensation, dry/red eyes, swelling of limbs, bruising/bleeding, visual changes, tinnitus, nausea, acid reflex, appetite, weight changes, sleep apnea, and changes in menstrual cycles or flow	Working group and emerging evidence suggested even though these are not present in all patients they need capturing as these symptoms can be the cause of concern to patients and need addressing by clinicians

Modified COVID-19 Yorkshire Rehabilitation Screening (C19-YRS)

Self-report version

Participant Identification Number:

HEARTLOC C19YRS form number:

Date: Time:

The purpose of this questionnaire is to find out more about your current problems following COVID-19 illness. Your responses will be recorded in your clinical notes. We will use this information to monitor your symptoms, offer treatments and assess response to treatment.

This questionnaire will take around 15 minutes. If there are any topics you don't want to talk about you can choose not to respond.

Do you consent for this information to be used for audit and research as well ? Yes ☐ No ☐

SYMPTOM SEVERITY

Please answer the questions below to the best of your knowledge.
'Now' refers to how you feel now/this week (last 7 days).
"Pre-COVID" refers to how you were feeling prior to contracting the illness.
If you are unable to recall this, just state 'don't know'

Rate the severity of each problem on a scale of 0-3:
0 = None; no problem
1 = Mild problem; does not affect daily life
2 = Moderate problem; affects daily life to a certain extent
3 = Severe problem; affects all aspects of daily life; life-disturbing

		Now	Pre-COVID
1. Breathlessness	Breathlessness:		
	a) At rest	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	b) Changing position e.g. from lying to sitting or sitting to lying	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	c) On dressing yourself	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	d) On walking up a flight of stairs	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
2. Cough/ throat sensitivity/ voice change	Cough/ throat sensitivity	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	Change of voice	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
3. Fatigue (tiredness	Fatigue levels in your usual activities	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐

not improved by rest)			
4. Smell/taste	Altered smell	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	Altered taste	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
5. Pain/discomfort	Chest pain	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	Joint pain	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	Muscle pain	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	Headache	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	Abdominal pain	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
6. Cognition	Problems with concentration	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	Problems with memory	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	Problems with planning	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
7. Palpitations/ dizziness	Palpitations in certain positions, activity or at rest	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	Dizziness in certain positions, activity or at rest	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
8. Post-exertional malaise (worsening of symptoms)	Crashing or relapse hours or days after physical, cognitive or emotional exertion	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
9. Anxiety/ mood	Feeling anxious	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	Feeling depressed	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	Having unwanted memories of your illness or time in hospital	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	Having unpleasant dreams about your illness or time in hospital	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
	Trying to avoid thoughts or feelings about your illness or time in hospital	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
10. Sleep	Sleep problems, such as difficulty falling asleep, staying asleep or oversleeping	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐

FUNCTIONAL ABILITY

		Now	Pre-COVID
11. Communication	Difficulty with communication/word finding difficulty/understanding others	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
12. Walking or moving around	Difficulties with walking or moving around	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
13. Personal care	Difficulties with personal tasks such as using the toilet or getting washed and dressed	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
14. Other activities of Daily Living	Difficulty doing wider activities, such as household work, leisure/sporting activities, paid/unpaid work, study or shopping	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐
15. Social role	Problems with socialising/interacting with friends* or caring for dependants *related to your illness and not due to social distancing/lockdown measures	0 ☐ 1 ☐ 2 ☐ 3 ☐	0 ☐ 1 ☐ 2 ☐ 3 ☐

OTHER SYMPTOMS

Please select any of the following symptoms you have experienced since your illness in the last 7 days.Please also select any previous problems that have worsened for you following your illness.

- ☐ Fever
- ☐ Skin rash/ discolouration of skin
- ☐ New allergy such as medication, food etc
- ☐ Hair loss
- ☐ Skin sensation (numbness/tingling/itching/nerve pain)
- ☐ Dry eyes/ redness of eyes
- ☐ Swelling of feet/ swelling of hands
- ☐ Easy bruising/ bleeding
- ☐ Visual changes
- ☐ Difficulty swallowing solids
- ☐ Difficulty swallowing liquids
- ☐ Balance problems or falls
- ☐ Weakness or movement problems or coordination problems in limbs
- ☐ Tinnitus
- ☐ Nausea
- ☐ Dry mouth/mouth ulcers
- ☐ Acid Reflux/heartburn
- ☐ Change in appetite
- ☐ Unintentional weight loss
- ☐ Unintentional weight gain
- ☐ Bladder frequency,urgency or incontinence
- ☐ Constipation, diarrhoea or bowel incontinence

- ☐ Change in menstrual cycles or flow
- ☐ Waking up at night gasping for air (also called sleep apnea)
- ☐ Thoughts about harming yourself

Other symptoms – free text

OVERALL HEALTH

How good or bad is your health overall in the last 7 days?

For this question, a score of 10 means the BEST health you can imagine. 0 means the WORST health you can imagine.

a) Now: WORST HEALTH 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ BEST HEALTH
b) Pre-Covid: WORST HEALTH 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ BEST HEALTH

EMPLOYMENT

Occupation: _____

Has your COVID-19 illness affected your work??

- ☐ No change
- ☐ On reduced working hours
- ☐ On sickness leave
- ☐ Changes made to role/ working arrangements (such as working from home or lighter duties)
- ☐ Had to retire/ change job
- ☐ Lost job

Any other comments/concerns: _____

PARTNER/FAMILY/CARER PERSPECTIVE

This is space for your partner, family or carer to add anything from their perspective:

The WHO's International Classification of Functioning,
Disability and Health (ICF) provides a framework for understanding the relationship between different aspects of any health condition.

The domains covered by the C19-YRSm, when mapped to the components of ICF, show that there is satisfactory capture of all the components (body functions and structures, activities, participation, environmental factors, and personal factors), making it suitable for a comprehensive biopsychosocial assessment of the condition.

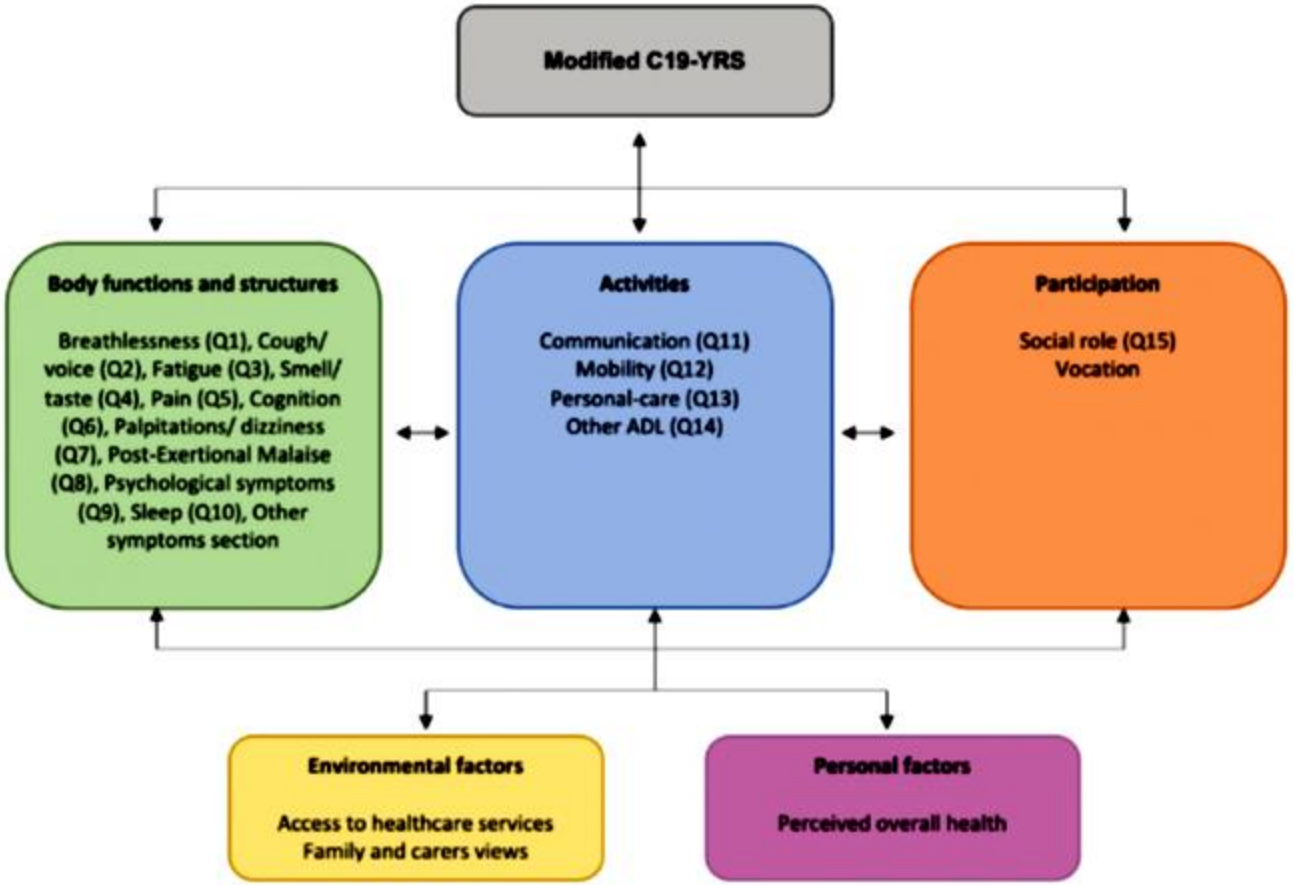
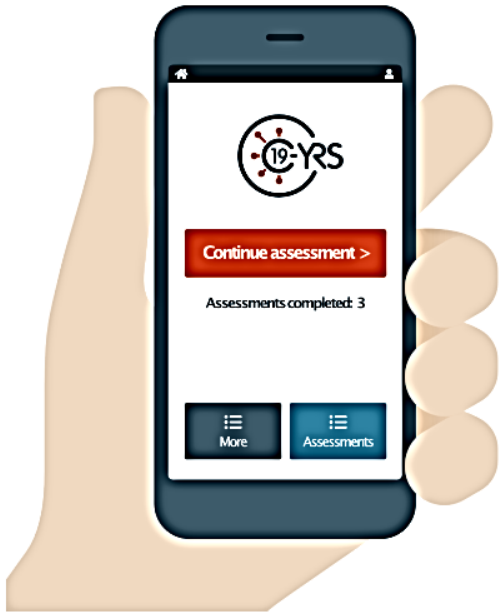


FIGURE 5 Mapping of the C19-YRSm onto the WHO ICF framework

Sivan M, Preston N, Parkin A, et al. The modified COVID-19 Yorkshire Rehabilitation Scale (C19-YRSm) patient-reported outcome measure for Long Covid or Post-COVID-19 syndrome. J Med Virol. 2022;94: 4253-4264. doi:10.1002/jmv.27878

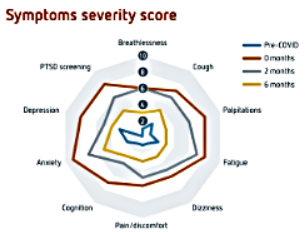


COVID-19 Yorkshire Rehabilitation Scale

An award-winning digital assessment and monitoring tool to help remotely manage individuals with persistent COVID symptoms. A not for profit initiative for all NHS organisations.

- Recommended by NHS England
- Funded by the NIHR
- Developed with NHS Trusts
- Used by the NHS across the UK
- Clinically validated for use in Long Covid
- Independently validated for assurance on clinical safety and information governance
- Contains other established outcome measures

For more information contact: c19-yrs@elaros.com



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C19-YRS

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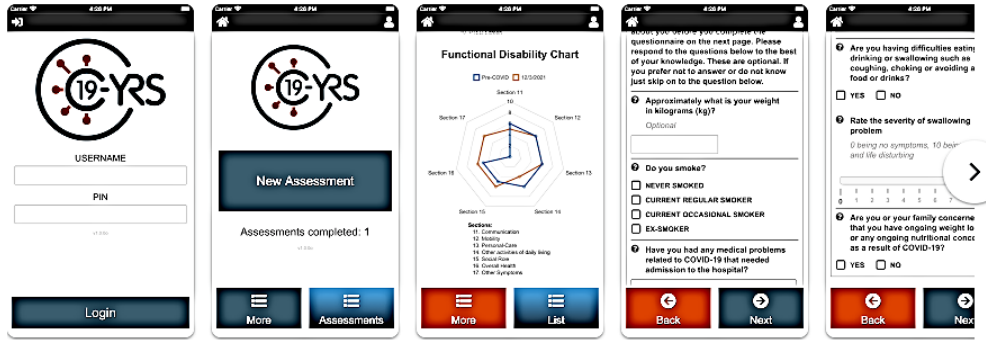


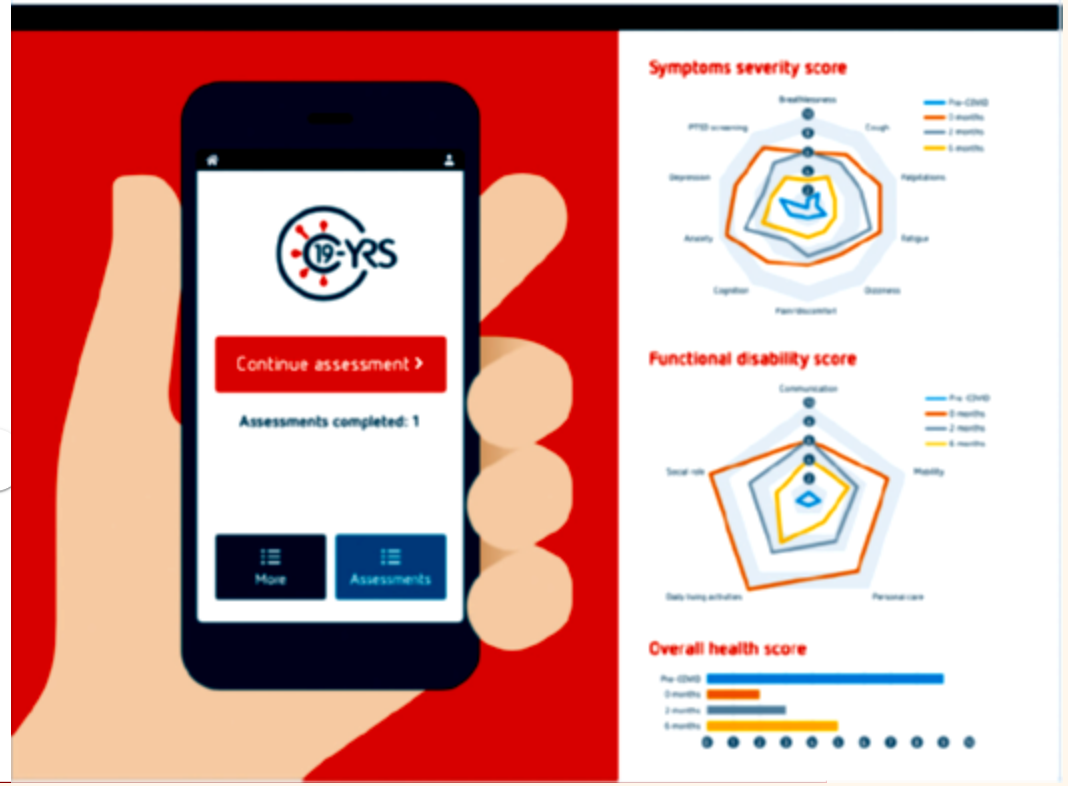
Informazioni su questa app →

C19-YRS di ELAROS è una piattaforma digitale utilizzata dai pazienti per registrare la gravità dei sintomi persistenti sperimentati per quattro settimane o più dopo aver contratto COVID-19 utilizzando il questionario C19-YRS clinicamente convalidato tramite

C19-YRS

COVID-19 Yorkshire Rehabilitation Scale

A digital assessment and monitoring tool to help manage individuals with Long COVID



Il rischio di sviluppare forme di dolore cronico è stata ben evidenziata già nella prima ondata pandemica

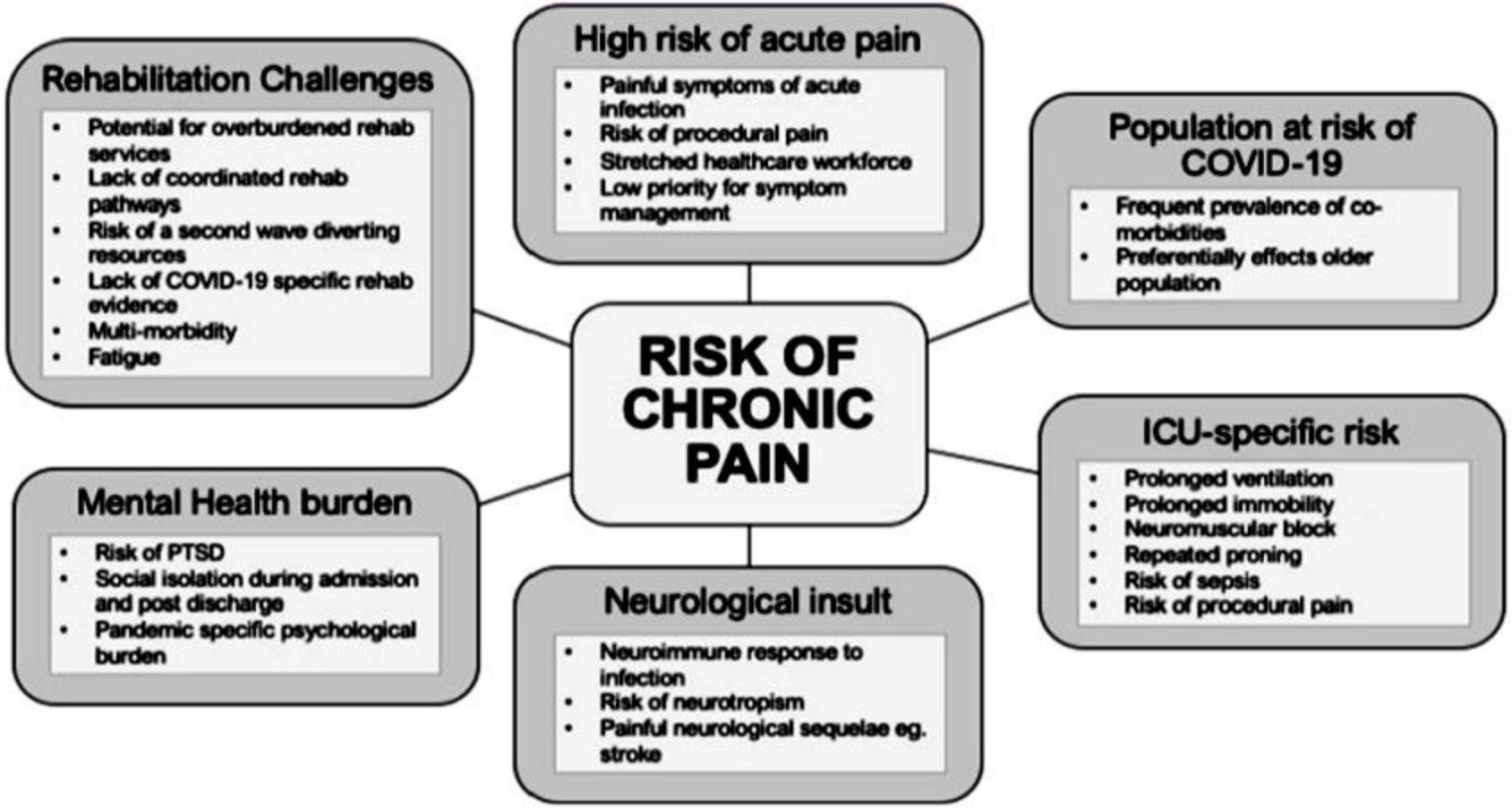


Fig 1. Potential risk factors for development of chronic pain after COVID-19. COVID-19, coronavirus disease 2019; PTSD, post-traumatic stress disorder.

British Journal of Anaesthesia, 125 (4): 436e449 (2020) doi: 10.1016/j.bja.2020.05.021

ORIGINAL ARTICLE

Eur J Pain. 2021;25:1342–1354.

EJP

Prevalence and characteristics of new-onset pain in COVID-19 survivours, a controlled study

Felipe Henriques Carvalho Soares[1] | Gabriel Taricani Kubota[1] | Ana Mércia Fernandes Bruno Hojo[1] | Catarina Couras[1] | Bárbara Venturoti Costa[1] | Jorge Dornellys da Silva Lapa[1] | Luiza Mansur Braga[1] | Matheus Merula de Almeida[1] | Pedro Henrique Martins da Cunha[1] | Vitor Hugo Honorato Pereira[1] | Adriano Donizeth Silva de Morais[1] | Manoel Jacobsen Teixeira[1] | Daniel Ciampi de Andrade[1,2] | "Pain in the Pandemic Initiative Collaborators"

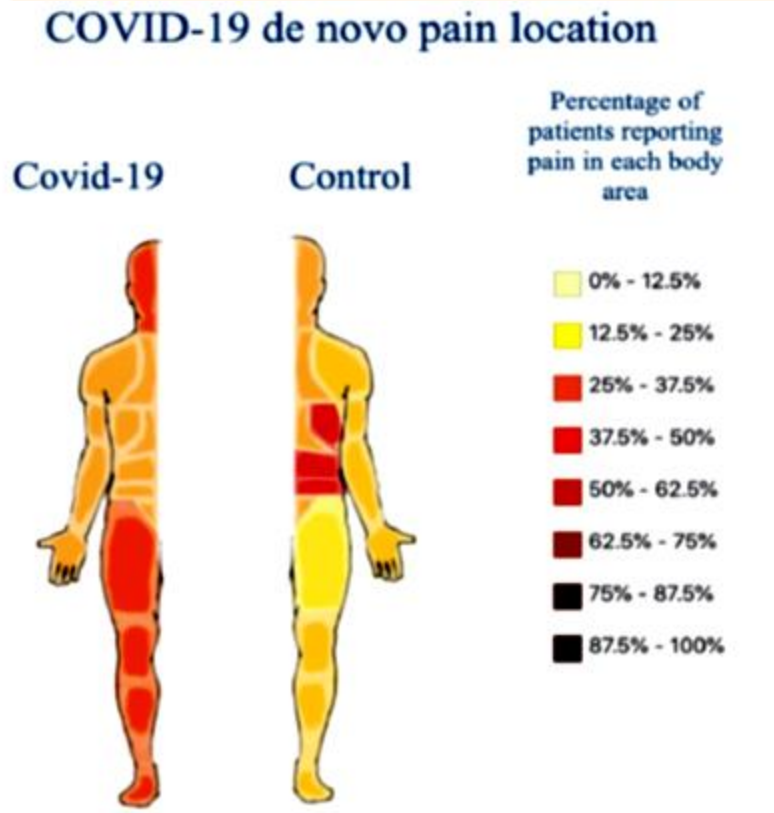
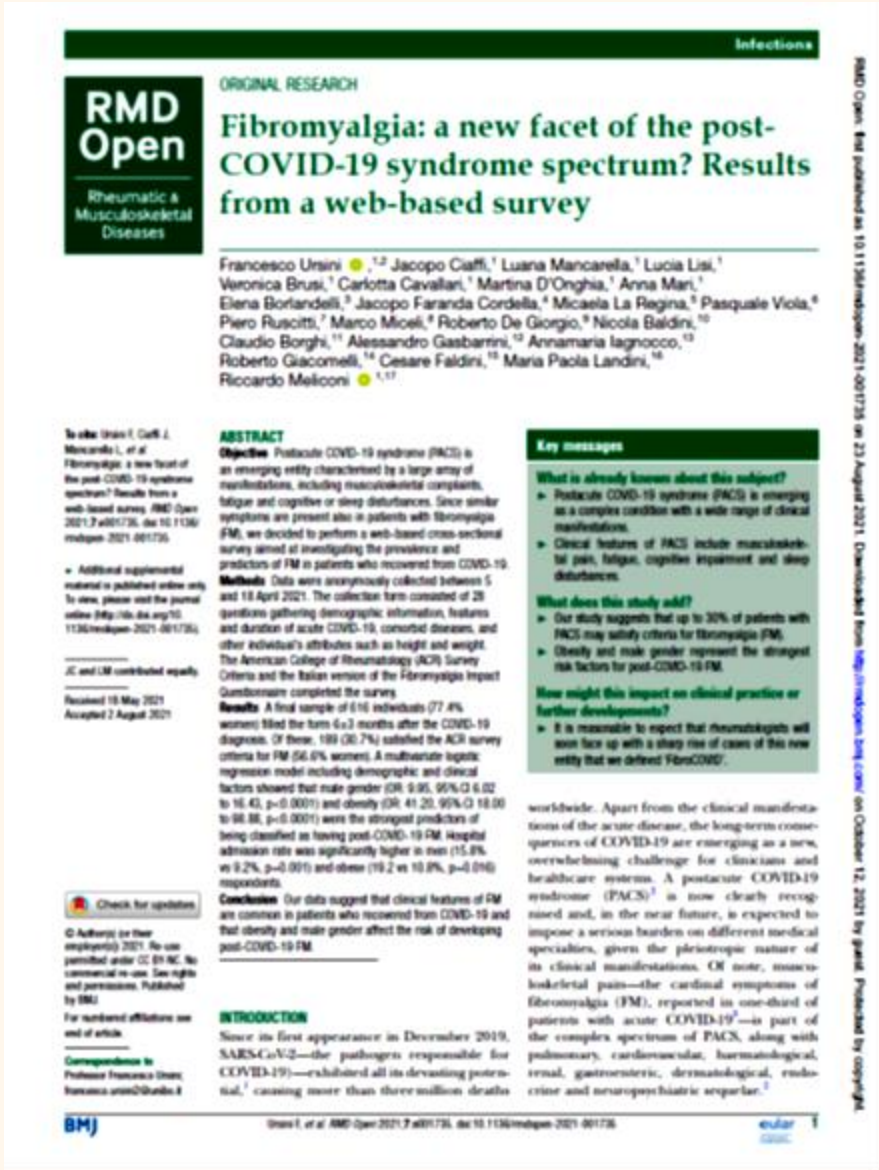


FIGURE 1 Pain distribution in the COVID-19 and control groups. Colours indicate the percentage range of the prevalence of pain in each body location in patients with de novo pain

TABLE 2 Pain after hospital discharge in the COVID-19 and Control groups

	COVID–19 ($n = 46$)	Control ($n = 73$)	p
Prevalence of de novo pain, n (%)	30 (65.2)	8 (11)	0.001*
Prevalence of de novo chronic pain, n (%)	9 (19.6)	1 (1.4)	0.002*
Location of de novo pain, n (%)			
Head and neck	20 (66.7)	2 (25)	0.034*
Upper limbs	5 (16.7)	0 (0)	0.215
Thorax and/or abdomen	5 (16.7)	4 (50)	0.049*
Dorsal and/or low back	14 (46.7)	3 (37.5)	0.643
Lower limbs	11 (36.7)	0 (0)	0.042*
Widespread pain	7 (23.3)	0 (0)	0.130
Frequency of de novo pain, n (%)			
< 15 days per month	4 (13.3)	2 (25)	0.672
≥ 15 days per month	15 (50)	4 (50)	
Not informed	11(36.7)	2 (25)	
De novo pain intensity[a]	6.7 ± 1.6 (3–9)	6.5 ± 2.6 (2–9)	0.794
De novo pain interference in daily activities[a]	6.0 ± 2.6 (0–9)	6. 5 ± 3.8 (0–10)	0.328
Trend of de *novo* pain after hospital discharge, n (%)[b]			
Improved	5 (17.2)	1 (12.5)	0.052
Unchanged	13 (44.8)	3 (37.5)	
Worsened	0 (0)	2 (25)	
Not informed	11 (37.9)	2 (25)	



Infections

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ORIGINAL RESEARCH

Fibromyalgia: a new facet of the post-COVID-19 syndrome spectrum? Results from a web-based survey

Francesco Ursini ,[1,2] Jacopo Ciaffi,[1] Luana Mancarella,[1] Lucia Lisi,[1] Veronica Brusi,[1] Carlotta Cavallari,[1] Martina D'Onghia,[1] Anna Mari,[1] Elena Borlandelli,[3] Jacopo Faranda Cordella,[4] Micaela La Regina,[5] Pasquale Viola,[6] Piero Ruscitti,[7] Marco Miceli,[8] Roberto De Giorgio,[9] Nicola Baldini,[10] Claudio Borghi,[11] Alessandro Gasbarrini,[12] Annamaria Iagnocco,[13] Roberto Giacomelli,[14] Cesare Faldini,[15] Maria Paola Landini,[16] Riccardo Meliconi [1,17]

To cite: Ursini F, Ciaffi J, Mancarella L, *et al*. Fibromyalgia: a new facet of the post-COVID-19 syndrome spectrum? Results from a web-based survey. *RMD Open* 2021;**7**:e001735. doi:10.1136/rmdopen-2021-001735

► Additional supplemental material is published online only. To view, please visit the journal online (http://dx.doi.org/10.1136/rmdopen-2021-001735).

JC and LM contributed equally.

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ABSTRACT

Objective Postacute COVID-19 syndrome (PACS) is an emerging entity characterised by a large array of manifestations, including musculoskeletal complaints, fatigue and cognitive or sleep disturbances. Since similar symptoms are present also in patients with fibromyalgia (FM), we decided to perform a web-based cross-sectional survey aimed at investigating the prevalence and predictors of FM in patients who recovered from COVID-19.

Methods Data were anonymously collected between 5 and 18 April 2021. The collection form consisted of 28 questions gathering demographic information, features and duration of acute COVID-19, comorbid diseases, and other individual's attributes such as height and weight. The American College of Rheumatology (ACR) Survey Criteria and the Italian version of the Fibromyalgia Impact Questionnaire completed the survey.

Results A final sample of 616 individuals (77.4% women) filled the form 4±3 months after the COVID-19 diagnosis. Of these, 189 (30.7%) satisfied the ACR survey criteria for FM (56.6% women). A multivariate logistic regression model including demographic and clinical factors showed that male gender (OR: 9.95, 95% CI 6.02 to 16.43, p<0.0001) and obesity (OR: 41.20, 95% CI 18.00 to 98.88, p<0.0001) were the strongest predictors of being classified as having post-COVID-19 FM. Hospital admission rate was significantly higher in men (15.8% vs 9.2%, p=0.001) and obese (19.2 vs 10.8%, p=0.016) respondents.

Conclusion Our data suggest that clinical features of FM are common in patients who recovered from COVID-19 and that obesity and male gender affect the risk of developing post-COVID-19 FM.

Key messages

What is already known about this subject?

- Postacute COVID-19 syndrome (PACS) is emerging as a complex condition with a wide range of clinical manifestations.
- Clinical features of PACS include musculoskeletal pain, fatigue, cognitive impairment and sleep disturbances.

What does this study add?

- Our study suggests that up to 30% of patients with PACS may satisfy criteria for fibromyalgia (FM).
- Obesity and male gender represent the strongest risk factors for post-COVID-19 FM.

How might this impact on clinical practice or further developments?

- It is reasonable to expect that rheumatologists will soon face up with a sharp rise of cases of this new entity that we defined 'FibroCOVID'.

INTRODUCTION

Since its first appearance in December 2019, SARS-CoV-2—the pathogen responsible for COVID-19)—exhibited all its devastating potential,[1] causing more than three million deaths worldwide. Apart from the clinical manifestations of the acute disease, the long-term consequences of COVID-19 are emerging as a new, overwhelming challenge for clinicians and healthcare systems. A postacute COVID-19 syndrome (PACS)[2] is now clearly recognised and, in the near future, is expected to impose a serious burden on different medical specialties, given the pleiotropic nature of its clinical manifestations. Of note, musculoskeletal pain—the cardinal symptoms of fibromyalgia (FM), reported in one-third of patients with acute COVID-19[3]—is part of the complex spectrum of PACS, along with pulmonary, cardiovascular, haematological, renal, gastroenteric, dermatological, endocrine and neuropsychiatric sequelae.[2]

brain sciences
Brain Sci. 2022, 12, 154. https://doi.org/10.3390/brainsci12020154
MDPI

Article

Olfactory Dysfunction, Headache, and Mental Clouding in Adults with Long-COVID-19: What Is the Link between Cognition and Olfaction? A Cross-Sectional Study

Arianna Di Stadio [1,*,†], Michael J. Brenner [2], Pietro De Luca [3], Maria Albanese [4], Luca D'Ascanio [3], Massimo Ralli [6], Dalila Roccamatisi [7], Cristina Cingolani [3], Federica Vitelli [5], Angelo Camaioni [8], Stefano Di Girolamo [9] and Evanthia Bernitsas [10,†]

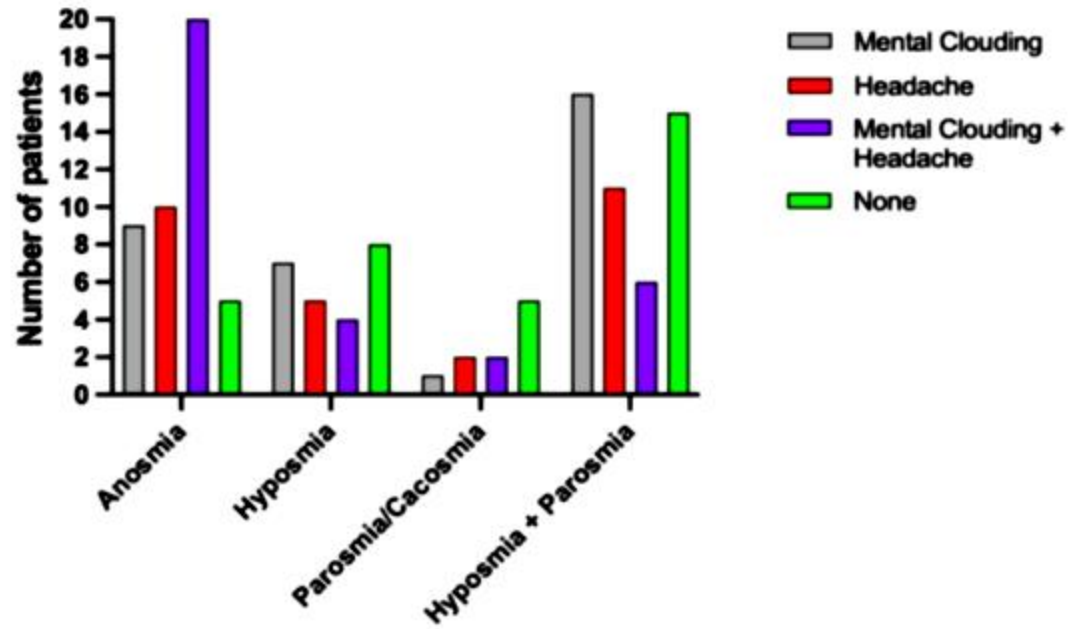

Figure 2. Distribution of neurological symptoms and smell alterations.

L'alterazione dell'olfatto e il deterioramento cognitivo sono caratteristiche comuni della sindrome Long-COVID.

L'annebbiamento mentale, spesso descritto come nebbia cerebrale, potrebbe influenzare l'olfatto alterando il ricordo degli odori o attraverso un meccanismo condiviso di neuroinfiammazione.

E' stato studiato l'annebbiamento mentale, il mal di testa, e la funzione cognitiva in pazienti adulti con disfunzione olfattiva persistente COVID-19. Questo studio multicentrico trasversale ha arruolato 152 adulti con disfunzione olfattiva auto-riferita.

In questa coorte di pazienti adulti con post-COVID-19, alterazioni dell'olfatto persistenti per 6 mesi, deterioramento cognitivo e cefalea sono associati a una perdita olfattiva più grave, coerente con i meccanismi neuroinfiammatori che mediano una varietà di sintomi del Long-COVID.

ARTICLE IN PRESS

Machine Learning-based Voice Assessment for the Detection of Positive and Recovered COVID-19 Patients

*,†,‡Carlo Robotti, †,‡Giovanni Costantini, †,‡Giovanni Saggio, †Valerio Cesarini, *Anna Calastri, *Eugenia Maiorano, §Davide Piloni, ‖Tiziano Perrone, ‖Umberto Sabatini, ¶Virginia Valeria Ferretti, #Irene Cassaniti, †,‡Fausto Baldanti, **Andrea Gravina, **Ahmed Sakib, ††Elena Alessi, ††Filomena Pietrantonio, ††Matteo Pascucci, §Daniele Casali, §Zakarya Zarezadeh, §Vincenzo Del Zoppo, ‡‡,§§Antonio Pisani, and *,†Marco Benazzo, *†§‖¶#‡‡§§Pavia, ‡**Rome, and ††Ariccia, Italy

Journal of Voice, Vol. ■■, No. ■■, pp. ■■–■■
0892-1997

https://doi.org/10.1016/j.jvoice.2021.11.004

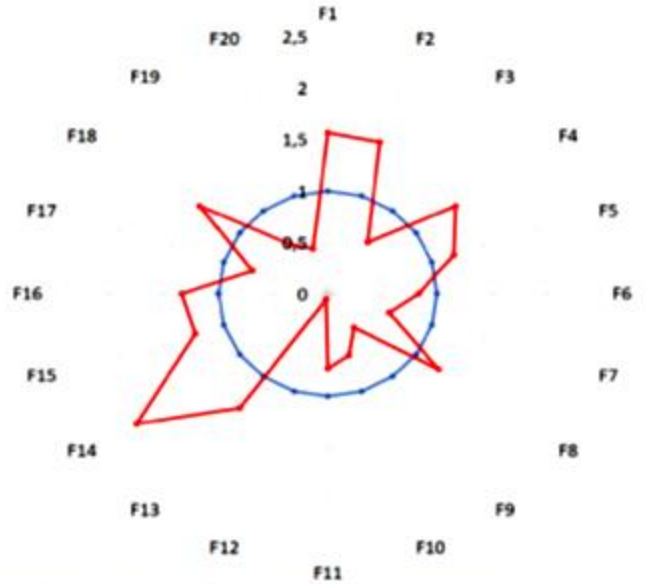

FIGURE 2. Discrimination between positive COVID-19 patients and healthy individuals based on the first 20 top ranking features of the vowel task. The red line of this radar plot corresponds to positive COVID-19 patients (group P), while the blue line corresponds to healthy individuals (group H). Each radius represents a distinct audio feature. Each point on the red line represents the feature's mean value for group P, normalized to its mean value for group H. Out of the original 50 top-ranking features, only the first 20 were reported for convenient viewing reasons. The list of all 20 top-ranking features is depicted in Table S2 (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article).

Il presente studio è stato condotto in un ambiente clinico controllato per determinare eventuali variazioni rilevabili nella voce di pazienti COVID-19, soggetti guariti e sani, e anche per determinare se la valutazione vocale basata sull'apprendimento automatico (MLVA) può discriminare accuratamente tra di loro, quindi potenzialmente fungendo da strumento di screening di massa più efficace.

MLVA può discriminare accuratamente tra pazienti positivi al COVID-19, pazienti guariti da COVID-19 e individui sani.

Ulteriori studi dovrebbero testare l'MLVA tra popolazioni più ampie e pazienti positivi al COVID-19 asintomatici per convalidare questa nuova tecnologia di screening e testarne la potenziale applicazione come strategia di sorveglianza potenzialmente più efficace per COVID-19.

GRAZIE