

DETERMINANTS OF ADHERENCE TO HOME-BASED EXERCISE PROGRAMS IN PHYSICAL REHABILITATION: A LITERATURE REVIEW

^{1*}Jignasha Gohil, ²Mansi Soni

¹*Vidhyadeep Institute of Physiotherapy, Vidhyadeep University, Olpad

²Ashok & Rita Patel Institute of Physiotherapy, CHARUSAT, Anand

*Corresponding Author: : jignashagohil13@gmail.com

DOI: <https://doi.org/10.63299/ijopt.060334>

ABSTRACT

Background: Home-based physical therapy is essential for optimizing the effectiveness and success of physiotherapy. Majority of patients report that they cannot exercise at home and there is a lack of adherence to home-based exercise program. Understanding factors that influence patients' adherence with home-based physical therapy might help practitioners support improved adherence. Therefore, the purpose of this review is to determine all relevant factors that could influence adherence to home-based exercise program.

Methods: A literature search was performed in CINAHL, Pubmed-MEDLINE and PEDro databases. The following search categories were used: "physiotherapy", "home-based exercises", "home exercise program", "home-based physical therapy", "adherence", "effectiveness", "facilitators", and "barriers". A total of 612 studies were identified and title and abstract analysis was performed and 8 relevant studies were included for further analysis.

Results: The following factors were found to influence adherence to home-based exercise programs are: self-motivation, self-efficacy, locus of control, perceptions about physical therapy, their previous experience of an exercise program, participants' active role in the rehabilitation, psychological influences such as depression and anxiety, stress and coping strategies, social support, time constraints, physical environment. Even exercise prescription, patient-therapist communication and some cultural-specific factors such as opting for folk medicine over rehabilitation and social stigma were also found to influence adherence.

Conclusion: Therapists should emphasize more on reported findings and incorporate them into management strategies to increase adherence to home-based exercise program. This study can lead to the development of effective interventions for promoting adherence to home-based exercise program.

Keywords: Home-based exercises, home exercise program, home-based physical therapy, adherence, facilitators, and barriers.

INTRODUCTION

Self-managed home-based physical rehabilitation therapy (HBPT) is becoming a more common part of rehabilitation programs for various chronic conditions.[1-4] This is due to the limited time and resources available to physiotherapists.[4,5] Upon

sustaining an injury, undergoing surgery, or receiving a musculoskeletal disease diagnosis, engaging in exercise training becomes a critical step in the recovery process.[6] By incorporating physical activity into their regimen, individuals can effectively minimize the loss of function, improve

overall health, and expedite their return to optimal wellness, making exercise training a fundamental aspect of successful rehabilitation.[7]

A home-based exercise (HBE) training program is a key element in the rehabilitation process, contributing significantly to restoring function, improving results, and promoting overall well-being.[6] This program includes a variety of exercises specifically tailored to the individual needs and goals of each patient. Designed for independent execution during rehabilitation and continued at home, HBE training encourages patients to actively engage in their recovery, helping them develop a sense of autonomy and responsibility for their progress. [8-13]

In resource-limited areas, rehabilitation centers are almost non-existent in the public sector, and those available in the private sector are often out of reach for people living in semi-urban and rural regions.[14] As a result, home-based rehabilitation emerges as a practical and cost-effective option. Research has demonstrated that it can be just as effective as facility-based rehabilitation in enhancing functionality and quality of life for stroke survivors. [15-17]

Adherence to prescribed treatment is essential for the successful implementation of the intervention, as it directly impacts the effectiveness of the rehabilitation process.[18] Gaining insight into the factors that affect patients' adherence to home-based physical therapy (HBPT) can help identify obstacles and enable healthcare providers to enhance factors that encourage consistent participation.[19] Although following physical therapy regimens is essential for achieving positive outcomes, there is substantial evidence indicating that non-adherence rates are frequently quite high. [20-22]

A narrative review was conducted with the goal of exploring and identifying specific factors that influence adherence to a wide range of home-based, self-managed physical rehabilitation therapies. The review aimed to examine both patient-related and external factors contributing to consistent engagement with these programs, as well as to understand how these factors can be utilized to improve adherence and enhance overall therapeutic outcomes.

MATERIAL AND METHODS:

A comprehensive literature search and critical evaluation were conducted, followed by careful review and refinement of the manuscript. The search strategy utilized a detailed computerized approach, systematically searching CINAHL, Pubmed-MEDLINE, and PEDro databases to identify relevant studies.

Search strategy

A comprehensive search was conducted using keywords related to home physical therapies (e.g., 'exercise therapy', 'physiotherapy', 'home physiotherapy', 'home exercises', 'home-based exercises', 'home exercise program' 'rehabilitation exercises'), adherence (e.g., 'adherence', 'treatment adherence', 'patient engagement'), and factors influencing adherence (e.g., 'barriers', 'facilitators', 'effectiveness', 'factors').

Eligibility criteria

This review focuses on research articles published between January 1, 2011, and January 1, 2024. Included studies focused on adherence to home-based exercise programs and were published in English. Various study designs were considered, including systematic reviews, qualitative research, cross-sectional surveys, and longitudinal studies. Studies that addressed only supervised or institutional exercise programs were excluded. Additionally, non-primary sources such as abstracts and editorials were not considered.

Data Extraction and Synthesis

Relevant data were extracted regarding study objectives, design, population, and key findings related to adherence factors. Given the heterogeneity of included studies, a thematic synthesis approach was employed to identify and categorize the factors influencing adherence into major themes.

Selection of the studies

Initially, a total of 612 studies were identified through the systematic search process. Following a thorough title and abstract analysis, most of these studies were excluded, leaving 8 relevant studies that met the inclusion criteria. These 8 studies were deemed suitable for further analysis, and their full texts were reviewed in-depth to extract data.

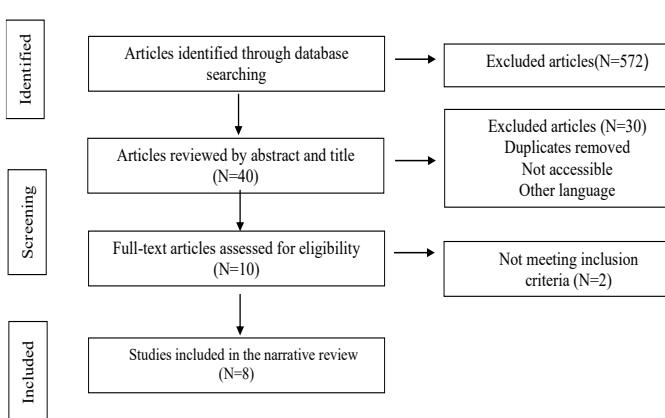


Figure 1. Flow diagram of selection process of studies

RESULTS AND DISCUSSION:

Table 1. Summary of Studies on Factors Influencing Adherence to Home-Based Exercise Programs

Sr No.	Study	Study Type	Objective	Key Findings
1	Caroline Bachmann, et al. (2017) [6]	A Systematic Review	To list factors influencing adherence to home-based exercise and make recommendations to improve it.	Adherence is enhanced by physiotherapist support, fewer exercises, high self-motivation/self-efficacy; hindered by helplessness, depression

2	Rosie Essery, et al. (2016) [4]	A Systematic Review	To identify specific factors influencing adherence to self-managed physical therapies.	n, and anxiety. Self-motivation, self-efficacy, previous exercise adherence, and social support are key facilitators.
3	Omoyemi Olubunmi OGWU MIKE, et al. (2014) [23]	A cross-sectional survey	To investigate adherence factors among stroke survivors in Northwest Nigeria.	Discomfort, reliance on physiotherapists, and personal barriers reduce adherence.
4	Amreen Mahmood, et al. (2019) [18]	A qualitative study	To explore factors influencing adherence among stroke survivors using	Non-adherence linked to lack of awareness, hopelessness, cultural

			intervention mapping.	factors; facilitated by supervision, family, and societal support.				of support hinder it.
5	Priyanka Babbar, et al. (2021) [24]	An analytical cross-sectional study	To identify personal factors affecting adherence post-discharge in stroke patients.	Self-efficacy, perceived recovery, fear, fatigue, and energy levels are critical; self-efficacy is particularly influential.	7	Naomi A. Beinart, et al. (2013) [26]	A systematic review	To identify adherence-related factors in chronic low back pain patients prescribed home exercises.
6	Jennie E. Hancox, et al. (2019) [25]	A qualitative study	To explore barriers and facilitators in early dementia patients' adherence to strength/balance exercises.	Routine, support, memory aids, and belief in benefits promote adherence; low cognition and lack	8	Britton W. Brewer, et al. (2013) [27]	A longitudinal study	To identify predictors of adherence after ACL surgery.
								Adherence to home-based exercise programs is influenced by a complex interplay of multiple factors, each playing a pivotal role in determining the likelihood of continued engagement. These factors can be broadly categorized into self-efficacy and motivation, psychological and emotional barriers, social support, cultural factors, and physical and cognitive limitations. Each of these categories encompasses a range of elements that either contribute to or hinder an individual's commitment to prescribed exercise regimens.

Self-efficacy and Motivation

A core theme across multiple studies is the importance of self-efficacy and self-motivation in determining whether individuals will adhere to home-based exercise programs. Studies by Caroline Bachmann et al. (2017) and Rosie Essery et al.

(2016) both underscore the significance of self-motivation and self-efficacy as strong facilitators of exercise adherence. [6,4] When individuals believe in their ability to complete exercises and are intrinsically motivated to do so, they are more likely to continue with their regimens, even in the face of challenges. Priyanka Babbar et al. (2021) further emphasized that self-efficacy plays a pivotal role in overcoming barriers such as fatigue, fear, and discomfort. Stroke survivors, for example, are more likely to maintain adherence when they believe they can achieve positive outcomes through their efforts.[24] The study by Jennie E. Hancox et al. (2019) also supports this, finding that individuals with early dementia who could establish a routine and believed in the benefits of exercise were more likely to adhere to strength and balance exercises.[25] These findings demonstrate that both self-efficacy and motivation are key factors that promote adherence to exercise programs. Interventions that focus on enhancing these factors, such as providing encouragement and fostering belief in one's abilities, are likely to improve long-term engagement with home-based exercises.

Psychological and Emotional barriers

Psychological and emotional barriers, such as depression, hopelessness, and fear, were identified as significant obstacles to adherence in several studies. Caroline Bachmann et al. (2017) and Amreen Mahmood et al. (2019) found that psychological barriers could prevent individuals from engaging in home-based exercise programs. [6,18] When patients feel helpless, anxious, or depressed, they are less likely to follow through with their prescribed exercises. This is particularly true when individuals perceive their recovery as slow or uncertain, leading to a sense of hopelessness that diminishes motivation. Omoyemi Olubunmi Ogwumike et al. (2014) also highlighted that patient discomfort and dependency on physiotherapists could serve as emotional barriers to adherence. When individuals feel that they require continuous assistance or are afraid of exacerbating their condition, they may avoid exercise altogether.[23] Additionally, Priyanka Babbar et al. (2021) identified fear and fatigue as major psychological obstacles, especially for stroke patients who may have low energy levels or fear of overexertion.[24] These studies collectively suggest that addressing emotional barriers, such as anxiety, fear, and depression, is essential to improving adherence. Providing psychological support and fostering

positive thinking could help mitigate these barriers, making it easier for individuals to engage in home-based exercises.

Social support

Another consistent theme across the studies is the critical role of social support in influencing adherence to home-based exercises. Caroline Bachmann et al. (2017) and Rosie Essery et al. (2016) both emphasize that individuals who receive social support from family, caregivers, or healthcare professionals are more likely to stick with their exercise routines. [6,4] The encouragement, reminders, and accountability provided by social networks can help maintain motivation, particularly when patients face challenges such as physical discomfort or a lack of energy. Amreen Mahmood et al. (2019) further found that a supportive family and society played a significant role in facilitating adherence among stroke survivors.[18] When individuals felt that their families were engaged and supportive, they were more likely to commit to the exercises prescribed for their recovery. Similarly, Jennie E. Hancox et al. (2019) found that individuals with early dementia were more likely to adhere to strength and balance exercises when they had strong caregiver support and used memory aids to help them remember their routines.[25] Social support, whether from family, friends, or healthcare providers, can therefore be considered a crucial facilitator of adherence. Interventions that encourage family involvement and provide regular healthcare follow-up can improve adherence, especially for individuals dealing with cognitive or emotional challenges.

Cultural factors

Cultural factors also emerged as a significant theme in influencing adherence, particularly among populations with different traditional beliefs or preferences regarding treatment. Amreen Mahmood et al. (2019) identified that cultural factors, such as a preference for folk medicine and social stigma against rehabilitation exercises, could hinder adherence to home-based exercises.[18] To address these cultural barriers, it is important to consider culturally sensitive approaches that both respect traditional practices and emphasize the benefits of exercise as part of a holistic recovery plan.

Physical and Cognitive limitations

Lastly, the studies consistently highlighted the impact of physical and cognitive limitations on adherence to home-based exercise programs. For individuals with physical impairments or disabilities, such as stroke survivors or individuals recovering from surgery, physical discomfort and dependency on physiotherapists were significant barriers. Omoyemi Olubunmi Ogwumike et al. (2014) found that the greater the discomfort and the higher the dependency on healthcare professionals, the lower the adherence to home-based exercises.[23] Similarly, Britton W. Brewer et al. (2013) identified stress and negative mood as significant contributors to non-adherence in individuals recovering from ACL surgery, suggesting that both mental and physical limitations need to be addressed for successful rehabilitation.[27] In the case of individuals with early dementia, the challenge is more cognitive in nature. Jennie E. Hancox et al. (2019) found that individuals with limited cognitive capacity who lacked support and purpose were unlikely to adhere to exercise programs. Cognitive impairments, such as memory loss, can interfere with the ability to remember exercises or follow routines without external assistance.[25]

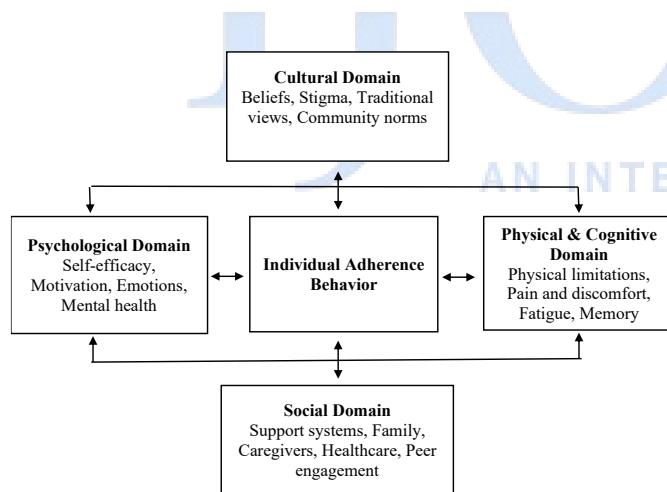


Figure2. Multidimensional framework of adherence to HBEP

LIMITATIONS

The review incorporates a heterogeneous collection of studies, representing a wide array of research designs, patient demographics, and therapeutic approaches. Only full-text articles published in

English were considered, excluding studies in other languages, and their findings were not utilized in the review.

RECOMMENDATIONS FOR IMPROVING ADHERENCE

To improve adherence, interventions should adopt a holistic approach that not only addresses the physical aspects of recovery but also takes into consideration the emotional, social, and cultural contexts in which individuals live. Tailoring interventions to these factors will likely result in better outcomes and greater long-term adherence to home-based exercise programs.

CONCLUSION

Adherence to home-based exercise programs is shaped by psychological, social, cultural, and physical factors. Key facilitators include self-efficacy, motivation, and social support from family or healthcare providers. In contrast, barriers such as depression, fear, cultural beliefs, physical discomfort, and cognitive impairments can hinder adherence. Effective interventions must address these diverse influences to improve engagement and rehabilitation outcomes.

Disclosure statement

There are no conflicts of interest listed by the author.

REFERENCES: JOURNAL

1. Chan, D., & Can, F. (2010). Patients' adherence/compliance to physical therapy home exercises. *Fizyoterapi rehabilitasyon*, 21(3), 132-139.
2. Bassett, S. F. (2003). The assessment of patient adherence to physiotherapy rehabilitation. *NZ J Physiother*, 31(2), 60-66.
3. Kolt, G. S., & McEvoy, J. F. (2003). Adherence to rehabilitation in patients with low back pain. *Manual therapy*, 8(2), 110-116.
4. Essery, R., Geraghty, A. W., Kirby, S., & Yardley, L. (2017). Predictors of adherence to home-based physical therapies: a systematic review. *Disability and rehabilitation*, 39(6), 519-534.
5. Henry, K. D., Rosemond, C., & Eckert, L. B. (1999). Effect of number of home exercises on compliance and performance in adults over 65 years of age. *Physical Therapy*, 79(3), 270-277.

6. Bachmann, C., Oesch, P., & Bachmann, S. (2018). Recommendations for improving adherence to home-based exercise: a systematic review. *Physikalische Medizin, Rehabilitationsmedizin, Kurortmedizin*, 28(01), 20-31.
7. Janet, A., Resnick, B., Orwig, D., Hicks, G., & Magaziner, J. (2009). Design and implementation of a home-based exercise program post-hip fracture: the Baltimore hip studies experience. *PM&R*, 1(4), 308-318.
8. Hill, K. D., Hunter, S. W., Batchelor, F. A., Cavalheri, V., & Burton, E. (2015). Individualized home-based exercise programs for older people to reduce falls and improve physical performance: A systematic review and meta-analysis. *Maturitas*, 82(1), 72-84.
9. Ashari, A., Hamid, T. A., Hussain, M. R., & Hill, K. D. (2016). Effectiveness of individualized home-based exercise on turning and balance performance among adults older than 50 yrs: a randomized controlled trial. *American journal of physical medicine & rehabilitation*, 95(5), 355-365.
10. Thomas, K. S., Muir, K. R., Doherty, M., Jones, A. C., O'reilly, S. C., & Bassey, E. J. (2002). Home based exercise programme for knee pain and knee osteoarthritis: randomised controlled trial. *Bmj*, 325(7367), 752.
11. Anar, S. Ö. (2016). The effectiveness of home-based exercise programs for low back pain patients. *Journal of physical therapy science*, 28(10), 2727-2730.
12. Anwer, S., Alghadir, A., & Brismee, J. M. (2016). Effect of home exercise program in patients with knee osteoarthritis: a systematic review and meta-analysis. *Journal of geriatric physical therapy*, 39(1), 38-48.
13. Latham, N. K., Harris, B. A., Bean, J. F., Heeren, T., Goodyear, C., Zawacki, S., ... & Jette, A. M. (2014). Effect of a home-based exercise program on functional recovery following rehabilitation after hip fracture: a randomized clinical trial. *Jama*, 311(7), 700-708.
14. Truelsen, T., Heuschmann, P. U., Bonita, R., Arjundas, G., Dalal, P., Damasceno, A., ... & Stakhovskaya, V. (2007). Standard method for developing stroke registers in low-income and middle-income countries: experiences from a feasibility study of a stepwise approach to stroke surveillance (STEPS Stroke). *The lancet neurology*, 6(2), 134-139.
15. Siemonsma, P., Döpp, C., Alpay, L., Tak, E., Meeteren, N. V., & Chorus, A. (2014). Determinants influencing the implementation of home-based stroke rehabilitation: a systematic review. *Disability and rehabilitation*, 36(24), 2019-2030.
16. Rasmussen, R. S., Østergaard, A., Kjær, P., Skerris, A., Skou, C., Christoffersen, J., ... & Overgaard, K. (2016). Stroke rehabilitation at home before and after discharge reduced disability and improved quality of life: a randomised controlled trial. *Clinical rehabilitation*, 30(3), 225-236.
17. Hillier, Susan, and Gakeemah Inglis-Jassiem. "Rehabilitation for community-dwelling people with stroke: home or centre based? A systematic review." *International journal of stroke : official journal of the International Stroke Society* vol. 5,3 (2010): 178-86. doi:10.1111/j.1747-4949.2010.00427.x
18. Mahmood, A., Nayak, P., Kok, G., English, C., Manikandan, N., & Solomon, J. M. (2021). Factors influencing adherence to home-based exercises among community-dwelling stroke survivors in India: a qualitative study. *European Journal of Physiotherapy*, 23(1), 48-54.
19. Jack, K., McLean, S. M., Moffett, J. K., & Gardiner, E. (2010). Barriers to treatment adherence in physiotherapy outpatient clinics: a systematic review. *Manual therapy*, 15(3), 220-228.
20. Campbell, R., Evans, M., Tucker, M., Quilty, B., Dieppe, P., & Donovan, J. L. (2001). Why don't patients do their exercises? Understanding non-compliance with physiotherapy in patients with osteoarthritis of the knee. *Journal of Epidemiology & Community Health*, 55(2), 132-138.
21. O'carroll, M., & Hendriks, O. (1989). Factors associated with rheumatoid arthritis patients' compliance with home exercises and splint use. *Physiotherapy Practice*, 5(3), 115-122.
22. Sluijs, E. M., Kok, G. J., & Van der Zee, J. (1993). Correlates of exercise compliance in physical therapy. *Physical therapy*, 73(11), 771-782.
23. Ogwumike, O., Badaru, U. M., & Adeniyi, A. F. (2014). Factors influencing adherence to home-based exercise by stroke survivors in North Western Nigeria. *Int J Ther Rehabil Res*, 3(1), 1.
24. Babbar, P., Kumar, K. V., Joshua, P. A., Chakrapani, M., & Misri, Z. K. (2021). Adherence to home-based neuro-rehabilitation exercise program in stroke survivors. *Bangladesh Journal of Medical Science*, 20(1), 145-153.

25. Hancox, J. E., van der Wardt, V., Pollock, K., Booth, V., Vedhara, K., & Harwood, R. H. (2019). Factors influencing adherence to home-based strength and balance exercises among older adults with mild cognitive impairment and early dementia: Promoting Activity, Independence and Stability in Early Dementia (PrAISED). *PloS one*, 14(5), e0217387.
26. Beinart, N. A., Goodchild, C. E., Weinman, J. A., Ayis, S., & Godfrey, E. L. (2013). Individual and intervention-related factors associated with adherence to home exercise in chronic low back pain: a systematic review. *The Spine Journal*, 13(12), 1940-1950.
27. Brewer, B. W., Cornelius, A. E., Van Raalte, J. L., Tennen, H., & Armeli, S. (2013). Predictors of adherence to home rehabilitation exercises following anterior cruciate ligament reconstruction. *Rehabilitation psychology*, 58(1), 64.

ISSN: 2321-5690

