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LETTER

Advancing the Understanding of Temporal Dynamics in Rehabilitation Adherence: Methodological Reflections on the Study by Shao et al [Letter]

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Dear editor

We read with great interest the article by Shao et al[1] titled

> Factors Influencing Adherence to Home-Based Exercise Rehabilitation in Stroke Patients from a Temporal Perspective: An Explanatory Sequential Mixed-Methods Study.

The authors address an important yet relatively underexplored dimension of rehabilitation adherence by examining behavioral changes over time using a mixed-methods approach Their work contributes valuable insights into the dynamic nature of adherence among stroke survivors. Building on this contribution, we would like to offer several methodological reflections that may help further interpret the findings and guide future research in this area.

Innovation in Study Design and the Need for Greater Methodological Transparency

The adoption of an explanatory sequential mixed-methods design represents a meaningful methodological advancement in stroke rehabilitation research. Investigating adherence through a temporal lens also expands current knowledge, which has largely relied on cross-sectional perspectives. However, several methodological aspects would benefit from further clarification. First, the representativeness of the quantitative sample warrants closer attention. While convenience sampling was employed, the distribution of participants across different recovery phases (acute, subacute, and chronic stages) was not clearly reported. Given that adherence to rehabilitation exercise can change substantially during the early months following stroke, uneven representation across stages may influence the interpretation of temporal patterns. Second, additional detail regarding the timing and structure of qualitative interviews would enhance methodological rigor. In explanatory sequential designs, qualitative findings are expected to explain quantitative results. Clarifying whether interviews were conducted after participants completed quantitative assessments, and how recall bias related to time perception was addressed, would strengthen the transparency and credibility of the study design.

Conceptual Clarification of the Temporal Perspective in Adherence Research

The concept of examining adherence from a temporal perspective is particularly meaningful. However, the theoretical positioning of "time" in the study could be further elaborated. In health behavior research, temporal constructs may refer to objective temporal progression (such as disease duration or stages of recovery) or subjective perceptions of time (such

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as expectations about rehabilitation outcomes). Distinguishing between these dimensions would strengthen the conceptual foundation of the study. If the study primarily focuses on objective temporal progression, frameworks such as the Transtheoretical Model may help explain stage-based changes in adherence behavior. Alternatively, if the emphasis lies in patients' psychological perceptions of recovery and future outcomes, Time Perspective Theory may provide a useful interpretive framework. Moreover, although adherence outcomes were reported across time points, individual-level trajectories were not presented. Analytical strategies such as latent class growth analysis or growth mixture modeling could potentially identify heterogeneous adherence patterns and better reflect the methodological strengths of adopting a temporal perspective.

Strengthening Integration in the Mixed-Methods Design

Another aspect that could be further strengthened is the depth of integration between quantitative and qualitative findings. In mixed-methods research, integration is a defining feature that allows different data sources to inform each other. Presenting joint displays linking quantitative predictors of adherence with qualitative themes related to patients' experiences over time may enhance interpretability. Additionally, mixed-methods studies are particularly valuable in exploring inconsistencies between datasets. For example, while quantitative findings may suggest increasing adherence over time, qualitative narratives might reveal psychological fatigue or reduced motivation among long-term patients. Examining such divergences could provide deeper insight into the complex behavioral mechanisms underlying rehabilitation adherence. Furthermore, considerations regarding transferability may also be important. The study was conducted in a single region, and information regarding attrition and reasons for dropout was not clearly described. Given that home-based rehabilitation adherence can be influenced by healthcare access, family support, and local rehabilitation resources, acknowledging these contextual factors would support more balanced interpretation of the findings.

Implications for Future Research and Clinical Practice

From a clinical perspective, research on adherence is particularly valuable when it informs intervention development. Future studies may consider further exploring time-sensitive adherence strategies tailored to different recovery stages. For instance, patients in the early recovery phase may benefit more from structured monitoring and real-time feedback, whereas individuals in later stages might require strategies focused on long-term motivation and habit formation. In addition, if digital health tools or tele-rehabilitation systems were involved in the study context, understanding how the timing of reminders, feedback cycles, and monitoring aligns with patients' daily routines may offer useful insights into improving sustained adherence.

Summary

Overall, the study by Shao et al provides an important contribution by highlighting the temporal dimension of rehabilitation adherence among stroke patients By further clarifying the conceptual framework of time, strengthening methodological transparency, and deepening integration within the mixed-methods design, future research in this area may generate even more robust and clinically meaningful evidence. Continued exploration of dynamic behavioral processes in rehabilitation will be essential for improving patient-centered adherence interventions.

Data Sharing Statement

Data availability is not applicable as no new data were generated or analyzed in this communication.

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The authors declare no competing interests in this communication.

Reference

1. Shao J, Cong S, Han Y. et al. Factors influencing adherence to home-based exercise rehabilitation in stroke patients from a temporal perspective: an explanatory sequential mixed-methods study. *Patient Prefer Adherence*. 2026;20:582280. doi:10.2147/PPA.S582280