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EXPLORING THE QUALITY OF LIFE PHENOMENON AMONG PATIENTS WITH LONG COVID SYNDROME

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ABSTRACT

Background: Long COVID Syndrome (LCS) refers to persistence of symptoms beyond acute phase of COVID-19 infection. These prolonged symptoms may affect various aspects of health, particularly survivors' quality of life. However, research on this issue in rural settings remains limited. **Objective:** Study aimed to determine the relationship between the symptoms of Long COVID Syndrome and the quality of life of COVID-19 survivors in Ledug Village. **Methods:** Study used a quantitative study with a cross-sectional design involving 50 participants who were selected using total sampling. Data were collected using the symptom checklist for long COVID-19 based on the World Health Organization (WHO) and the WHOQOL-BREF questionnaire. Data analysis was performed using Spearman's rank correlation test. **Results:** The most respondents (48%) reported only one persistent symptom, mainly fatigue. Fatigue was often accompanied by shortness of breath and chest pain. **Conclusion:** Overall, QoL was rated good across psychological, social, and environmental domains. No significant correlation was found between the number of symptoms and overall QoL. However, a weak but significant association existed with physical health (p=0.009, r=0.36). The number of Long COVID symptoms is significantly associated with lower physical quality of life among survivors. Future efforts should focus on community-based rehabilitation programs to improve survivors' well-being.

Keywords: Long COVID syndrome; Physical health; Quality of life

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BACKGROUND

Coronavirus disease 2019 (COVID-19) is caused by infection with the SARS-CoV-2 virus, which causes respiratory symptoms ranging from mild to moderate in most individuals. Most patients can recover without requiring special medical care. However, in some cases, the symptoms can progress to more serious conditions requiring intensive care, especially in vulnerable groups such as the elderly or individuals with comorbidities, including cardiovascular disease, diabetes, chronic respiratory distress, or cancer (WHO, 2020).

Globally, on September 11, 2022, the number of weekly COVID-19 cases decreased by 28% compared to the previous week, with more than 3.1 million new cases reported. The number of deaths has also decreased by 22%, with a total of more than 6.4 million deaths since the beginning of the pandemic. In Indonesia, Central Java Province is recorded as one of the regions with a relatively high number of COVID-19 cases, with a total of 636,824 cases and a recovery rate of 94.6% (Ministry of Health of the Republic of Indonesia, 2022).

Although many patients have been declared cured, a large number of COVID-19 survivors experience persistent symptoms, known as Long COVID Syndrome (LCS). LCS is a multifactorial disorder that exhibits long-term impact after acute COVID-19 infection. According to WHO, the main symptoms of LCS include shortness of breath, cognitive dysfunction (brain fog), and fatigue. In addition, patients may also experience chest pain, speech disturbances, anxiety or depression, muscle pain, fever, anosmia, and loss of sense of taste (World Health Organization, 2022). A study by Asadi-Pooya et al. (2021) reported that out of 1,680 respondents with LCS, many reported fatigue (781 cases), shortness of breath (554 cases), and muscle pain (441 cases), which significantly decreased their quality of life. Similarly, Davis et al. (2021) conducted a global study with over 3,700 participants. They found that fatigue (77.7%), post-exertional malaise (72.2%), and cognitive dysfunction (55.4%) were the most common and debilitating symptoms reported up to seven months after infection. Nalbandian et al. (2021) emphasized that LCS may involve persistent inflammation, organ damage, and autonomic dysfunction, all of which further impair physical and mental health.

Quality of life is a multidimensional and subjective concept that covers biological, physical, psychological, social, cultural, and spiritual aspects. Factors that affect this quality of life include physical, psychological, social, and environmental dimensions. In LCS patients, decreased physical and mental abilities often lead to decreased quality of life, even if their medical status has been cured (Lopez & Snyder, 2004).

Ledug Village, located in Banyumas Regency, has a relatively high rate of COVID-19 cases, with a population of around 11,650 people and 60% vaccination coverage. A preliminary study of LCS patients in this village showed that 60% of respondents experienced fatigue during light to moderate activities, 50% experienced frequent shortness of breath, 10% experienced chest pain, and another 40% reported persistent symptoms such as fatigue, chest pain, shortness of breath, and recurrent sore throat for no apparent reason. Some patients state that the physical pain slightly inhibits their daily activities, while others feel quite inhibited. Some of them also expressed dissatisfaction with their current health condition.

This study is in line with the findings of Susanto et al. (2022), who reported that more than 10% of the 385 respondents with persistent symptoms of COVID-19 experienced disruption in daily activities, with about 30% experiencing depression and anxiety. Symptoms such as dyspnea also cause discomfort when performing light physical activity, such as walking uphill, suggesting that post-COVID-19 symptoms have the potential to have a significant impact on the quality of life of survivors. In addition, Sudre et al. (2021) noted that certain risk factors such as older age, higher BMI, and being female were associated with a higher risk of developing LCS, suggesting the need for tailored post-COVID management strategies.

The purpose of this study is to examine the correlation between the persistence of Long COVID Syndrome (LCS) symptoms such as fatigue, dyspnea, and chest pain and the quality of life among patients who have recovered from COVID-19. Given that quality of life encompasses physical, psychological, and social domains (Lopez & Snyder, 2004; WHO, 2021), exploring the relationship between symptom burden and life quality is critical to inform appropriate nursing responses.

As a correlation study, this research plays a crucial role in identifying which specific symptoms of LCS have the most significant negative impact on survivors' daily functioning and well-being. Such find-

ings can guide the prioritization of interventions by health professionals, enabling the development of targeted, cost-effective, and context-sensitive support mechanisms within community settings. Moreover, by focusing on a rural area, this study provides valuable insights that may otherwise be underrepresented in existing literature, thus contributing to a more equitable post-pandemic recovery framework.

METHODS

This study employed a quantitative correlational design with a cross-sectional approach. The research was conducted in May 2023 in Ledug Village. The population consisted of residents previously diagnosed with COVID-19 who continued to experience symptoms consistent with Long COVID Syndrome (LCS). COVID-19 survivor status was confirmed using official records from the local Public Health Center (Puskesmas), which documented positive RT-PCR test results and post-recovery assessments.

A total of 278 residents had a history of COVID-19 infection. The sampling technique used was total sampling with specific inclusion and exclusion criteria. Inclusion criteria included: (1) aged 18–60 years, (2) prior confirmed COVID-19 diagnosis with a recovery period of at least 3 months, and (3) the presence of at least one persistent symptom as per the WHO definition of Long COVID (Carfì et al., 2020; World Health Organisation, 2021). Individuals with comorbidities like hypertension or diabetes were included. Exclusion criteria were: (1) uncooperative individuals (those who declined participation after two invitations or could not complete the questionnaire), and (2) individuals with decreased consciousness. Fifty participants met the criteria and consented to participate. Although the sample was relatively small, it provides preliminary insights into the LCS impact in a rural setting. More extensive future studies are recommended to enhance generalizability (Sudre et al., 2021).

Data collection employed the WHOQOL-BREF questionnaire, a validated instrument developed by the World Health Organization (WHO, 2012), comprising 26 items covering four quality-of-life domains: physical, psychological, social relationships, and environment. The Indonesian version demmains: physical, psychological, social relationships, and environment. The Indonesian version demonstrated acceptable reliability (Purba et al., 2018), with intraclass correlation coefficients (ICC) ranging from 0.70 to 0.79. LCS symptoms were measured using a symptom checklist based on WHO guidelines (F. Huang et al., 2022; World Health Organisation, 2021).

Data analysis included univariate (means, SD, frequencies) and bivariate (Spearman's rho) statistical methods to assess relationships between symptom counts and quality-of-life domains. Ethical approval was obtained from the Health Research Ethics Commission, Faculty of Health Sciences, Universitas Jenderal Soedirman (Letter No: 1185/EC/KEPK/VII/2023).

RESULTS

Table 1 shows the frequency distribution of respondents' demographic data. The mean age of respondents was 48 years (SD ±4.85), indicating that most respondents were middle-aged adults with relatively low age variability. Most respondents were female (70%), reflecting a predominance of women among COVID-19 survivors in the study population.

Table 2 presents the distribution of the number of symptoms experienced by respondents. Nearly half of respondents (48%) reported having only one symptom, 38% experienced two symptoms, and 14% experienced more than two. This suggests variability in symptom burden among Long COVID Syndrome (LCS) patients.

Table 3 shows the frequency of specific symptoms reported by respondents. Fatigue was the most common symptom (70%), followed by shortness of breath (40%) and muscle pain (30%). Other symptoms included cough, headache, and loss of taste or smell.

Table 4 summarizes the quality of life (QOL) across four domains: physical health, psychological health, social relationships, and environmental factors. Most respondents rated their physical and psychological health as "quite good" (76% and 88%). The social relationships domain was predominantly rated "good" (78%), while environmental factors were mostly rated as "good" (66%).

Table 5 shows the relationship between the number of persistent symptoms after COVID-19 and various domains of quality of life among the participants. The results indicated a statistically significant but weak

Table 1 Frequency distribution of respondent characteristics by age and gender

Category	Mean	SD	Frequency (f)	Percentage (%)
Age	48	±4,85		
Gender				
Woman			35	70
Man			15	30

Table 2. Frequency distribution of symptoms of LCS

Symptoms of LCS	Frequency (f)	Percentage (%)
1 Symptom	24	48.0
2 Symptoms	19	38.0
>2 Symptoms	7	14.0

Table 3. Frequency distribution of types of LCS symptoms

Symptoms of LCS	Frequency (f)	Percentage (%)
Fatigue	35	70.0
Shortness of breath	20	40.0
Muscle pain	15	30.0
Cough	12	24.0
Headache	8	16.0
Loss of taste/smell	7	14.0

Table 4. QoL by Physical, Psychological, Social Relations, Environmental Health Domains

No	Quality of Life Domain	Frequency (f)	Percentage (%)
1	**Physical Health Domain**		
	Quite good	38	76
	Good	12	24
2	**Psychological Domain**		
	Quite good	44	88
	Good	6	12
3	**Social Relations Domain**		
	Quite good	6	12
	Good	39	78
	Excellent	5	10
4	**Environmental Domains**		
	Quite good	17	34
	Good	33	66

Table 5. The relationship between the number of persistent symptoms and the quality of life domain

Independent variables	Dependent variables	r	p value
Number of symptoms after COVID-19	Total QOL	0,098	0,49
	Physical Health Domain	0,36	0,009*
	Psychological Domain	0,002	0,98
	Social Relations Domain	0,16	0,25
	Environmental Domains	0,11	0,42

positive correlation between the number of symptoms and physical health domain of quality of life (r = 0.36, p = 0.009). This finding suggests that participants who experienced a more significant number of long COVID symptoms tended to report poorer physical health. In contrast, no significant correlation was found between number of persistent symptoms and total quality of life score (r = 0.098, p = 0.36). Similarly, no statistically significant relationships were observed between the number of symptoms and the psychological domain (r = 0.002, p = 0.98), the social relationships domain (r = 0.16, p = 0.25), or the environmental domain (r = 0.11, p = 0.42). These findings imply that while symptom burden has a tangible effect on physical aspects of life, it does not necessarily extend to emotional, social, or environmental domains.

DISCUSSION

The study population primarily consisted of Long COVID Syndrome (LCS) patients from Ledug Village, predominantly experiencing mild to moderate symptoms after recovery from acute COVID-Village, predominantly experiencing mild to moderate symptoms after recovery from acute COVID-19 infection. The demographic characteristics such as age, gender, and comorbidities were consistent with previously reported LCS cohorts (Nalbandian et al., 2021). Understanding baseline characteristics is crucial as they influence symptomatology and quality of life (QoL) outcomes in LCS patients (Devie et al., 2022).

Nearly half of the respondents (48%) reported experiencing only one persistent symptom, predominantly fatigue during light to moderate activities. This aligns with findings by Nalbandian et al. (2021), who identified fatigue as the most frequent and debilitating symptom in LCS. Fatigue was often accompanied by cardiopulmonary complaints, such as shortness of breath and chest pain, especially among patients reporting multiple symptoms (Visco et al., 2022). Similarly, Puntmann et al. (2020) found persistent myocardial inflammation in COVID-19 survivors, supporting the observed cardiopulmonary involvement.

Quality of life is a multidimensional construct encompassing physical, psychological, social, and environmental factors (WHO, 2012). In this study, 76% of respondents rated their physical health as "quite good," despite persistent symptoms, though 25 participants acknowledged that residual symptoms limited their ability to exercise. Devie et al. (2022) emphasize that prolonged organ dysfunction and inflammation drive physical impairment post-COVID-19. Furthermore, Townsend et al. (2021) demonstrated that fatigue and reduced exercise capacity remain significant barriers months after acute infection.

Regarding psychological health, 88% of respondents perceived their mental well-being as "quite good." Psychological outcomes in LCS are shaped not only by biological effects but also by social isolation and uncertainty during recovery (Huang & Zhao, 2020). Many respondents showed resilisolation and uncertainty during recovery (Huang & Zhao, 2020). Many respondents showed resilience and positive coping, consistent with Vindegaard & Benros (2020). Additionally, a recent study byFernández-de-las-Peñas et al. (2022) highlighted the importance of psychological interventions in mitigating LCS-related anxiety and depression. 78% of respondents rated social relationships positively, reflecting the strong social cohesion in Banyumas culture, where community support mitigates the psychosocial burden of chronic illness (Tamboeo et al., 2016). Environmental quality was perceived as good by 66%, supported by local healthcare infrastructure such as the Kembaran II Health Center and community safety systems (Gascon et al., 2016).

A central focus was the relationship between the number of LCS symptoms and overall QoL scores. Contrary to expectations, no significant correlation was found between total symptom burden and global QoL. This supports Pham et al. (2024), who reported that although LCS patients have lower QoL than healthy controls, symptom count alone does not predict QoL deterioration. The subjective nature of QoL is influenced by psychological resilience, social support, and coping strategies (Hanley & Garland, 2017). In Ledug Village, strong family ties and community solidarity likely buffer the psychosocial impact of symptoms (Iskandarsyah et al., 2014). Social capital has been shown to improve mental health and moderate QoL declines post-COVID (Galanis et al., 2023). Environmental and healthcare resources further support patient adaptation, underscoring the multidimensional determinants of QoL.

Although overall QoL did not significantly correlate with symptom number, the physical health domain showed a weak but statistically significant negative association with symptom burden ($p=0.009$, $r=0.36$). This suggests increased symptoms are linked to poorer physical functioning, consistent with Ballhausen et al. (2025). Symptoms such as fatigue, sleep disturbances, and myalgia directly impair physical capacity, which can subsequently impact mental health and social participation (Devie et al., 2022).

These findings highlight the need for holistic management of LCS, extending beyond symptom control to include psychological support and social reintegration. Rehabilitation programs should incorporate resilience-building, psychological counseling, and community engagement to improve overall QoL (Galanis et al., 2023; Vindegaard & Benros, 2020). Future longitudinal studies with larger samples are needed to clarify causal pathways and evaluate multidimensional interventions. Qualitative research exploring patient narratives would deepen understanding of coping strategies and cultural influences on QoL perceptions.

This cross-sectional study limits causal inference, and the small sample size may affect generalizability. Self-reported symptoms and QoL may be subject to recall or social desirability bias. Addi-

tionally, pre-existing psychological conditions and comorbidities were not exhaustively controlled, which may confound QoL assessments.

CONCLUSION

The findings from this study confirm a significant negative correlation between the number of Long COVID-19 symptoms and physical quality of life. However, other QoL domains, such as psychological, social, and environmental, showed resilience despite persistent symptoms. These results suggest that while LCS continues challenging physical functioning, psychological adaptation, and social support networks in rural communities, they may offer protective effects.

Interventions should prioritize physical rehabilitation alongside initiatives that strengthen mental health and community engagement. Culturally responsive, community-based programs are essential to address rural LCS patients' full spectrum of needs.

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REFERENCES

Asadi-Pooya, A. A., Akbari, A., Emami, A., Lotfi, M., Rostamihosseinkhani, M., Nemati, H., Barzegar, Z., Kabiri, M., Zeraatpisheh, Z., Fajroud-Kouhanjani, M., Jafari, A., Sasannia, S., Ashrafi, S., Nazeri, M., Nasiri, S., & Shahisavandi, M. (2021). Long COVID syndrome-associated brain fog. 94(3), 979–984. https://doi.org/https://doi.org/10.1002/jmv.27404

Ballhausen, S., Ruß, A.-K., Lieb, W., Horn, A., Krist, L., Fricke, J., Scheibenbogen, C., Rabe, K. F., Maetzler, W., Maetzler, C., Laudien, M., Frank, D., Heyckendorf, J., Miljukov, O., Haeusler, K. G., Mokthari, N. E. El, Witzenrath, M., Vehreschild, J. J., Appel, K. S., … Bahmer, T. (2025). Subdomains of Post-COVID-Syndrome (PCS)-A Population-Based Study.

Carfì, A., Bernabei, R., & Landi, F. (2020). Persistent Symptoms in Patients After Acute COVID-19. JAMA, 324(6), 603. https://doi.org/10.1001/jama.2020.12603

Davis, H. E., Assaf, G. S., McCorkell, L., Wei, H., Low, R. J., Re'em, Y., Redfield, S., Austin, J. P., & Akrami, A. (2021). Characterizing long COVID in an international cohort: 7 months of symptoms and their impact. EClinicalMedicine, 38, 101019. https://doi.org/10.1016/j.eclinm.2021.101019

Devie, I. G. A. J. A., Suarningsih, N. K. A., Rahajeng, I. M., & Widyanthari, D. M. (2022). Gambaran Post-Acute Covid-19 Syndrome Pada Pasien Pasca Terinfeksi Coronavirus Disease 2019 I. Community of Publishing in Nursing (COPING), 10(3), 326–332.

Fernández-de-las-Peñas, C., Martín-Guerrero, J. D., Cancela-Cilleruelo, I., Moro-López-Menchero, P., Rodríguez-Jiménez, J., & Pellicer-Valero, O. J. (2022). Exploring the trajectory recovery curve of the number of post-COVID Symptoms: The LONG-COVID-EXP-CM Multicenter Study. International Journal of Infectious Diseases, 117, 201–203. https://doi.org/10.1016/j.ijid.2022.02.010

Galanis, P., Katsiroumpa, A., Vraka, I., Kosiara, K., Siskou, O., Konstantakopoulou, O., Katsoulas, T., Gallos, P., & Kaitelidou, D. (2023). Resilience and social support improve mental health and quality of life in patients with post-COVID-19 syndrome. https://doi.org/10.1101/2023.02.07.23285620

Gascon, M., Triguero-Mas, M., Martínez, D., Dadvand, P., Rojas-Rueda, D., Plasència, A., & Nieuwenhuijsen, M. J. (2016). Residential green spaces and mortality: A systematic review. Environment International, 86, 60–67. https://doi.org/10.1016/j.envint.2015.10.013

Hanley, A. W., & Garland, E. L. (2017). The Mindful Personality: a Meta-analysis from a Cybernetic Perspective. Mindfulness, 8(6), 1456–1470. https://doi.org/10.1007/s12671-017-0736-8

Huang, F., Sun, W., Zhang, L., Lu, H., & Chen, W. (2022). Depressive symptoms mediate COVID-associated stigma and quality of life: Stigma instrument validation and path analysis. Journal of Affective Disor-

ders, 297, 269–275. https://doi.org/10.1016/j.jad.2021.10.043
Huang, Y., & Zhao, N. (2020). Generalized anxiety disorder, depressive symptoms, and sleep quality during COVID-19 outbreak in China: a web-based cross-sectional survey. Psychiatry Research, 288, 112954. https://doi.org/10.1016/j.psychres.2020.112954
Iskandarsyah, A., de Klerk, C., Suardi, D. R., Soemitro, M. P., Sadarjoen, S. S., & Passchier, J. (2014). Psychosocial and cultural reasons for delay in seeking help and nonadherence to treatment in Indonesian women with breast cancer: A qualitative study. Health Psychology, 33(3), 214–221. https://doi.org/10.1037/a0031060
Lopez, S. J., & Snyder, C. R. (2004). Positive psychological assessment: A handbook of models and measures. American Psychological Association.
Ministry of Health of the Republic of Indonesia. (2022). COVID-19 Statistics Indonesia.
Nalbandian, A., Sehgal, K., Gupta, A., Madhavan, M. V., McGroder, C., Stevens, J. S., Cook, J. R., Nordvig, A. S., Shalev, D., Sehrawat, T. S., Ahluwalia, N., Bikdeli, B., Dietz, D., Der-Nigoghossian, C., Liyanage-Don, N., Rosner, G. F., Bernstein, E. J., Mohan, S., Beckley, A. A., … Wan, E. Y. (2021). Post-acute COVID-19 syndrome. Nature Medicine, 27(4), 601–615. https://doi.org/10.1038/s41591-021-01283-z
Pham, A., Smith, J., Card, K. G., Byers, K. A., & Khor, E. (2024). Exploring social determinants of health and their impacts on self-reported quality of life in long COVID-19 patients. Scientific Reports, 14(1), 30410. https://doi.org/10.1038/s41598-024-81275-4Puntmann, V. O., Carerj, M. L., Wieters, I., Fahim, M., Arendt, C., Hoffmann, J., Shchendrygina, A., Escher, F., Vasa-Nicotera, M., Zeiher, A. M., Vehreschild, M., & Nagel, E. (2020). Outcomes of Cardiovascular Magnetic Resonance Imaging in Patients Recently Recovered From Coronavirus Disease 2019 (COVID-19). JAMA Cardiology, 5(11), 1265. https://doi.org/10.1001/jamacardio.2020.3557
Purba, F. D., Hunfeld, J. A. M., Iskandarsyah, A., Fitriana, T. S., Sadarjoen, S. S., Passchier, J., & Busschbach, J. J. V. (2018). Quality of life of the Indonesian general population: Test-retest reliability and population norms of the EQ-5D-5L and WHOQOL-BREF. PLOS ONE, 13(5), e0197098. https://doi.org/10.1371/journal.pone.0197098
Sudre, C. H., Murray, B., Varsavsky, T., Graham, M. S., Penfold, R. S., Bowyer, R. C., Pujol, J. C., Klaser, K., Antonelli, M., Canas, L. S., Molteni, E., Modat, M., Jorge Cardoso, M., May, A., Ganesh, S., Davies, R., Nguyen, L. H., Drew, D. A., Astley, C. M., … Steves, C. J. (2021). Attributes and predictors of long COVID. Nature Medicine, 27(4), 626–631. https://doi.org/10.1038/s41591-021-01292-y
Susanto, A. D., Isbaniah, F., Pratomo, I. P., Antariksa, B., Samoedro, E., Taufik, M., Harinda, F., & Nurwidya, F. (2022). Clinical characteristics and quality of life of persistent symptoms of COVID-19 syndrome in Indonesia. GERMS, 12(1), 158–169.
Tamboeo, G., Waani, J. O., & Tilaar, S. (2016). HASIL PENELITIAN DAMPAK SOSIAL DARI POLA PERUMAHAN PERMATA ASRI PINELENG.
Townsend, L., Dowds, J., O'Brien, K., Sheill, G., Dyer, A. H., O'Kelly, B., Hynes, J. P., Mooney, A., Dunne, J., Ni Cheallaigh, C., O'Farrelly, C., Bourke, N. M., Conlon, N., Martin-Loeches, I., Bergin, C., Nadarajan, P., & Bannan, C. (2021). Persistent Poor Health after COVID-19 Is Not Associated with Respiratory Complications or Initial Disease Severity. Annals of the American Thoracic Society, 18(6), 997–1003. https://doi.org/10.1513/AnnalsATS.202009-1175OC
Vindegaard, N., & Benros, M. E. (2020). COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. Brain, Behavior, and Immunity, 89, 531–542. https://doi.org/10.1016/j.bbi.2020.05.048
Visco, V., Vitale, C., Rispoli, A., Izzo, C., Virtuoso, N., Ferruzzi, G. J., Santopietro, M., Melfi, A., Rusciano, M. R., Maglio, A., Di Pietro, P., Carrizzo, A., Galasso, G., Vatrella, A., Vecchione, C., & Ciccarelli, M. (2022). Post-COVID-19 Syndrome: Involvement and Interactions between Respiratory, Cardiovascular, and Nervous Systems. Journal of Clinical Medicine, 11(3). https://doi.org/10.3390/jcm11030524
WHO. (2012). WHOQOL: measuring quality of life [serial online].
WHO. (2020). WHO Coronavirus Disease (COVID-19) Dashboard Data last updated: 2020/12/5, 3:02pm CET. https://covid19.who.int/?gclid=CjwKCAiAn7L-BRBbEiwAl9UtkAlOBO-wX0XnQyk8dMfsA_-
World Health Organisation. (2021). A clinical case definition of post-COVID-19 condition by a Delphi consensus.
World Health Organization. (2022). Coronavirus disease (COVID-19).