REVIEW ARTICLE

Home Care Interventions for Stroke Survivors: A Scoping Review

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ABSTRACT

Stroke is a leading cause of death globally, significantly impacting the quality of life of survivors and their families. Home stroke care needs to be understood to improve patient outcomes. This study aimed to evaluate the effectiveness of home-based care interventions for stroke survivors. The study was a scoping review, using PubMed, Scopus, Crossref, Semantic Scholar, and Google Scholar databases yielding 2,215 articles, of which 9 articles met the inclusion criteria. The findings showed that home care interventions significantly improved physical and psychological outcomes for stroke survivors. These findings highlight the importance of developing and implementing integrated home care programs, with adequate family support.
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INTRODUCTION

Stroke is a leading cause of death, with 6.55 million deaths reported in 2019, although there has been a decline in age-adjusted mortality rates [1]. Inequality in the Burden of Stroke High-income countries report better outcomes, while low-income regions face higher mortality and incidence rates [2]. Nearly 50% of patients who experience stroke experience moderate to severe impairment, leading to disability and inability to care for themselves [3], and experience other physical complications, such as aspiration pneumonia, joint contractures, and pressure ulcers, as well as psychological problems such as anxiety, stress, or depression due to physical disabilities [4].

Caring for stroke patients at home is very important because it allows for personalized rehabilitation by focusing on the person's needs and environment, which has the potential to lead to improved quality of life, mobility [5], improving activities of daily living and functional recovery [6], in addition. After all, care is long-term stroke patients are highly dependent on their families [7]. Appropriate caregiver training, community support, and healthcare resources are essential for caring for stroke patients at home who experience long-term disability and are intended to avoid recurrent stroke [8]. Overcoming these problems can be done with a home-based care program for stroke survivors [9].

Home-based care programs for stroke survivors provide advantages and challenges related to the implementation and participation in physical rehabilitation after stroke, which is influenced by various psychosocial and environmental factors that impact recovery outcomes [10]. In addition, home-based care programs for stroke survivors are cost-effective, resulting in higher quality-adjusted life years compared to standard care [11]. Home-based care programs for stroke survivors have also been shown to reduce readmissions and mortality, demonstrating improved health outcomes for stroke survivors who transition from hospital to [12].

The burden of post-stroke is not only felt by the survivor but also has a significant impact on family and caregivers [13]; [14]. The emotional and physical demands of caring for stroke survivors at home can lead to increased stress, depression, and decreased quality of life for stroke survivors, families, and caregivers [15]. Caregivers often experience mild to moderate depression when providing care to stroke survivors [16]. The cause of depression experienced by caregivers is due to the emotional relationship between the caregiver and the stroke survivor and the patient's level of dependency [17]. Caregiver burden can be addressed through collaboration with the physicians caring for the stroke survivor and the family [16]. Updating stroke care at home is essential to improving understanding of stroke survivors' needs to optimize recovery and enhance the quality of life for patients and their families [18]. Thus, research on the latest approaches to stroke care at home

is relevant and critical to improving patient recovery outcomes, strengthening family roles, and supporting the overall health system. The purpose of this study was to evaluate the efficacy of home care interventions for stroke survivors through a scoping review approach.

MATERIAL AND METHODS

Research Design

This study employs a scoping review design (Tricco et al., 2018) to evaluate the effectiveness of home care interventions for stroke survivors. The review aims to identify and analyze various interventions reported in the literature, as well as their impacts on physical and psychological outcomes.

Search strategy

Literature searches were conducted in electronic databases such as PubMed, Scopus, Crossref, Semantic Scholar, and Google Scholar. The keywords used included: "home-based," "community-based," "interventions," "effects," "health outcomes," "stroke," "cerebrovascular," "brain attack," "chronic illness," "chronic disease," "long-term care," "family practice," "primary health care," "community health services," "therapy-based intervention," and "patient." Boolean operators (AND, OR, and NOT) were used to connect keywords. The searches were conducted from July to August 2024.

Eligibility criteria

The studies' eligibility was evaluated according to the following criteria: (a) Studies published in English, (b) Research involving stroke survivors receiving home care interventions, (c) Studies using experimental methods or RCT, and (d) Articles published from 2017 to 2024. Articles were excluded if they: (a) They did not focus on stroke survivor care interventions carried out at home,, and (b) Were systematic reviews, books, or guidelines. The literature review restricted the publication timeframe to the last ten years to mitigate research bias [19].

Study Selection Process

The first, second, third, and fourth authors conducted independent literature screening and data extraction. References were managed using Mendeley reference management software. Once duplicates were removed, the remaining references were filtered based on their titles and abstracts. The full-text screening was then carried out independently by the first four authors. Any disagreements were resolved through discussion or by a decision made by the fifth author.

Data Extraction

Relevant data from each selected study will be extracted, including the title, year, country, methods, sample size, results, interventions, health outcomes, and references. The systematic review results will be presented in table and narrative form.

RESULTS

The scoping review process for home-based care interventions for stroke survivors began with the screening of 2,215 records. After removing 93 duplicate articles, 1,662 records were excluded based on preliminary criteria, leaving 593 reports for detailed review. Of these, 568 were assessed for eligibility, resulting in the exclusion of 559 reports for various reasons, including publication dates, methodological issues, lack of interventions, inaccessibility, and irrelevance to home-based care. Ultimately, 9 studies were included in the review, which provided valuable insights into the effectiveness of these interventions, demonstrating significant improvements in both physical and psychological outcomes for stroke survivors. Figure 1 displays the PRISMA flowchart, outlining the search strategy, criteria for article eligibility, and the publications that were included in the study, and Table 1 shows the research findings.

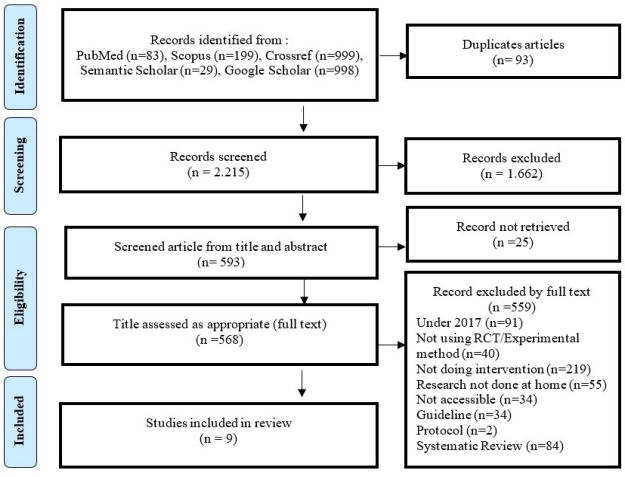

Figure 1: The article selection process

Table I: Summary of reviewed articles

No	Title	Year	Country	Method	Sample size	Results	Interventions	Health outcome	References
1.	A feasibility study of a mobile phone supported family-centred ADL intervention, F@ce™, after stroke in Uganda	2018	Uganda	pre-post design with an intervention group	28	Family-centered F@ce™ intervention with mobile phone support can improve self-efficacy and daily activities in stroke survivors	F@ceTM	Physical health outcomes and Physical health outcomes	(17)
2.	A quasi-experimental study of the effect of an intervention on older stroke survivors' functionality	2020	Portugal	quasi -experimenta	174	The InCARE program was effective in improving practical skills for informal caregivers of stroke survivors, but did not improve functionality in older stroke patients.	The InCARE (Intervention in CAREgivers who take care of older people after a stroke)	Physical health outcomes	(18)
3.	A randomized control trial comparing the effects of motor relearning programme and mirror therapy for improving upper limb motor functions in stroke patients	2019	Pakistan	RCT	64	Mirror therapy found significant differences between the mean scores before and after treatment for upper arm function, hand function, and advanced hand activities in both groups ($p<0.05$). All three variables improved significantly in the treatment group compared to the control group ($p<0.001$).	Mirror therapy	Physical health outcomes	(19)
4.	A virtual, randomized, control trial of a digital therapeutic for speech, language, and cognitive intervention in post-stroke persons with aphasia	2021	United States and Canada	RCT	32	efficacious digital therapeutic for language/cognitive rehabilitation	Digital therapeutic	Physical health outcomes	(20)
5.	Effectiveness of melodic intonation therapy in Chinese mandarin on non-fluent aphasia in patients after stroke: a randomized control trial	2021	Chinese	RCT	40	The intervention group has a significant time effect in fluency, but the results after 8 weeks were not significantly different from those in the control group.	Melodic intonation therapy (MIT)	Physical health outcomes	(21)
6.	Effects of home-based telesupervising rehabilitation on physical function for stroke survivors with hemiplegia: a randomized controlled trial	2017	China	RCT	54	Both the home-based telerehabilitation and conventional rehabilitation groups showed significant improvements in the Modified Barthel Index, Berg Balance Scale, and muscle function, along with a reduction in the Caregiver Strain Index ($P < 0.001$), but there were no significant differences between the groups.	Home-based telesupervising	Physical health outcomes	(22)
7.	Effects of mobile phone App-based continuing nursing care on self-efficacy, quality of life, and motor function of stroke patients in the community	2021	china	RCT	101	Mobile phone App-based continuing nursing care may significantly improve the self-efficacy, quality of life, and satisfaction toward nursing as well as promote the improvement of biological markers and motor function of stroke patients.	Mobile phone App-based continuing nursing care	Physiological health outcomes and Physical health outcomes	(23)
8.	Telerehabilitation in the home versus therapy in-clinic for patients with stroke	2019	California	A Randomized Clinical Trial	124	Patients in the IC group attended 93.3% of sessions, while the TR group attended 98.3%. The IC group showed a mean FM score change of 8.36 points at 30 days post-therapy ($P < 0.001$), and the TR group had a change of 7.86 points ($P < 0.001$). The adjusted mean change was 0.06 points higher in the TR group ($P = 0.96$), indicating TR is not inferior to IC therapy (noninferiority margin: 2.47). Motor gains were significant for both early (<90 days) and late (≥90 days) enrollees.	Telerehabilitation	Physical health outcomes	(24)

CONTINUE

Table I: Summary of reviewed articles (CONT.)

No	Title	Year	Country	Method	Sample size	Results	Interventions	Health outcome	References
9.	The Effectiveness of Exercises Based Mirror Therapy on Functional Activity of the Limbs among Stroke Patients.	2024	mesir	A quasi-experimental research design	63	The implementation of exercise-based mirror therapy resulted in a statistically significant increase in patients' knowledge mean score ($P < 0.001$) and improved overall upper limb functional ability, with the FMAUE mean score rising from 54.02 ± 8.36 to 74.30 ± 10.99. Additionally, the Barthel ADL Index Scale score improved from 20.52 ± 3.58 (indicating poor ADL) to 28.80 ± 6.72 (indicating better ADL), also with $P < 0.001$.	Mirror therapy	Physical health outcomes	(25)

The final synthesis of the study found two main parts in stroke patient interventions carried out at home, namely physical outcomes and psychological outcomes. Interventions provided to improve physical and physiological abilities in patients to improve the quality of life of post-stroke patients.

DISCUSSION

Home-based care interventions and their impact on physical health outcomes

Home-based care interventions are aimed at improving the health status of stroke survivors, which is known to affect post-stroke outcomes. Based on the results of the journal search, various home-based care interventions were found to have an impact on physical health outcomes, namely F@ceTM [20] and The InCARE [21] for daily activities, mirror therapy [22] and [23] for upper limb motor function, digital therapy for speech and communication skills [24], melodic intonation therapy (MIT) [25], home-based telesupervision for physical function [26]continuous nursing care based on mobile applications [27], telerehabilitation for arm movement [28].

A recent systematic review showed that home-based interventions can improve activities of daily living for stroke survivors, especially when combined with usual care [29]. Home-based interventions for stroke survivors showed improvements in functional exercise tolerance and upper extremity function, with high patient satisfaction and safety, indicating positive physical health outcomes [30]. Furthermore, home-based exercise was as effective as center-based exercise in improving gait speed and balance after stroke, indicating positive physical health outcomes with home-based care interventions [31].

Home-based interventions for stroke survivors are more cost-effective than inpatient hospitalization [32], although this is contradicted by other studies showing that hospitalized stroke survivors had better improvements than home-based care groups in mobility, self-care, pain/discomfort, and depression/anxiety [33]. Home-based interventions for stroke survivors, including mirror therapy and task-specific training, have shown promise in improving physiological health outcomes in stroke patients compared with clinic-based care [34] and may improve basic activities of daily living compared with usual care, suggesting potential benefits for physiological health outcomes [29]. In addition, the goal of stroke patient care at home significantly improves vascular health indicators, such as brachial flow-mediated dilation, in addition to functional capacity in stroke patients [35].

This study observed post-stroke patients living in the community through a systematic review of related journal articles. According to the authors, home-based interventions for stroke survivors have very good effects, but if the intervention is stopped after that, their abilities tend to decline. Thus, improving motor and sensory abilities used as a therapy method must have regularity and continuity of training.

Home-based care interventions and their impact on physiological health outcomes

A journal search identified several home-based care interventions that impacted physiological health outcomes, namely Mobile App-Based Continuity Care [27] and F@ceTM [20] to improve Self-Efficacy and Quality of Life. Understanding the physiological challenges faced by stroke survivors is essential. Home care can be tailored to meet these needs, addressing the physical, psychological, and social domains, which are often overlooked in traditional settings [36]. Stroke survivors must understand the relevance and importance of physiological monitoring in acute stroke patients including (heart rate, blood pressure, respiratory rate, temperature, blood glucose, and oxygen levels) [37].

Home-based care has been shown to reduce the incidence of depression and anxiety levels, and help patients become more independent in performing daily activities, which in turn motivates families to provide support to the patient Mood also needs to be considered so that independence can be carried out by stroke survivors Nurses can take on the role of psychological support for stroke patients by paying attention to aspects of mood, recovery, coping, emotions, consequences/

problems after stroke, values and needs, risk factors and secondary prevention, self-management, and medication management [38].

Home-based interventions for stroke survivors have been associated with reduced levels of depression and anxiety among patients and caregivers, thus fostering a supportive environment that encourages patient independence [39]. Although these findings underline the benefits of home-based care, some studies suggest that remote interventions may not significantly outperform traditional methods, indicating the need for further research to optimize this approach [40]. In this context, researchers assume that attention to the physiological aspects of stroke patients is essential to support the recovery process and improve their quality of life. Given that physiological challenges are often complex and interrelated, interventions designed to address physical, psychological, and social aspects may provide a more holistic impact on stroke survivors.

Interventions for stroke survivors carried out at home and in hospital

Comparison between groups showed that stroke survivors treated in hospital had better improvements than the home-treated group in terms of mobility, self-care, pain/discomfort, and depression/anxiety [33], However, according to other research, caring for stroke survivors at home is better for improving quality of life [41], lower healthcare costs [42], and improve functional status and reduce depression in stroke survivors due to family support [43].

The primary caregiver role for stroke survivors is the family [44]. Support for primary caregivers can be provided by family members, especially immediate family members, through direct or indirect supervision in other activities, such as assisting them with medical appointments, providing care services, helping with household chores, and offering transportation [45]; [46]. This study has limitations in exploring conflicting results, such as differences between home and hospital care and the long-term impact on families, stroke survivors and caregivers. Further research is essential to assess the long-term impact of care for stroke survivors provided at home.

CONCLUSION

Interventions F@ceTM, The InCARE, Mirror therapy, Digital therapeutic, Melodic intonation therapy, Home-based telesupervising, Mobile phone App-based continuing nursing care and Telerehabilitation for home care for stroke survivors successfully improved physical and psychological outcomes. The interventions found not only supported survivors in their recovery process but also helped reduce the risk of complications and improve overall quality of life. Therefore, it is important to develop and implement sustainable home care programs. Further research is needed to understand the factors that influence the success of these interventions and to ensure better access to home-based care across socio-economic settings.

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