

Strategies for chronic disease patients to cope with the health challenges of Post-Acute COVID-19 Syndrome

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Abstract: Background: SARS-CoV-2, the virus responsible for COVID-19, has undergone numerous mutations, resulting in widespread health challenges and significant economic burdens. Beyond acute illness, a substantial number of individuals experience lingering symptoms, collectively termed post-acute COVID-19 syndrome (PACS) or long COVID. These symptoms, including fatigue, dyspnoea, and cognitive impairments, persist or emerge after the acute phase, affecting 10% to 70% of recovering patients, especially those with pre-existing chronic illnesses. Chronic conditions such as cardiovascular diseases, diabetes, and respiratory disorders exacerbate the severity of PACS, complicating disease management and quality of life.

Methods: A systematic review was conducted following PRISMA guidelines and the Joanna Briggs Institute methodology for qualitative reviews. A total of 25 articles were identified, with 10 meeting the inclusion criteria for qualitative synthesis, focusing on coping strategies used by chronic patients with PACS.

Results: The review highlights the complexity of managing PACS symptoms alongside chronic illnesses. Coping strategies are essential for mitigating psychological strain, improving symptom management, and enhancing overall well-being. The findings underscore the need for targeted interventions to support this vulnerable population.

Conclusion: Understanding the interplay between chronic illnesses and PACS is critical for developing effective coping mechanisms. Future research should prioritize integrative care approaches to reduce the dual burden of long COVID and chronic conditions.

Keywords: SARS-CoV-2; Post-Acute COVID-19 Syndrome; Coping Strategies

1. Introduction

SARS-CoV-2, the causative agent of COVID-19, has undergone mutations up to the present, resulting in worldwide healthcare crises and overwhelming health expenditures. Given the ongoing recovery of COVID-19 patients and the increasing number of new infections, it is crucial to comprehend their healthcare requirements.^[1] COVID-19 is currently acknowledged as a disease that affects multiple organs and presents a wide range of symptoms, such as cardiovascular, lung, kidney. Just like survivors of earlier severe coronavirus outbreaks, there are more and more accounts of persisting and long-lasting consequences following acute COVID-19^[2]. The disease is known as post-acute COVID-19 syndrome (PACS), also known as long COVID. Long COVID has been documented in a minimum of 10% of individuals recuperating from SARS-CoV-2 infections, with estimates suggesting it may affect as many as 50% to 70% of hospitalised patients. These symptoms may continue after their initial illness or emerge during their recovery. They possess the capacity to arrive, depart, or undergo recurrence throughout a specified duration. The predominant symptoms linked to post COVID-19 syndrome are weariness, dyspnoea, and cognitive impairment (such as disorientation, amnesia, or diminished mental acuity^[3]). Given the persistence of PACS symptoms, there is significant interest in studying the coping mechanisms of patients, particularly those with pre-existing chronic illnesses. Chronic illnesses, also referred to as noncommunicable diseases (NCDs), are persistent medical conditions resulting from genetic, physiological, environmental, and behavioural influences. NCDs encompass cardiovascular disorders such as myocardial infarction and cerebrovascular accident, malignancies, chronic respiratory disorders like asthma and diabetes^[4]. Chronic conditions heighten the burden of COVID-19 symptoms and the risk of psychiatric disorders. Utilising PACS in the treatment of a chronic illness adds complexity to disease control, psychological strain, and overall quality of life^[4]. In order to alleviate symptoms, chronic patients with PACS problems must acquire effective coping strategies.

2. Method

A systematic review is a rigorous and thorough process that incorporates a well-defined plan and predetermined research methodolo-

gies. Its goal is to minimise biases by identifying, evaluating, and synthesising pertinent papers related to the subject under investigation^[5]. This systematic review was conducted in accordance with the proposal put forward by the PRISMA guideline, which stands for Preferred Reporting Items for Systematic Reviews and Meta-Analyses^[6]. This paper mentions the Joanna Briggs Institute (JBI) methodology for qualitative systematic reviews guidelines^[7].

3. Result

3.1 Search Result

The chosen articles, with a sample size of 25, is thereafter read in its entirety. Out of these articles, 14 were excluded based on the inclusion and exclusion criteria. Hence, we chose 10 publications for qualitative analysis to succinctly and accurately depict the current research on coping strategies employed by chronic patients with PACS. Figure1 illustrates the search technique and search results of this systematic review.

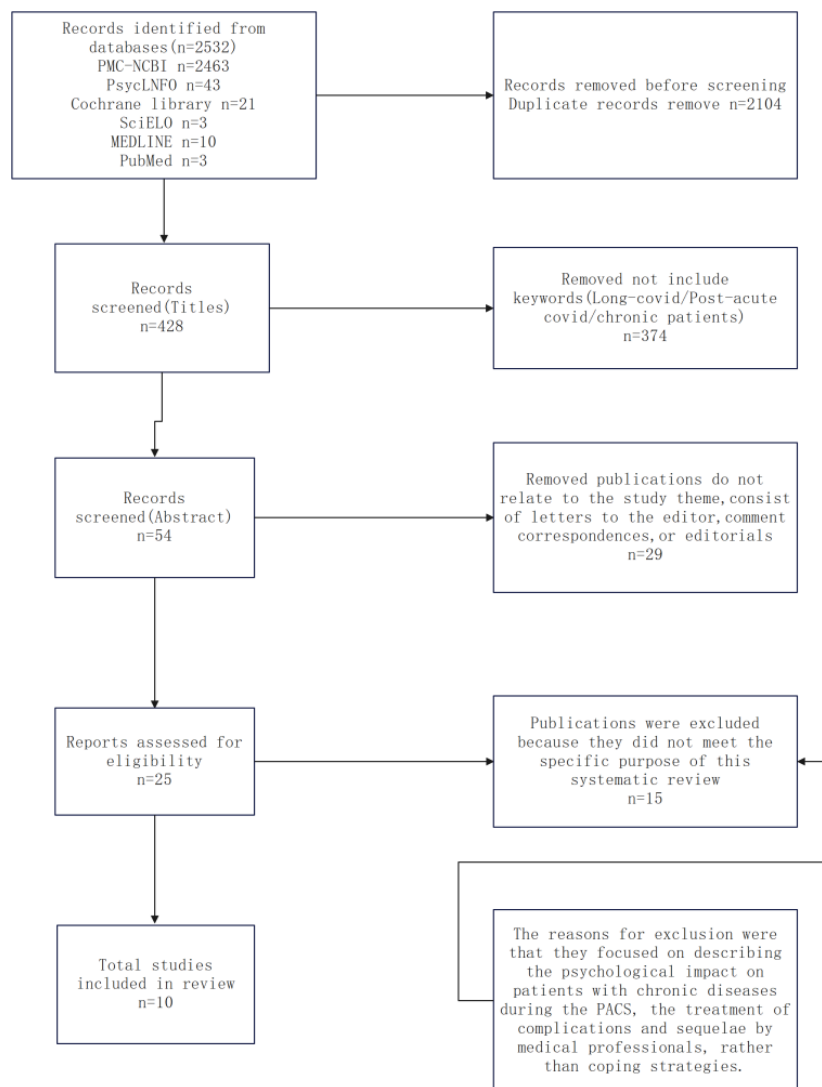


Figure 1 PRISMA flow diagram of study selection (Adapted)

3.2 Characteristics of included studies

The countries and regions examined encompass Africa, Egypt^[8], Asia, Malaysia^[17], and several European countries. Analysis was conducted on individuals with chronic illnesses^[8-17], long-Covid patients^{[9][17]}, asthmatics^[10], and renal disease patients and caretakers^{[14][15]}.

Participatory research methods include cohort studies^{[8][9][14]}, cross-sectional studies^{[10][11][12][13][14][17]}, semi-structured virtual interviews^[15], and focus groups^[16]. The research data acquired through questionnaires and interviews included evaluations of mental health, assessment of quality of life, and usage of coping strategies.

All studies focused on the psychological and physical effects of Post-acute COVID-19 syndrome on different populations, as well as the response to symptoms. Participants came from community and health care institutions, and the research background was diverse, ranging from individual psychological coping strategies to systemic medical interventions.

3.3 Categorisation, synthesis, credibility analysis of research findings

Coping strategies into two categories: adaptive and maladaptive and result see Figure 2. The six items obtained from the tests were categorised into 27 distinct coping strategies. The believability of the individual responses in each study was evaluated independently. Research consistently demonstrates that overall response measures for post-acute COVID symptoms are both helpful and reliable. The credibility of the outcomes was rated as follows: 8 highly credible, 13 credible, 6 low credible, and 1 not credible.

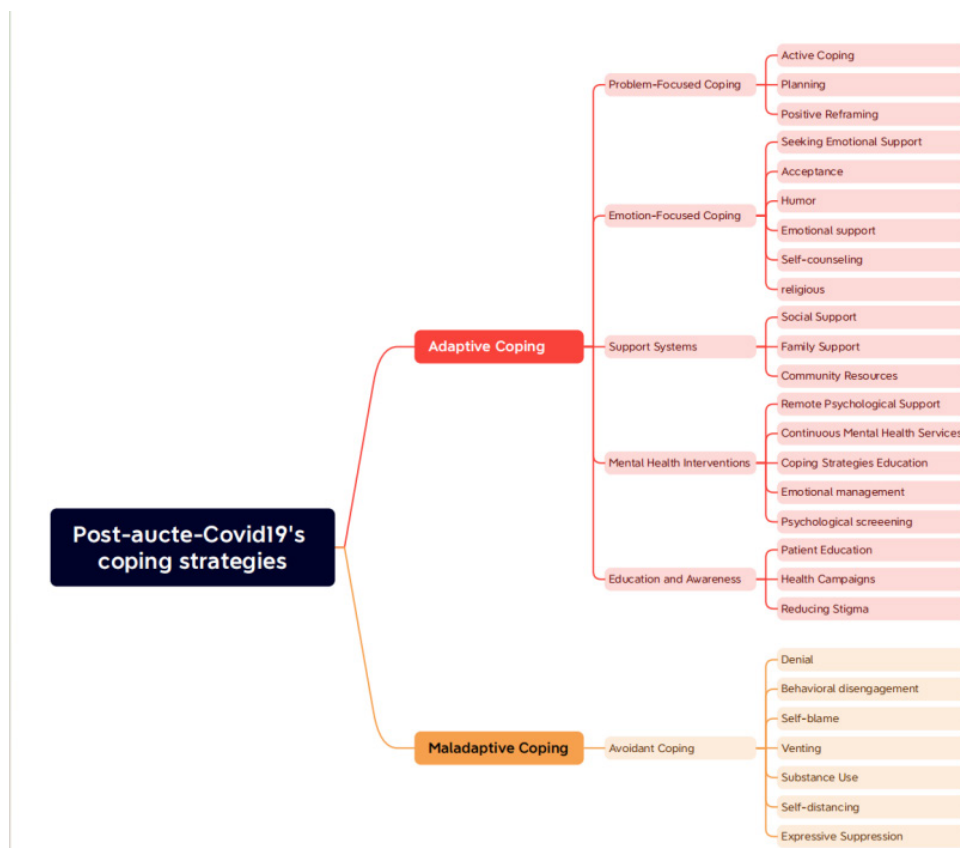


Figure 2 Post-acute-COVID19 coping strategies

3.4 Result of confidence in the synthesised findings

According to the research^[8-17], assessment of coping strategies based on JBI QARI scores and GRADE-CERQual evaluations showed varying levels of trustworthiness and confidence across coping mechanisms. The adaptive coping strategy was rated as having high levels of trustworthiness and confidence, meeting all reliability criteria, which indicates its effectiveness and the clarity of the findings. Emotion-focused and problem-focused coping strategies also showed high trustworthiness, but the trustworthiness was average, indicating some reliability issues. In contrast, avoidance coping and mental health interventions, while highly credible, were downgraded due to lower reliability of the findings, reflecting concerns about their consistency as coping measures. The education and support systems are generally effective and have a moderate level of confidence in their results. Adaptive coping has low to medium confidence, emphasizing the need for caution when

applying these strategies. Overall, adaptive coping was the most reliable and credible approach, while other approaches showed varying degrees of reliability.

4. Discussion

This qualitative systematic analysis evaluates and summarises coping approaches for acute post-COVID-19 syndrome (PACS) in chronically ill adults, utilising the Joanna Briggs Institute (JBI). The ten papers in this analysis exhibited medium to high methodological quality. The investigations categorised six coping strategies as adaptive, emotional, problem-focused, avoidance, social support, educational, psychological intervention, and maladaptive. The extensive findings indicate that adaptive coping strategies, such as positive reframing and acceptance, are the most credible and dependable, and are positively associated with PACS pressure reduction. Although avoidant coping may alleviate stress temporarily, it will exacerbate as the chronic condition advances. Mental health interventions, education, and social support are effective in clinical nursing; yet, inconsistencies render them untrustworthy.

5. Conclusion

This review classifies six coping strategies as adaptive, emotional, problem-focused, social support, educational, psychological intervention, and maladaptive. Governments may examine these coping strategies to provide customised solutions for patients with chronic diseases in PACS. While the majority of these outcomes are positive, it is imperative to consider healthcare and social factors while developing therapies.

References

- [1] Nalbandian A, Sehgal K, Gupta A, Madhavan MV, McGroder C, Stevens JS, et al. Post-acute COVID-19 syndrome. *Nat Med*. 2021 Apr;27(4):601–15.
- [2] Nalbandian A, Sehgal K, Gupta A, Madhavan MV, McGroder C, Stevens JS, et al. Post-acute COVID-19 syndrome. *Nat Med*. 2021 Apr;27(4):601–15.
- [3] Coronavirus disease (COVID-19): Post COVID-19 condition [Internet]. [cited 2024 Aug 14]. Available from: [https://www.who.int/news-room/questions-and-answers/item/coronavirus-disease-\(covid-19\)-post-covid-19-condition](https://www.who.int/news-room/questions-and-answers/item/coronavirus-disease-(covid-19)-post-covid-19-condition)
- [4] Kendzerska T, Zhu DT, Gershon AS, Edwards JD, Peixoto C, Robillard R, et al. The Effects of the Health System Response to the COVID-19 Pandemic on Chronic Disease Management: A Narrative Review. *Risk Management and Healthcare Policy*. 2021 Feb 15;14(null):575–84.
- [5] Uman LS. Systematic reviews and meta-analyses. *J Can Acad Child Adolesc Psychiatry*. 2011 Feb;20(1):57–9.
- [6] Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*. 2021 Mar 29;372:n71.
- [7] Lockwood C, Munn Z, Porritt K. Qualitative research synthesis: methodological guidance for systematic reviewers utilizing meta-aggregation. *Int J Evid Based Healthc*. 2015 Sep;13(3):179–87.
- [8] Shousha HI, Madbouly N, Afify S, Asem N, Fouad E, Maher R, et al. Anxiety, depression and coping strategies among chronic medical patients with coronavirus disease-2019: a multicenter follow-up cohort study. *Journal of Mental Health*. 2023 Nov 2;32(6):1048–56.
- [9] Bota AV, Bratosin F, Bogdan I, Septimiu-Radu S, Ilie AC, Burtic SR, et al. Assessing the Quality of Life, Coping Strategies, Anxiety and Depression Levels in Patients with Long-COVID-19 Syndrome: A Six-Month Follow-Up Study. *Diseases* [Internet].
- [10] Hashem E, Kandil F, Alsharif F, Sharif L, Khaled A. Assessment of lifestyle and coping strategies among asthmatic patients during the Covid-19 crisis. *Journal of Asthma*. 2024 Jan 2;61(1):58–68.
- [11] Łuc M, Pawłowski M, Jaworski A, Fila-Witecka K, Szcześniak D, Augustyniak-Bartosik H, et al. Coping of Chronically-Ill Patients during the COVID-19 Pandemic: Comparison between Four Groups. *International Journal of Environmental Research and Public Health*
- [12] Bramanti SM, Trumello C, Lombardi L, Babore A. COVID-19 and chronic disease patients: Perceived stress, worry, and emotional regulation strategies. *Rehabilitation Psychology*. 2021 Nov;66(4):380–5.

[13]Umucu E, Lee B. Examining the impact of COVID-19 on stress and coping strategies in individuals with disabilities and chronic conditions. *Rehabil Psychol.* 2020 Aug;65(3):193–8.

[14]Lightfoot CJ, Wilkinson TJ, Patel NA, Jones CR, Smith AC. Patient activation and psychological coping strategies to manage challenging circumstances during the COVID-19 pandemic in people with kidney disease. *J Nephrol.* 2024 Mar 1;37(2):353–64.

[15]Piotrowski CC, Strong J, Giesbrecht A, Goldberg A, Kudar K, Pappas K, et al. Coping With COVID-19: Perspectives of Caregivers of Children and Young People With Chronic Kidney Disease. *Pediatric Transplantation.* 2024;28(5):e14823.

[16]Seighali N, Abdollahi A, Shafiee A, Amini MJ, Athar MMT, Safari O, et al. The global prevalence of depression, anxiety, and sleep disorder among patients coping with Post COVID-19 syndrome (long COVID): a systematic review and meta-analysis. *BMC Psychiatry.* 2024;24:1–13.

[17]Lee KW, Yap SF, Ong HT, Pheh KS, Lye MS. Anxiety and coping strategies during the COVID-19 pandemic: A cross-sectional study of staff and students from a tertiary education center in Malaysia. *Front Public Health.* 2022;10:936486.