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Video-guided range of motion for functional recovery in non-hemorrhagic stroke: A literature review

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Abstract

Background: Non-hemorrhagic stroke is a major cause of long-term disability, often resulting in motor impairment, reduced muscle strength, limited range of motion, and decreased independence in activities of daily living. Consistent and accessible rehabilitation strategies are therefore needed, especially during the transition from hospital to home care. Video-guided range of motion has emerged as a nursing-led approach to support home-based rehabilitation.

Purpose: To describe the application of Evidence-Based Nursing through video-guided range of motion as an independent nursing intervention to improve functional recovery in patients with non-hemorrhagic stroke.

Method: An Evidence-Based Nursing approach was conducted using the PICO framework. Literature searching was performed through PubMed, ScienceDirect, ProQuest, and Google Scholar. A total of nine relevant studies were critically appraised, including randomized controlled trials, feasibility studies, and comparative studies related to video-guided range of motion interventions in patients with non-hemorrhagic stroke.

Results: The evidence indicated that video-guided range of motion improved exercise adherence, motor function, mobility, balance, and functional independence. Improvements were reported using validated outcome measures, including the Berg Balance Scale, Motor Functional Scores, and the Modified Barthel Index. Video-based range of motion showed effectiveness comparable to conventional face-to-face rehabilitation without increasing adverse events.

Conclusion: Video-guided range of motion is a feasible and effective Evidence-Based Nursing intervention to support functional recovery and strengthen nursing practice in patients with non-hemorrhagic stroke, particularly in community and home-care settings.

Keywords: Evidence-Based Nursing; Functional Recovery; Non-Hemorrhagic Stroke; Telerehabilitation; Video-Guided Range of Motion.

INTRODUCTION

Stroke remains a major global health problem and is widely recognized as one of the leading causes of death and disability worldwide (Feigin, Stark, Johnson, Roth, Bisignano, Abady, & Hamidi, 2021; Martin, Aday, Almarzooq, Anderson, Arora, Avery, & American Heart Association Council on Epidemiology and Prevention Statistics Committee and Stroke Statistics Subcommittee, 2024). According to the World Health Organization (WHO), stroke was the third leading cause of death and disability globally in 2021, with approximately 11.9 million new cases reported each year. Its burden continues to rise and contributes substantially to *disability-adjusted life years* (DALYs), long-term disability, and persistent functional limitations among survivors (World Health Organization, 2025). Among all stroke types, non-hemorrhagic stroke, or ischemic stroke, accounts for approximately 80-85% of cases and is commonly associated with lasting neurological deficits, including muscle weakness, impaired balance, and limited *range of motion* (ROM), all of which reduce a patient's ability to perform *activities of daily living* independently (Feigin et al., 2021).

The burden of stroke is particularly pronounced in low- and middle-income countries, including those in Southeast Asia, where both stroke prevalence and disability rates continue to increase (Katan & Luft, 2018; Venketasubramanian, Yudiarto, & Taskworo, 2022). In these settings, many stroke survivors face long-term functional impairments, while access to comprehensive rehabilitation services remains limited, especially after hospital discharge and during community- or home-based care (Feigin et al., 2021; Johnson, Nguyen, Roth, Nichols, Alam, Abate, & Miller, 2019). This gap in post-discharge rehabilitation presents a major challenge, as functional recovery after stroke requires continuity, repetition, and structured support over time.

In recent years, developments in digital health technology have introduced alternative rehabilitation models, including *telerehabilitation* and video-guided exercise programs, which have shown promising results in improving patient participation, exercise adherence, and functional outcomes among stroke survivors (Cramer, Dodakian, Le, See, Augsburg, McKenzie, & Janis, 2019; Laver, Adey-Wakeling, Crotty, Lannin, George, & Sherrington, 2020). These approaches are particularly valuable in situations

where direct supervision is limited, because they allow rehabilitation to be delivered in a more accessible and standardized way. Nevertheless, most of the existing literature has focused predominantly on physiotherapy-led interventions, whereas nursing-led rehabilitation strategies have received far less attention. In addition, only a limited number of studies have specifically synthesized the effectiveness of video-guided *range of motion* exercises within an Evidence-Based Nursing framework.

Non-hemorrhagic stroke (SNH) is a major contributor to long-term disability and commonly results in motor impairment, decreased muscle strength, restricted ROM, balance disturbances, and reduced independence in daily activities. For this reason, continuous and structured rehabilitation is essential throughout the recovery process. However, access to supervised rehabilitation frequently declines once patients leave the hospital. ROM exercises remain a core component of post-stroke rehabilitation because they help maintain joint mobility, support motor recovery, and prevent further physical limitation. Recent advances in digital technology have made it possible to deliver these exercises through video-guided and *telerehabilitation*-based methods, enabling patients to follow ROM training in a more consistent, practical, and accessible manner. Evidence suggests that video-based exercise programs can improve patients' understanding of movement techniques, increase motivation, and strengthen adherence to rehabilitation programs.

Several clinical studies have demonstrated the effectiveness of video-guided ROM interventions in patients with stroke. Significantly higher exercise adherence and improved mobility were reported among patients who used mobile video-guided programs compared with those who received paper-based instructions (Chung, Chiang, Lau, Lau, Lai, Sit, & Lee, 2020). Significant improvements in balance and functional independence were also observed among patients with subacute *stroke non-hemorrhagic* following self-rehabilitation video exercises (Jung, Park, Kim, Park, Yu, Kim, & Jung, 2021). Feasibility and experimental studies further reported positive effects on motor recovery and ROM through video observational training and interactive

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visual feedback systems (Lu, Wang, Hu, Lau, & Tong, 2024; Ojardias, Adham, Bessaguet, Phaner, Rimaud, & Giraux, 2024). Moreover, a multicenter randomized trial showed that home-based video *telerehabilitation* was non-inferior to in-clinic therapy (Cramer et al., 2019), while *telerehabilitation*-based video training was also associated with improved balance confidence and greater functional independence (Özden, Özkeskin, Ezgin, Tümtürk, Karaman, & Şirin, 2024).

Although the effectiveness of video-guided ROM has been increasingly reported, its role as an independent nursing intervention within an Evidence-Based Nursing framework remains insufficiently explored. This is an important gap, particularly because nurses play a central role in patient education, rehabilitation support, continuity of care, and the promotion of self-management after discharge. Therefore, this paper aims to synthesize current evidence on video-guided *range of motion* as a nursing-led innovation to support functional recovery in patients with non-hemorrhagic stroke.

RESEARCH METHOD

A literature review approach within an *Evidence-Based Nursing* (EBN) framework and was conducted in accordance with the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) guidelines. The review question was formulated using the *Population, Intervention, Comparison, Outcome* (PICO) framework. The population consisted of patients with non-hemorrhagic stroke, the intervention was *Video-Guided Range of Motion* or other forms of video-based rehabilitation, the comparison included conventional therapy or usual care, and the outcomes of interest covered motor recovery, mobility, balance, adherence, and functional independence. In this review, the EBN framework was used to ensure that the clinical question, literature search, appraisal process, and synthesis of findings remained focused on evidence relevant to nursing practice.

The literature search was conducted from January to February 2026 using four electronic databases, namely PubMed, ScienceDirect, ProQuest, and Google Scholar. Articles published between 2018 and 2025 were considered eligible for

retrieval. The search strategy combined the following keywords: “non-hemorrhagic stroke,” “ischemic stroke,” “video-guided range of motion,” “video exercise,” “video-based rehabilitation,” “telerehabilitation,” “motor recovery,” and “functional recovery,” with the Boolean operators *AND* and *OR*. To avoid ambiguity, the term non-hemorrhagic stroke in this review was used interchangeably with ischemic stroke, as most studies in the literature use the latter term more frequently.

The inclusion criteria were full-text articles published in English, involving adult stroke patients, particularly those with non-hemorrhagic stroke or predominantly ischemic stroke, evaluating video-guided *range of motion* (ROM) or similar video-based rehabilitation interventions, and reporting rehabilitation-related functional outcomes. The exclusion criteria consisted of studies involving mixed neurological populations without separate analysis for stroke patients, interventions that were not video-based, studies that did not report functional or rehabilitation-related outcomes, non-research publications, and duplicate articles. These criteria were applied to ensure that the selected studies were directly relevant to the review objective and sufficiently specific to the target population and intervention.

A total of 80 records were initially identified from the database search. After removing 5 duplicate records, 75 articles remained for title and abstract screening. Of these, 30 full-text articles were assessed for eligibility. Following full-text review, 21 studies were excluded for the following reasons: inappropriate population ($n = 7$), irrelevant intervention ($n = 7$), and absence of functional outcomes ($n = 7$). As a result, 9 studies were included in the final review. The methodological quality of the selected studies was critically appraised using the *Cochrane Risk of Bias* tool for randomized controlled trials, the *Joanna Briggs Institute* (JBI) checklist for non-randomized studies, and the *Critical Appraisal Skills Programme* (CASP) checklist for systematic reviews. Because the included studies varied in design, intervention characteristics, and outcome measures, the findings were synthesized narratively rather than statistically.

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RESEARCH RESULTS

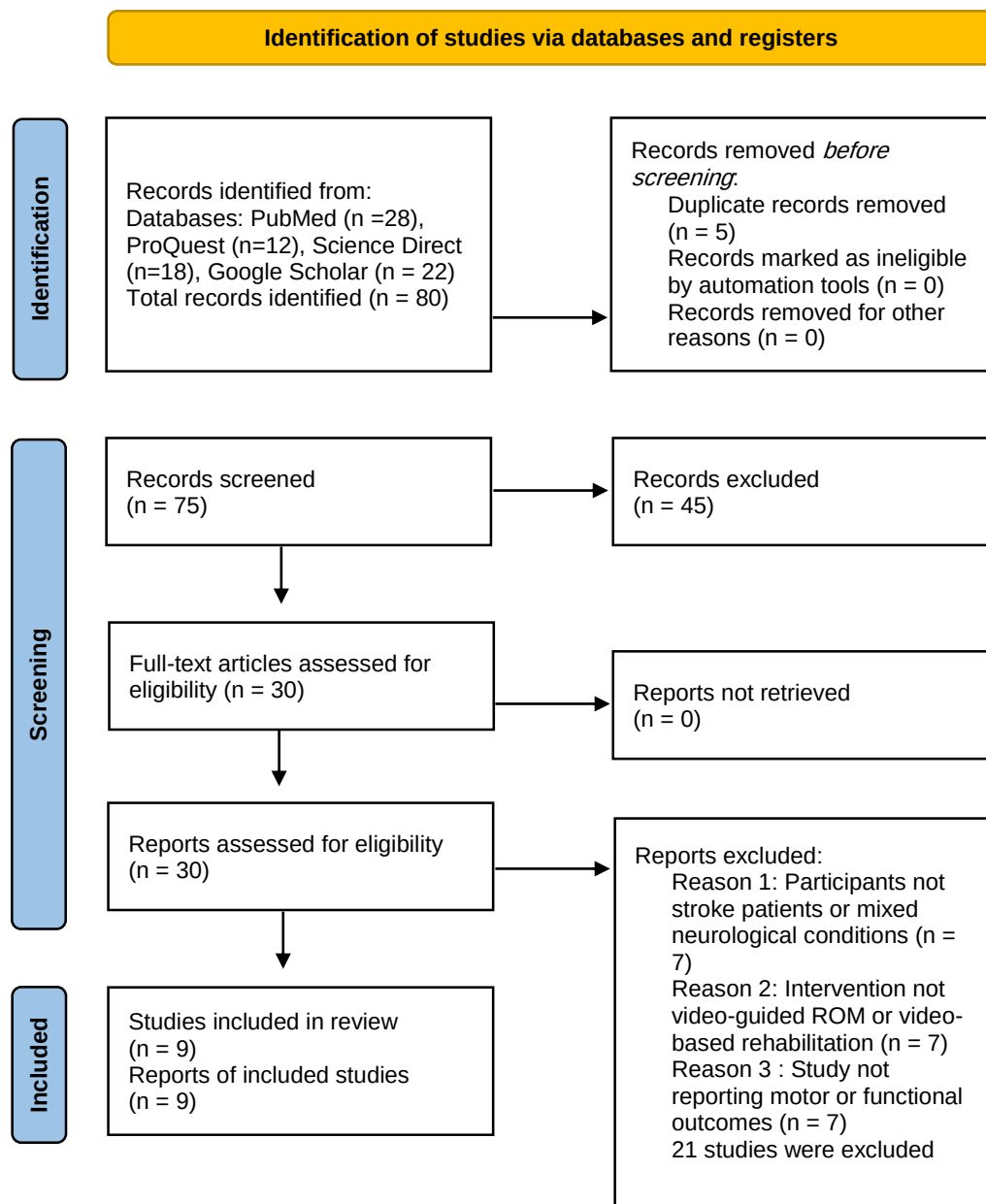


Figure PRISMA Flow Diagram

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Table Summary of Selected Articles

(Author, Year) (Country)	Design & Method	Population & Sample	Results	Conclusion
(Chung et al., 2020) (Hongkong)	A single-blind randomized controlled trial (RCT) comparing a mobile video-guided home exercise program ($n=27$) to a standard paper-based pamphlet program ($n=29$) over a 3-month follow-up period for post-stroke patients.	Stroke patients, with the majority diagnosed with non-hemorrhagic stroke. Sample: 56 participants (27 Exp / 29 Ctrl)	Significant improvement in exercise adherence and mobility was reported in the video-guided group ($p < 0.01$).	Video-guided ROM was more effective than written guidance in improving adherence and functional outcomes.
(Jung et al., 2021) (South Korea)	Non-randomized controlled trial. The intervention group (SAVE group) received conventional therapy plus 60 minutes/day of bedside video-guided exercises for 4 weeks, supervised by caregivers. The control group received conventional therapy only.	Patients with subacute stroke. Sample: 184 participants (88 in the SAVE group, 96 in the control group).	The SAVE group showed significantly greater improvements in the Berg Balance Scale (BBS), Modified Barthel Index (MBI), and Physical Component Summary (PCS) of SF-36 compared to the control group ($p < 0.05$).	The "SAVE" video-based program is an effective, evidence-based intervention to optimize physical recovery, balance, and functional independence in subacute stroke patients.
(Ojardias et al., 2024) (France)	Randomized, evaluator-blind, monocentric study. The therapeutic group received 30 sessions of intensive visual simulation combined with corrected visual feedback over 6 weeks, in addition to standard rehabilitation.	Patients with early subacute ischaemic stroke and complete hemiplegia. Sample: 17 participants (8 in therapeutic group, 9 in control group).	Significant improvement in the 400-point hand assessment test (400p-HA) at 3 and 4 months ($p = 0.046$). The therapeutic group also showed a faster recovery in the Box and Blocks (B&B) test ($p = 0.03$).	Intensive visual simulation training is feasible and potentially effective for improving upper limb function in subacute stroke patients, showing faster and greater recovery compared to the control.
(Lu et al., 2024) (Hongkong)	Pre- and post-training experimental study. Participants used a Kinect-based home guidance system for 800 minutes total (3 sessions/week, 20-40 min/session) featuring real-time visual feedback and personalized 3D skeletal motor tracking.	Chronic stroke patients with moderate to severe motor impairment. Sample: 12 participants.	Significant improvements ($p < 0.05$) in FMA (Upper & Lower Limb), Barthel Index, and Active ROM of shoulder, hip, and knee joints. Spasticity (MAS) also significantly decreased.	The Kinect-based home guidance system effectively improves kinematic performance, balance control, and functional independence in chronic stroke patients.

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(Author, Year) (Country)	Design & Method	Population & Sample	Results	Conclusion
(Cramer et al., 2019) (United States of America)	Multicenter, randomized, assessor-blinded, noninferiority trial. Both groups received 36 sessions (70 min each) over 6 weeks of dose-matched arm motor therapy. The Telerehabilitation (TR) group practiced at home, while the In-Clinic (IC) group practiced at a traditional clinic.	Adults 4-36 weeks post-stroke with arm motor deficits (Fugl-Meyer score 22–56). Sample: 124 participants (62 in TR group, 62 in IC group).	Both groups showed significant motor gains. The TR group improved by 7.86 points and the IC group by 8.36 points on the Fugl-Meyer scale ($P < 0.001$). TR was proven noninferior to IC therapy, with high adherence in both groups.	Home-based telerehabilitation is just as effective as traditional in-clinic therapy for improving arm motor function and stroke knowledge, potentially increasing large-scale access to rehabilitation.
(Özden et al., 2024) (Turkey)	Double-blind, randomized controlled trial. The telerehabilitation group received video-based balance and coordination exercises, while the control group received a paper-based exercise prescription for 6 weeks.	Stroke patients. Sample: 30 participants (15 in the telerehabilitation group, 15 in the control group).	Both methods improved outcomes, but the video-based telerehabilitation group showed significantly greater improvements in balance confidence ($p = 0.042$) and functional independence ($p = 0.018$). Patients reported high satisfaction with the digital application.	Telerehabilitation using video-based exercises provides superior benefits in balance confidence and fall efficiency compared to traditional paper-based methods.
(Tchero et al., 2018) (France)	Systematic review and meta-analysis. A comprehensive search of MEDLINE, Cochrane Central, and Web of Science was conducted to identify Randomized Controlled Trials (RCTs) comparing telerehabilitation to usual care.	15 RCTs involving 1,339 post-stroke patients were included in the systematic review (12 studies with 1,246 patients were included in the pooled meta-analysis).	Meta-analysis showed no significant differences ($p > 0.05$) between telerehabilitation and control groups in the Barthel Index, Berg Balance Scale, Fugl-Meyer Upper Extremity, and Stroke Impact Scale. Telerehabilitation was found to be potentially more cost-effective (saving approx. US \$654-\$867 per patient).	Telerehabilitation is a suitable and equivalent alternative to traditional in-clinic rehabilitation, particularly effective for patients in remote or underserved areas.

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(Author, Year) (Country)	Design & Method	Population & Sample	Results	Conclusion
(dos Santos et al., 2025) (Brazil)	Systematic Review. The study searched BVS, PubMed, and Web of Science (2008-2024) to identify Randomized Controlled Trials (RCTs) comparing video-demonstrated exercise programs to other physical therapy interventions in post-stroke patients.	Post-stroke individuals (acute and subacute phases). Sample: 4 studies with a total of 328 participants.	Most studies showed no significant differences between video-based exercises and face-to-face therapy in adherence, satisfaction, or functional scales (MBI, BBS, WMFT). However, one study (Chen et al.) reported significant gains in motor function (FMA score, $p=0.011$) for the telerehabilitation group.	Video-guided exercises are a safe, cost-effective alternative that provides functional improvements comparable to conventional therapy, though personalized therapist feedback is crucial for optimizing outcomes.
(Hestetun-Mandrup et al., 2024) (Norwegia)	Systematic Review and Meta-analysis of 13 RCTs. The study followed Cochrane and PRISMA guidelines, evaluating digital rehabilitation programs (VR, exergames, and apps) combined with telesupervision (video-consultation, chat) compared to conventional care.	571 stroke survivors (290 Intervention, 281 Control) from 7 countries. Participants were primarily in the late sub-acute or chronic phase (>3 months post-stroke), with a mean onset of 3.6 years.	Meta-analysis showed that digital telerehabilitation is at least as effective as conventional face-to-face therapy for motor recovery. Significant between-group differences in favor of digital intervention were found in active Range of Motion (ROM) and several self-reported outcomes (e.g., Quality of Life and Motor Activity Log).	Home-based digital rehabilitation with telesupervision is a viable and effective alternative to conventional care for improving motor ability and functional independence in chronic stroke survivors.

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DISCUSSION

The findings of this review demonstrate that video-guided *range of motion* (ROM) interventions can improve motor function, mobility, balance, and functional independence among patients with non-hemorrhagic stroke. Drawing on evidence from the nine studies included in this review, the benefits of this intervention may be understood through several interrelated mechanisms, particularly visual learning, motor relearning, and stronger patient involvement during rehabilitation. Video-guided rehabilitation allows patients to observe correct movement patterns before carrying out the exercises independently, thereby supporting more accurate practice and facilitating motor relearning. This process is especially relevant in stroke rehabilitation, where *observational learning* and visual feedback help patients recognize, understand, and reproduce movement patterns more effectively during repeated exercise sessions (Maimaitiali, Shi, Shan, Jin, Gu, Li, & Shu, 2024; Zhang & Wang, 2023).

The studies reviewed provide further support for these mechanisms. Improvement in upper-limb motor recovery was reported in patients with subacute ischemic stroke who received video observational training, indicating that repeated exposure to guided movement demonstrations may strengthen motor performance during recovery (Ojardias et al., 2024). Likewise, the use of an interactive home-based training system that combined video guidance with visual feedback resulted in significant gains in motor function and ROM among stroke survivors with moderate to severe motor impairment, suggesting that structured digital guidance can enhance the rehabilitation experience beyond conventional unsupervised home exercise (Lu et al., 2024). Taken together, these findings indicate that guided visual demonstration and feedback may support motor learning processes and encourage *neuroplastic* adaptation, both of which are essential for functional recovery after stroke (Buccino, 2014; Zhang & Wang, 2023).

Beyond its contribution to motor relearning, video-guided rehabilitation also appears to promote exercise adherence and sustain patient motivation, two factors that are central to successful recovery. Better adherence and improved mobility were observed among stroke survivors who followed mobile video-guided home exercise programs

compared with those who received paper-based instructions, showing that a more interactive and comprehensible format may improve participation in rehabilitation (Chung et al., 2020). In a similar way, structured self-rehabilitation video exercises performed over a four-week period were associated with improvements in balance and functional independence in patients with subacute stroke, indicating that repeated video-assisted practice may strengthen both confidence and functional performance (Jung et al., 2021). These results suggest that video-guided rehabilitation not only improves the quality of exercise execution but also increases engagement in the rehabilitation process, which in turn contributes to better outcomes (Chen, Jin, Zhang, Xu, Liu, & Ren, 2015; Sarfo, Ulasavets, Opare-Sem, & Ovbiagele, 2018).

Current evidence also strengthens the argument that digital rehabilitation technologies have an important role in stroke recovery. Studies of digital home rehabilitation have shown that technology-assisted programs can improve motor performance, *activities of daily living* (ADL), and quality of life among stroke survivors. Comparable gains in motor function, balance, and functional independence have also been reported in digital home rehabilitation programs with remote supervision when compared with conventional rehabilitation, indicating that digitally delivered interventions can serve as a practical alternative without compromising effectiveness (Hestetun-Mandrup, Toh, Oh, He, Martinsen, & Pikkarainen, 2024). This body of evidence reinforces the potential of video-guided ROM as an accessible and effective rehabilitation strategy, particularly for supporting ongoing recovery after discharge from hospital care (Deshmukh & Madhavan, 2023; Gebrye, Mbada, Fatoye, & Anazodo, 2024; Hao, Pu, Chen, & Siu, 2023).

From a nursing perspective, these findings carry important implications for the delivery of stroke rehabilitation in both home and community settings. Many stroke survivors experience reduced access to supervised rehabilitation once they leave the hospital, and this gap may slow functional improvement over time. In this context, video-guided ROM offers a practical approach that can be incorporated into discharge planning and patient education to support continuity of care. Nurses have

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a central role in teaching patients and caregivers how ROM exercises should be performed correctly and in encouraging consistent adherence to prescribed rehabilitation activities. By providing clear instructional videos and ongoing guidance, nurses can help patients continue therapeutic exercises more independently at home while maintaining safety and consistency in practice (Sarfo et al., 2018; Winstein, Stein, Arena, Bates, Cherney, Cramer, & Zorowitz, 2016).

The available evidence also suggests that this approach may strengthen nursing interventions aimed at improving post-discharge rehabilitation outcomes. Greater adherence and better functional results were reported in patients who followed video-guided home exercise programs compared with those who relied on conventional written instructions, highlighting the value of visual and structured educational support in nursing practice (Chung et al., 2020). Improvements in balance and functional independence have also been observed after structured self-rehabilitation video exercises in patients with subacute stroke, further indicating that video-based programs may support patient self-management in a meaningful way (Jung et al., 2021). These findings imply that nurses can contribute not only as educators, but also as facilitators of accessible rehabilitation strategies that extend beyond the hospital setting.

The growing use of *telerehabilitation* and digital health services in stroke care further expands the relevance of this intervention for nursing practice. Digital platforms may enable nurses to monitor progress, provide reinforcement, and offer feedback related to exercise performance and adherence, thereby maintaining patient engagement even when face-to-face supervision is limited (Ding, Ma, Zhang, Gu, Pan, Gu, & Zhang, 2025; Laver et al., 2020). Recovery outcomes from home-based *telerehabilitation* have been shown to be comparable with those of conventional in-clinic therapy, indicating that rehabilitation delivered remotely can still provide meaningful functional benefits (Cramer et al., 2019). Gains in balance confidence and functional independence have likewise been reported among stroke survivors receiving *telerehabilitation*-based video training, further supporting the integration of video-guided approaches into contemporary stroke care models (Özden et al., 2024).

In addition, the use of remote rehabilitation has important implications for access and equity in healthcare delivery. Digital rehabilitation platforms allow patients to participate in structured therapy despite barriers related to distance, transportation, and limited availability of rehabilitation services. Evidence from broader reviews has shown that such interventions can improve motor function, gait performance, and ADL outcomes, while also maintaining patient participation over longer periods of recovery. These observations suggest that video-guided ROM may help expand the role of nurses in community stroke management and digital rehabilitation services, particularly in settings where direct access to rehabilitation remains constrained (Zoppi, Matteo, Testa, & Molfino, 2024).

The findings of this review are also consistent with previous reviews examining the effectiveness of *telerehabilitation* and other digital rehabilitation approaches for stroke survivors. Earlier evidence showed that *telerehabilitation* could generate outcomes comparable with traditional face-to-face rehabilitation, suggesting that remote delivery may be a viable alternative for patients who cannot regularly attend in-person sessions. No significant differences between *telerehabilitation* and conventional rehabilitation outcomes were reported in a systematic review and meta-analysis involving stroke survivors, indicating that digitally supported rehabilitation can achieve similar therapeutic value while improving service reach (Tchero, Tabue Tegu, Lannuzel, & Rusch, 2018). More recent review evidence has likewise shown that video-directed exercise programs can improve functional participation and rehabilitation outcomes after stroke, with benefits comparable to those of traditional rehabilitation and with better adherence to therapy in some cases (Rodrigues, Quaresma, Costa, Luz, & Fonseca, 2025; dos Santos, da Silva, Vieira, Braga, Barbosa, Veras, & Tatmatsu-Rocha, 2025).

Additional findings from recent digital rehabilitation research further support this pattern. Digital home rehabilitation programs with remote supervision have been associated with improvements in motor function, balance, and functional independence among stroke survivors, while other telehealth-based rehabilitation studies have reported gains in ADL performance and quality of life in patients participating in remote rehabilitation

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programs (Hestetun-Mandrup et al., 2024). The present review aligns with those earlier findings. Across the included primary studies, improvements were consistently reported in functional domains relevant to stroke recovery, including exercise adherence, mobility, balance, ROM, and independence in daily activities. Better adherence and mobility were observed following mobile video-guided exercise programs, while balance and functional independence improved after structured self-rehabilitation video interventions (Chung et al., 2020; Jung et al., 2021). Promising outcomes were also reported from technology-assisted rehabilitation systems, including gains in motor function and ROM through interactive video-guided training, as well as improved upper-limb motor recovery after observational video-based interventions (Lu et al., 2024; Ojardias et al., 2024). Support from randomized trials of *telerehabilitation* further strengthens this conclusion, as improvements in balance confidence, functional independence, and overall recovery have been documented in patients receiving video-based remote rehabilitation, with outcomes comparable to conventional in-clinic therapy (Cramer et al., 2019; Özden et al., 2024).

Overall, the available evidence suggests that video-guided rehabilitation is a feasible and effective strategy for supporting functional recovery among stroke survivors. Its value lies not only in improving physical outcomes, but also in enhancing adherence, extending access to rehabilitation, and strengthening the contribution of nursing practice in home-based and community-based stroke care. However, several limitations of this review should be acknowledged. This review was limited by the small number of included studies, heterogeneity in study characteristics, and the use of narrative synthesis. In addition, several studies involved mixed stroke populations, which may limit the specificity of the findings for non-hemorrhagic stroke.

CONCLUSION

Video-guided *range of motion* is a feasible and effective *Evidence-Based Nursing* intervention to support functional recovery in patients with non-hemorrhagic stroke. The evidence indicates that this approach can improve exercise adherence, motor performance, mobility, balance, and functional independence, making it a practical option for

rehabilitation in home-based and community settings. Its integration into nursing care may support continuity of rehabilitation after hospital discharge through patient education, discharge planning, and structured home exercise guidance. This video-guided ROM has the potential to strengthen nursing practice while improving access to post-stroke rehabilitation services.

REFERENCES

- Buccino, G. (2014). Action observation treatment: a novel tool in neurorehabilitation. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 369(1644), 20130185.
- Chen, J., Jin, W., Zhang, X. X., Xu, W., Liu, X. N., & Ren, C. C. (2015). Telerehabilitation approaches for stroke patients: systematic review and meta-analysis of randomized controlled trials. *Journal of Stroke and Cerebrovascular Diseases*, 24(12), 2660-2668.
- Chung, B. P. H., Chiang, W. K. H., Lau, H., Lau, T. F. O., Lai, C. W. K., Sit, C. S. Y., & Lee, J. S. W. (2020). Pilot study on comparisons between the effectiveness of mobile video-guided and paper-based home exercise programs on improving exercise adherence, self-efficacy for exercise and functional outcomes of patients with stroke with 3-month follow-up: a single-blind randomized controlled trial. *Hong Kong Physiotherapy Journal*, 40(01), 63-73.
- Cramer, S. C., Dodakian, L., Le, V., See, J., Augsburg, R., McKenzie, A., & Janis, S. (2019). Efficacy of home-based telerehabilitation vs in-clinic therapy for adults after stroke: a randomized clinical trial. *JAMA neurology*, 76(9), 1079-1087.
- Deshmukh, S., & Madhavan, S. (2023). Can post stroke walking improve via telerehabilitation? A systematic review in adults with stroke. *Frontiers in Rehabilitation Sciences*, 4, 1154686.
- Ding, K., Ma, Y., Zhang, L., Gu, Y., Pan, H., Gu, Z. E., & Zhang, H. (2025). Patient-centered insights into virtual reality rehabilitation for stroke: a

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- systematic review and qualitative meta-synthesis. *Journal of neuroengineering and rehabilitation*, 22(1), 124.
- dos Santos, E. D. S., da Silva, A. K. A., Vieira, S. Q., Braga, A. S., Barbosa, M. P. R., Veras, M., & Tatmatsu-Rocha, J. C. (2025). Functional gains through video-directed exercises in post-stroke patients: A systematic review. *Journal of Clinical and Translational Research*, 11(3), 50-60.
- Feigin, V. L., Stark, B. A., Johnson, C. O., Roth, G. A., Bisignano, C., Abady, G. G., & Hamidi, S. (2021). Global, regional, and national burden of stroke and its risk factors, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet Neurology*, 20(10), 795-820.
- Gebrye, T., Mbada, C., Fatoye, F., & Anazodo, C. (2024). Effectiveness of telerehabilitation on quality of life in stroke survivors: a systematic review and meta-analysis. *Physical Therapy Reviews*, 29(4), 187-196.
- Hao, J., Pu, Y., Chen, Z., & Siu, K. C. (2023). Effects of virtual reality-based telerehabilitation for stroke patients: A systematic review and meta-analysis of randomized controlled trials. *Journal of Stroke and Cerebrovascular Diseases*, 32(3), 106960.
- Hestetun-Mandrup, A. M., Toh, Z. A., Oh, H. X., He, H. G., Martinsen, A. C. T., & Pikkarainen, M. (2024). Effectiveness of digital home rehabilitation and supervision for stroke survivors: A systematic review and meta-analysis. *Digital Health*, 10, 20552076241256861.
- Johnson, C. O., Nguyen, M., Roth, G. A., Nichols, E., Alam, T., Abate, D., & Miller, T. R. (2019). Global, regional, and national burden of stroke, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet Neurology*, 18(5), 439-458.
- Jung, S. H., Park, E., Kim, J. H., Park, B. A., Yu, J. W., Kim, A. R., & Jung, T. D. (2021). Effects of self rehabilitation video exercises (Save) on functional restorations in patients with subacute stroke. In *Healthcare* (Vol. 9, No. 5, p. 565). MDPI.
- Katan, M., & Luft, A. (2018). Global burden of stroke. In *Seminars in neurology* (Vol. 38, No. 02, pp. 208-211). Thieme Medical Publishers.
- Laver, K. E., Adey-Wakeling, Z., Crotty, M., Lannin, N. A., George, S., & Sherrington, C. (2020). Telerehabilitation services for stroke. *Cochrane Database of Systematic Reviews*, (1).
- Lu, H. Y., Wang, X., Hu, C., Lau, C. C. Y., & Tong, R. K. Y. (2024). Home-based guidance training system with interactive visual feedback using kinect on stroke survivors with moderate to severe motor impairment. *Journal of neuroengineering and rehabilitation*, 21(1), 189.
- Maimaitiaili, D., Shi, J., Shan, C., Jin, L., Gu, Y., Li, Y., & Shu, J. (2024). Action observation therapy impact on mirror neurons combined with acupuncture for upper limb motor impairment rehabilitation in stroke patients. *Brain Circulation*, 10(3), 265-272.
- Martin, S. S., Aday, A. W., Almarzooq, Z. I., Anderson, C. A., Arora, P., Avery, C. L., & American Heart Association Council on Epidemiology and Prevention Statistics Committee and Stroke Statistics Subcommittee. (2024). 2024 heart disease and stroke statistics: a report of US and global data from the American Heart Association. *Circulation*, 149(8), e347-e913.
- Ojardias, E., Adham, A., Bessaguet, H., Phaner, V., Rimaud, D., & Giraux, P. (2024). Efficacy of a new video observational training method (intensive visual simulation) for motor recovery in the upper limb in subacute stroke: a feasibility and proof-of-concept study. *Journal of Rehabilitation Medicine*, 56, 36119.
- Özden, F., Özkeskin, M., Ezgin, B. D., Tümtürk, İ., Karaman, B., & Şirin, H. (2024). Telerehabilitation-based training to improve balance confidence, falls efficacy, functional independence in individuals with stroke: a

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- randomized controlled trial. *Neurology Asia*, 29(2).
- Rodrigues, P., Quaresma, C., Costa, M., Luz, F., & Fonseca, M. M. (2025). Virtual reality-based telerehabilitation for upper limb recovery post-stroke: a systematic review of design principles, monitoring, safety, and engagement strategies. *arXiv preprint arXiv:2501.06899*.
- Sarfo, F. S., Ulasavets, U., Opare-Sem, O. K., & Ovbiagele, B. (2018). Tele-rehabilitation after stroke: an updated systematic review of the literature. *Journal of stroke and cerebrovascular diseases*, 27(9), 2306-2318.
- Tchero, H., Tabue Teguo, M., Lannuzel, A., & Rusch, E. (2018). Telerehabilitation for stroke survivors: systematic review and meta-analysis. *Journal of medical Internet research*, 20(10), e10867.
- Venketasubramanian, N., Yudiarto, F. L., & Tugaworo, D. (2022). Stroke burden and stroke services in Indonesia. *Cerebrovascular diseases extra*, 12(1), 53-57.
- Winstein, C. J., Stein, J., Arena, R., Bates, B., Chernen, L. R., Cramer, S. C., & Zorowitz, R. D. (2016). Guidelines for adult stroke rehabilitation and recovery: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke*, 47(6), e98-e169.
- World Health Organization. (2025). *Stroke*. World Health Organization. Retrieved by: <https://www.who.int/news-room/fact-sheets/detail/stroke>
- Zhang, C., Li, X., & Wang, H. (2023). Application of action observation therapy in stroke rehabilitation: A systematic review. *Brain and Behavior*, 13(8), e3157.
- Zoppi, S. M., Matteo, M. J., Testa, M., & Molfino, R. (2024). Computer-mediated therapies for stroke rehabilitation: a systematic review and meta-Analysis. *arXiv preprint arXiv:2409.20260*.

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