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Effect of Home-based Interventions on Basic Activities of Daily Living for Stroke Patients: A Systematic Review and Meta-analysis

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Effect of Home-based Interventions on Basic Activities of Daily Living for Stroke Patients:

A Systematic Review and Meta-analysis

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Keywords: Stroke, home-based rehabilitation, activities of daily living

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ABSTRACT

Objectives: To investigate the effectiveness of home-based interventions on improving the ability of basic activities of daily living in stroke patients.

Methods: Randomised controlled trials were searched through 3 electronic databases (PubMed, EMBASE, CINAHL) from their inception to 31 December 2020. The characteristics of participants, home-based interventions, controlled interventions and outcomes of interest were collected. Risk of bias of individual study was assessed by 2 reviewers independently using the Physiotherapy Evidence Database scale (PEDro). Meta-analyses were performed where studies reported comparable interventions and outcomes.

Results: In total, 47 studies were included in the systematic review and 16 studies had sufficient data for inclusion in the meta-analyses. The effect of home-based intervention showed no significant difference when comparing with institution-based intervention (for short-term effect: SMD=0.24, 95% CI -0.15 to 0.62, I²=0%; for long-term effect: SMD=0.16, 95%CI -0.23 to 0.55, I²=0%). No significant difference was found between home-based intervention and usual care for long-term effect (SMD=-0.01; 95% CI -0.11 to 0.09; I²=0%). Home-based rehabilitation combined with usual care showed a significant short-term effect on the ability of basic daily activities, comparing with usual care alone (SMD=0.55; 95% CI 0.22 to 0.87; p=0.001).

Conclusion: Home-based rehabilitation may be an alternative to institution-based rehabilitation and usual care for stroke patients. Home-based rehabilitation with usual care may have a short-term effect on the ability of basic activities of daily living for stroke patients comparing with usual care alone. However, the evidence strength is weak because of the

limited number of studies included into the meta-analyses and the heterogeneity between trials. Future research is needed to investigate the effectiveness of home-based rehabilitation on groups with stratification by stroke severity, type of home-based intervention and manner of delivery. Moreover, more high-quality studies are required to prove the cost-effectiveness of newly developed strategies like caregiver-mediated rehabilitation and tele-rehabilitation.

Keywords: Stroke, home-based rehabilitation, activities of daily living

Strengths and Limitations of this study:

- ➤ Investigated the effectiveness of home-based rehabilitation on improving the ability of basic activities of daily living in stroke patients, comparing with institution-based intervention, usual care, no intervention respectively.
- ➤ Update some newly developed home-based treatment strategies such as tele-rehabilitation and caregiver-mediated intervention and investigated the effectiveness of the approaches.
- The number of studies included into the individual meta-analysis was limited, because of the inadequate data in the individual studies.
- Nearly half of studies included into the meta-analyses had sample size smaller than 30.
- ➤ The clinical heterogeneity between studies in terms of severity of stroke, onset time of stroke, interventions and manner of delivery compromised the evidence strength of our meta-analyses.

INTRODUCTION

Stroke is one of the major causes of death and is a leading cause of adult disability worldwide.¹ About half of stroke patients are left with varying degrees of physical or cognitive impairments.² Previous studies have shown that 25-74% of stroke patients need assistance from caregivers for the activities of daily living,³ and the quality of life of both patients and caregivers is heavily impacted.⁴ Although the need for rehabilitation services for the stroke patients after discharge from acute hospitals is widely recognized, outpatient and inpatient rehabilitation are often compromised for reasons such as lack of accessibility, increased costs and poor compliance.^{5, 6} On the other hand, the ability of performing activities of daily living in an institution-based environment may not be generalized to the home environment, which is the final discharge destination for most stroke patients. Moreover, the motor relearning of stroke patients improves by context-specific training, and training in the patient's own environment is preferred.⁸ Early supported discharge from hospital with subsequent rehabilitation services at home has shown to be more cost-effective than usual care, with a lower caregiver burden and shorter length of stay in hospital.^{9, 10} Therefore, a home-based rehabilitation program could be a viable alternative to institution-based stroke rehabilitation.

A Cochrane review of home-based therapy programs for upper limb functional recovery following stroke found that there was insufficient good quality evidence to determine the relative effect of home-based upper limb programs on performance in basic activities of daily living (BADL), compared with placebo, no intervention or usual care. The limited number of included study and the heterogeneity in terms of the type of home-based therapy programs limited the evidence strength. Apart from upper limb function, the ability to perform BADL in

stroke patients is influenced by much more factors such as mobility, cognition and communication, ¹² environmental limitation, ¹³ and psychological adaptation ¹⁴. Moreover, upper limb function is not linearly related to the actual performance of daily activities, and the improved upper limb motor capacity dose not translate into the increased upper limb performance in daily life. ¹⁵ Therefore, the effectiveness of home-based intervention including but not limited to upper extremity function training is needed to be investigated.

Another previous review found a significant short-term effect on functional independence in favour of home-based rehabilitation for community-dwelling people with stroke. However, the evidence strength was weak because the control interventions mentioned in the previous review were mixed with usual care, center-based intervention and no intervention. Moreover, as the development of home-based treatment strategy and also for the purpose of reservation of medical services, novel home-based intervention strategies such as tele-rehabilitation and caregiver-mediated intervention have emerged nowadays. An updated review is needed to investigate the effectiveness of home-based interventions on improving the ability of performing self-care activities in stroke patients.

The objective of this systematic review was to evaluate the effectiveness of home-based interventions on performance of BADL in stroke patients, when comparing with institution-based intervention, usual care and no intervention respectively.

METHODS

Search strategy

The PubMed, EMBASE and CINAHL databases were searched from inception to 31 December

2020. The search strategy is presented in supplementary appendix 1.

Inclusion and exclusion criteria

We only included participants in home-based intervention groups who were living in their own home. Studies that included participants in home-based intervention groups who were living in care homes and other forms of supported or sheltered accommodation were excluded. We defined the home-based interventions as (1) prescribed by professionals; (2) implemented in patient's own home. Studies delivered solely environmental modifications, ergonomic intervention, psychosocial interventions or medication were excluded. The comparison interventions included institution-based intervention, usual care and no intervention. We included studies which measured the ability of BADL as one of the outcomes. Trials that studied solely instrumental activities of daily living were excluded.

Selection of studies

Two reviewers independently extracted studies from the 3 databases. The duplicate articles were deleted, and the obviously irrelevant studies were eliminated by screening the titles and abstracts. If at least one of the reviewers considered one reference as eligible, the full text was screened and two reviewers evaluated the study separately based on the inclusion and exclusion criteria. Only the studies identified by both reviewers were included in the review. Any disagreements between the two reviewers were resolved through discussion with the third reviewer.

Data extraction and management

Data were extracted from the included studies and recorded on a data extraction form. The extracted information included the following items: (1) the sample size of each group; (2) disability level and time of stroke onset of participants; (3) details of home-based intervention and intervention in control group; (4) outcome measures and the timepoints of outcome measures; (5) results of effectiveness.

Assessment of methodological quality

Two reviewers independently assessed the methodological quality of the included studies using the Physiotherapy Evidence Database scale (PEDro scale).¹⁷ Any disagreements between the two reviewers were resolved through discussion with the third reviewer.

Data analysis

The Cochrane Collaboration's Review Manager software (RevMan 5.3) was used to carry out all statistical analyses. The overall estimate of the treatment effect was calculated using the means and standard deviations (SDs) of outcome scores in the home-based intervention groups and control groups. Short-term effect and long-term effect were analyzed by comparing the statistical difference of outcome score between two groups at treatment endpoint and at the last follow up respectively. Those studies with no mean or SD of outcome measure reported were excluded from meta-analysis. For the studies that used the same measurement tool, we calculated a pooled estimate of the mean differences (MDs) with 95% confidence intervals. When different measurement tools were used, we used the standardized mean differences (Std.

MDs) instead of MDs.

We planned to perform several meta-analyses to evaluate (1) the effectiveness of home-based intervention comparing with institution-based intervention at treatment endpoint and the follow-up; (2) the effectiveness of home-based intervention comparing with usual care at treatment endpoint and the follow-up; (3) the effectiveness of home-based intervention combined with usual care comparing with usual care at treatment endpoint and the follow-up; and (4) the effectiveness of home-based intervention comparing with no intervention at treatment endpoint and the follow-up.

Statistical heterogeneity was measured using the I^2 statistic. $I^2 > 50\%$ was considered to indicate substantial heterogeneity, which would result in the use of a random-effect model for the meta-analysis. When I^2 was $\leq 50\%$, a fixed-effects model was used. 11

We planned to perform subgroup analyses to investigate the sources of heterogeneity, according to (1) the level of disability of the stroke patients; (2) the onset time of stroke; (3) type of home-based intervention; (4) self- and/or caregiver-mediated versus professional-mediated.

We also planned to perform a sensitivity analysis to diminish the influence of studies with poor methodological quality on the effect size estimate. The studies with poor PEDro score (\leq 3) were deleted from the meta-analysis. All of the statistical tests were two-tailed, and P<0.05 represented statistical significance.

Patient and public involvement

No patient involved

RESULTS

Study identification

The search of the electronic bibliographic databases identified 460 articles (PUBMED = 196, EMBASE = 241, CINAHL = 23). And 5 additional studies were identified through relevant reviews. In total, 47 studies met the eligibility criteria and were included into this systematic review (Figure 1).

Study characteristics

Twenty randomised controlled trials compared home-based rehabilitation with institution-based rehabilitation on an in- or out-patient basis. 18-37 Fourteen randomised controlled trials compared home-based rehabilitation with usual care which was provided according to routine practice without involvement of research team. 18, 24, 38-49 Five randomised controlled trials evaluated the effect of specific home-based interventions by comparing with blank control or sham control. 50-54 Ten randomised controlled trials compared home-based interventions combined with usual care with usual care alone. 55-64 The main characteristics of the included studies are shown (Table 1).

 Table 1 Characteristics of included studies

Study	Participants	Disability level of	Intervention	Outcome measure	Results
		stroke;		of BADL and the	
		Time after stroke		measurement	
				times	
Kalra et al. (2000) ¹⁹	Home-based intervention group (n=149) Institution-based intervention group (in stroke unit) (n=148)	Moderately severe; < 72 hours	Care was provided by a multidisciplinary team (doctor, nurse, physiotherapist, occupational therapist, speech and language therapists) at home for a maximum of 3 months Care was provided by a multidisciplinary team in stroke units. There were clear guidelines for acute care, prevention of complications, rehabilitation, and secondary prevention. Routine management involved joint assessments and goal setting, coordinated treatment, and planned discharges	`	No significant change in proportion of good outcome in any groups between 3 and 12 months; The proportion of patients alive without severe disability (modified Rankin 0-3) at 12 months was significantly higher on the stroke unit compared with stroke team or domiciliary care
	Institution-		Care was provided by a		
	based		multidisciplinary team (doctor, nurse, physiotherapist, occupational therapist)		
	group (in general ward) (n=150)		in general wards		
Kalra et al.	Home-based	Moderately	Domiciliary care provided	mRS score and 20-	No significant change in
$(2005)^{31}$	intervention	severe;	management at home under the	point BI score at 3,	proportion of good

	(n=149)	< 72 hours	supervision of a general practitioner	6, 12 months after	outcome in any groups
			and stroke specialist with support from	stroke onset	between 3 and 12 months;
			a specialist team and community		The proportion of patients
			services. Support was provided for a		alive without severe
			maximum of 3 months.		disability (modified
	Institution-		24-hour care provided by a		Rankin 0-3) at 12 months
	based		multidisciplinary team in stroke units		was significantly higher on
	intervention (in		based on clear guidelines for acute		the stroke unit compared
	stroke unit)	10/n	care, prevention of complications,		with stroke team or
	(n=148)	<i>'</i>	rehabilitation, and secondary		domiciliary care
			prevention.		
	Institution-		Management provided by a		
	based		multidisciplinary team in general		
	intervention (in		wards. The team undertook stroke		
	general ward)		assessments and advised ward-based		
	(n=150)		nursing and therapy staff on acute care,		
			secondary prevention and		
			rehabilitation aspects.		
Gladman,	Home-based	None specified;	Therapy was provided by	BI score at 6	No significant difference of
Lincoln, &	intervention	The median of	physiotherapists and occupational	months after	BI score between groups
Barer	(n=162)	time varied from	therapists at home for up to 6 months	randomization	
$(1993)^{32}$	Institution-	21-103 days	Hospital-based rehabilitation service		
-	based	-	_		
	intervention				
	(n=165)				

Gladman, &	Home-based	None specified;	Physiotherapy and occupational	BI score at 6	No significant difference of
Lincoln	intervention	The median of	therapy were provided by	months and 1 year	BI score between groups at
$(1994)^{30}$	(n=12)	time varied from	physiotherapists and occupational	after randomization	12 months follow up;
		21-103 days	therapists for 6 months		No significant difference of
	Institution- based intervention (n=14)	<i>(</i>)	Follow-up service and physiotherapy and occupational therapy were provided in hospital		change score in BI score between groups at 6 and 12 months
Thorsén,	Early	Mild to moderate	Initial medical care and rehabilitation	BI score at 5 years	No significant difference of
Widén	supported	impairments;	in the stroke unit; After discharge, the	after stroke onset	BI score between groups
Holmqvist,	discharge to	5-7 days	foci of training were speech and		
de Pedro-	home with		communication, activities of daily		
Cuesta, &	home-based		living, and ambulation at home by		
von Koch	intervention		outreach team consisting of		
$(2005)^{33}$	(n=42)		occupational therapists,		
			physiotherapists and a speech-and-		
			language pathologist for the mean		
			duration of intervention program for 14		
			weeks	7h,	
	Institution-		Initial medical care and rehabilitation	1//1.	
	based		in the stroke unit; If required, patients		
	intervention		would receive additional rehabilitation		
	(n=41)		in the Geriatrics or Rehabilitation		
			Department		
Widén	Early	Moderate	Early supported discharge with	BI score at 3	No significant difference of
Holmqvist	supported	disabled;	continuity of rehabilitation at home for	months after stroke	BI score between groups
et al.	discharge to	5-7 days	3 to 4 months. The home		

$(1998)^{34}$	home with		rehabilitation team included physical		
	home-based		therapists, occupational therapists, a		
	intervention		speech therapist. The rehabilitation		
	(n=41)		program at home emphasized a task-		
			and context-oriented approach, which		
			implies that the patient performs		
			guided, supervised, or self-directed		
			activities in a functional and familiar		
		Ur	context		
	Institution-		Hospital-based, day care, and/ or		
	based		outpatient care		
	intervention		60%		
	(n=40)				
von Koch,	Early	Moderate	Early supported discharge with	BI score at 6	No significant difference of
Widén	supported	neurological	continuity of rehabilitation at home for	months after stroke	BI score between groups
Holmqvist,	discharge to	impairments;	3 to 4 months. The rehabilitation		
Kostulas,	home with	1 week	program was provided by a specialized		
Almazan, &	home-based		team		
de Pedro-	intervention			Jh ,	
Cuesta	(n=41)			///,	
$(2000)^{35}$	Institution-		Inpatient-based and/or day care.		
	based				
	intervention				
Ä 1 ·	(n=40)	N	XX 1 1	ED (
Özdemir,	Home-based	None specified;	Home-based conventional exercises	FIM score (mean	Control group showed
Birtane,	intervention	10-82 days	provided by family caregivers at home	follow-up after 60	statistically significant
Tabatabaei,	(n=30)		at least 2 hours a day, 7 days a week,	days)	greater improvement at
Kokino, &			for a maximum of 150 days;		follow-up compared with

Ekuklu			Splint, orthoses and devices were also		intervention group
$(2001)^{21}$			provided;		mer vention group
(2001)			Regular 2-hour home visits were		
			provided by a team consisting of a		
			rehabilitation physician and a		
			1		
	T		instructed family caregivers		
	Institution-	1 0	Inpatient-based therapeutic exercises		
	based		(range of motion, passive stretching,		
	intervention		muscle strengthening, mobilization		
	(n=30)		exercises) and neuromuscular		
			facilitation exercises and regular		
			occupational therapy were provided by		
			a multidisciplinary rehabilitation team		
			for 2 hours a day, 5 days a week.		
			Physical agent therapy and splints or		
			orthoses was provided if necessary		
Hesse,	Home-based	Could walk	An intermittent high-intensity	Rivermead	Both groups improved
Welz,	intervention	independently	physiotherapy program of	Activities of Daily	significantly over time over
Werner,	(n=25)	within their home	neurodevelopmental treatment and	Living scale score	time;
Quentin, &		with BI score 55-	training of activities of daily living was	(self-care section)	No significant difference of
Wissel		80;	provided by physiotherapists at home	at every study onset	the Rivermead Activities of
$(2011)^{22}$		The mean of time	for 12 months (three 2-month blocks of	and every second	Daily Living scores
		was 18.5-29.3	therapy, consisting of 4 therapy	month, and at 3	between groups over 12
		weeks	sessions every week, one session lasted	months follow-up	months
			30 to 45 minutes, totaling 96 sessions).	after treatment	
			The physiotherapy program involved		
			the Bobath approach to lessen the		

			1 1 1 1		
			elevated muscle tone and motor		
			relearning program to train the ability		
			of daily living, e.g. climbing up- and		
			downstairs, walking in- and outside the		
			house, bath and toilet use, passing		
			traffic lights, shopping etc.		
			Between the treatment blocks, a self-		
			therapy program consisting of various		
		Up	stretching, strengthening and motor		
		<i></i>	tasks, was instructed to the patients and		
			their relatives.		
	Institution-		A regular continuous low-intensity		
	based		physiotherapy program was provided		
	intervention		by physiotherapists in the private unit		
	(n=25)		of a physiotherapist (continuous two 30		
			to 45 minutes physiotherapy sessions		
			per week, totaling 104 sessions).		
			The treatment approach was similar to		
			the intervention group.		
Redzuan,	Home-based	Mild to severe	Home-based rehabilitation was	MBI score at 3	Both groups had significant
Engkasan,	intervention	disability (NIHSS	provided by patients and their	months after	increases in the MBI scores
Mazlan, &	(n=53)	<6, 6-14, >14);	caregivers at home for 3 months. The	discharge	at 3 months;
Freddy		The means of time	intervention was guided by a self-		No significant difference in
Abdullah		were 12.9 days	instructional audiovisual videodisk,		the number of patients with
$(2012)^{26}$		(intervention	including (1) patient positioning and		improved MBI score
		group) and 10.9	handling; (2) bed mobility; (3) passive		between groups (the MBI
		days (control	range of motion exercises, stretching,		score was not similar at
		group)	and strengthening of the upper limbs;		baseline)
			·		

(4) passive range of motion exercise, stretching, and strengthening of the lower limbs; (5) transfer techniques from bed to wheelchair and vice versa, and wheelchair into the car and vice versa; and (6) activities of daily living (grooming, desk activities, and upper and lower garment dressing) Institution-based intervention (n=53) Weekly outpatient therapy sessions were provided for 1 hour each for physical and occupational therapy, with instructions for home rehabilitation without videodisk Baskett, Home-based intervention The means of time Reekie, Hocking, & Green (n=50) were 38.6 days (intervention group) and 37.5 13 weeks Weekly outpatient therapy sessions were provided for 1 hour each for physical and occupational therapy, with instructions for home rehabilitation without videodisk Self-directed therapy of exercises and activities at home, with home visits by therapists once a week for as long as judged necessary, or for a maximum of 13 weeks	
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Baskett, Home-based intervention Reekie, Hocking, & Green None specified; Self-directed therapy of exercises and activities at home, with home visits by therapists once a week for as long as judged necessary, or for a maximum of group) and 37.5 Self-directed therapy of exercises and activities at home, with home visits by therapists once a week for as long as judged necessary, or for a maximum of group and 37.5 Self-directed therapy of exercises and weeks and 3 months after discharge	
Broad, intervention (n=50) Reekie, Hocking, & Green The means of time were 38.6 days (intervention group) and 37.5 The means of time activities at home, with home visits by therapists once a week for as long as judged necessary, or for a maximum of 13 weeks Weeks and 3 months after discharge	
Reekie, (n=50) were 38.6 days (intervention group) and 37.5 therapists once a week for as long as judged necessary, or for a maximum of 13 weeks	e of
Hocking, & (intervention group) and 37.5 13 weeks)S
Green group) and 37.5 13 weeks	
(1999) ³⁶ Institution- days (control Outpatient or day hospital therapy of	
based group) physiotherapy practice (based on	
intervention neurodevelopment treatments) and	
(n=50) occupational therapy (based on	
neurodevelopment and motor	
relearning treatments)	
Pandian et Early None specified; Training of caregivers started in Number of No statistical analysis	
al. (2015) ²⁹ supported < 1 month hospital. After discharge, the caregiver- participants with	
discharge to mediated home-based intervention was good outcome	
home with provided, including positioning, (mRS score 0-2)	

	1				
	home-based		transfer, and mobility, task-orientated	and poor outcome	
	intervention		training (particularly walking, upper-	(mRS score 3-6) at	
	(n=50)		limb, and self-care tasks), and	3 months and 6	
			provision of information, with an	months	
			intervention manual provided for the		
			patients and caregivers		
			The therapist was able to be contacted		
			though telephone for support and		
		Ur	guidance over the next 3-months		
	Institution-	<i>'</i>	After discharge, in- or out-patient		
	based		therapy was provided but caregivers		
	intervention		were not provided with trial-specific		
	(n=54)		training		
Roderick et	Home-based	None specified;	Home-based intervention was provided	BI score at 6-month	No significant difference of
al. (2001) ³⁷	intervention	The median of	by a domiciliary stroke team consisting	follow up	BI score between groups
	(n=66)	time was 50 days	of a physiotherapist, an occupational		
		(intervention	therapist with outpatient speech and		
		group) and 48	language therapy provided;		
		days (control	Therapy was provided until maximum		
		group)	potential for recovery was reached.		
	Institution-		Care was coordinated by		
	based		multidisciplinary teams, provided in		
	intervention		day hospitals. Therapy was provided		
	(n=74)		until maximum potential for recovery		
			was reached.		
Young, &	Home-based	None specified;	Home-based therapy was provided by a	BI score at 8 weeks	Both groups had significant
Forster	intervention	Varied from <4	physiotherapist at home	from the start of	increases in the BI score at
$(1992)^{20}$	(n=63)	weeks to >12		treatment, and at 6	6 months;

	Institution-	weeks	Therapy was provided in geriatric day	months from	The improvement was
	based		hospitals twice a week	discharge	significantly greater for
	intervention				intervention group,
	(n=61)				compared to control group
Chen et al.	Home-based	NIHSS score 2-	Home-based rehabilitation was	MBI scores at	Both groups had significant
$(2017)^{28}$	intervention	20, mRS score 1-	provided by caregivers and was tele-	treatment endpoint,	improvements over time;
	(n=27)	5;	supervised by therapists at home for 3	and at 24 weeks	No significant difference of
		14-90 days	months;	follow up (12	MBI score between groups
			The intervention included physical	weeks after	
			exercises (1 hour for one session, twice	treatment)	
			a working day, a total of 60 sessions),		
			training of ability of daily activities and		
			electromyography-triggered		
			neuromuscular stimulation (20 minutes		
			for one session, twice a working day a		
			total of 60 sessions)		
	Institution-		The same therapeutic strategy as home-		
	based		based intervention group was provided		
	intervention		by therapists in the outpatient)	
	(n=27)		rehabilitation department	7)/	
Chen et al.	Home-based	NIHSS score 2-	Home-based rehabilitation was	MBI scores at	Home-based intervention
$(2020)^{27}$	intervention	20;	provided by caregivers and was tele-	treatment endpoint	group showed significantly
	(n=26)	1-3 weeks	supervised by therapists at home 10		larger improvement in MBI
			sessions a week for 12 weeks;		score than control group
			The intervention included physical		
			exercises, training of ability of daily		
			activities and electromyography-		
	<u> </u>		triggered neuromuscular stimulation		

	Institution- based intervention		The same therapeutic strategy as home-based intervention group was provided by therapists in the outpatient		
	(n=26)		rehabilitation department		
Han et al. (2020) ²⁵	Home-based intervention (n=12) Institution-based intervention (n=14)	mRS scroe 2-4; The means of time were 22.8 months (intervention group) and 53.5 months (control group)	Home programme consisted of ADL tasks was provided by an occupational therapist at home for 50min each time, once a week for 6 weeks Conventional rehabilitation programme included 30min of occupational therapy and 30min of physical therapy for training motor and cognitive function were provided in the hospital twice a week	BI-SS (Barthel Index-based Supplementary Scales) score at treatment endpoint	The change score of BI-SS differed significantly between groups; Home-based intervention group had significant improvement of BI-SS score; No significant difference in BI-SS score in control group
Björkdahl, Nilsson, Grimby, & Sunnerhage n (2006) ²³	Home-based intervention (n=29) Institution-based intervention (n=29)	None specified; The means of time were 93 days (intervention group) and 91 days (control group)	Individually tailored training for ADL was provided at home by an occupational therapist and a physiotherapist for 9 hours per week for 3 weeks Training of deficits or components of function was provided at the day clinic	FIM score at treatment endpoint, at 3 months and 1 year follow up	No significant improvement in either intervention group or control group at the treatment endpoint; Institution-based group had significant improvement of FIM score at 1 year follow up; No significant difference of FIM score between groups over time
Hofstad,	Early	NIHSS score of	Care was provided by a	mRS and BI score	mRS scores and BI scores
Gjelsvik,	supported	2–26;	multidisciplinary ambulatory team	at 3 months and at 6	and the change scores did

Næss, Eide,	discharge to	7 days	consisting of a nurse, a physiotherapist	months	not differ significantly at
& Skouen	home with		and an occupational therapist in the		any time points between
$(2014)^{24}$	home-based		stroke unit, and discharged home as		groups;
	intervention		early as possible, with following		Two early supported
	(n=104)		home-based rehabilitative treatment		discharge groups had
			provided at home by a		significant improvement in
			multidisciplinary community health		mRS score from baseline to
			team consisting of a nurse, a		3 months, but not in the
			physiotherapist and an occupational		controls;
			therapist for up to 5 weeks (maximally		No significant difference of
			four hours per day, five days a week);		mRS score between two
			During the treatment period, one or		early supported discharge
			more persons from the community		groups at 3 months or at 6
			health team were present three days a		months follow up
			week, and the last two the days of the		
			week the patients trained by		
			themselves after instructions from the		
			team		
	Early		Care was provided by a		
	supported		multidisciplinary ambulatory team	7/	
	discharge to		consisting of a nurse, a physiotherapist		
	day unit with		and an occupational therapist in the		
	day unit- based		stroke unit, and discharged home as		
	intervention		early as possible, with the following		
	(n=103)		treatment by in a community day unit		
			for 5 weeks;		
			During the treatment period, one or		
			more persons from the community		

			health team were present three days a		
			week, and the last two the days of the		
			week the patients trained by themselves		
			after instructions from the team		
	Usual care		Mainly comprised institutional stay if		
	(n=99)		necessary and/or physiotherapy as		
			needed in the municipality (0–2 hours		
			per week)		
Taule,	Early	NIHSS score of	Care was provided by a	The Assessment of	No significant group
Strand,	supported	2–26;	multidisciplinary hospital outreach	Motor and	differences in pre-post
Assmus, &	discharge to	1-7 days	team during hospitalization and to the	Process Skills	changed ADL ability
Skouen	home with		end of follow-up; Patients were	(AMPS) score and	measured by the AMPS at 3
$(2015)^{18}$	home-based		discharged from hospital to their home	mRS score at 3	months follow up
	intervention		as early as possible;	months	
	(n=53)		Treatment was provided by municipal		
			healthcare team at home, which was		
			mainly directed towards ADLs, and		
			function-specific treatment was also		
			offered for 4 weeks)h.	
	Early		Care was provided by a	1)/,	
	supported		multidisciplinary hospital outreach		
	discharge to		team during hospitalization and to the		
	home with day		end of follow-up; Patients were		
	unit- based		discharged from hospital to home as		
	intervention		early as possible;		
	(n=50)		Individualized treatment and focused		
			on specific functions like training of		
			memory or of hand function, but also		

on specific instrumental ADL activities was provided by a municipal healthcare team in a day unit for 4 weeks Usual care No support from the hospital outreach	
team in a day unit for 4 weeks	
Usual care No support from the hospital outreach	
(n=51) team or the municipal health-care team	
was provided;	
Follow up rehabilitation is not provided	
to all patients. Ordinary treatment	
might involve treatment at home by a	
nurse, physical therapist, or	
occupational therapist from the home	
municipality and/or treatment by a	
private physiotherapist	
Rasmussen Early None specified; During hospitalization, home-based mRS score and Intervention	group
et al. supported >3 days intervention of physical exercise and MBI score 90 days achieved	significantly
(2016) ⁴⁸ discharge to training of ability of daily activities was after stroke onset better mRS	score than
home with provided at home by a control group;	
home-based multidisciplinary team consisting of a No significant	difference of
intervention nurse, physiotherapists, occupational MBI score bet	ween groups
(n=38) therapists, and physicians;	
After discharge, the home training for	
activities of daily living and continued	
rehabilitation training at home was	
provided by the multidisciplinary team	
for up to 1 month	
Usual care After discharge, standard procedures	
(n=33) were provided by municipality health	
care professionals	

Duncan et	Home-based	Minimal to	Home-based intervention was provided	BI score at	No significant difference in
al. (1998) ⁴⁷	intervention	moderate	by a physical therapist at home for 12	treatment endpoint	change scores of BI
al. (1996)	(n=10)		weeks (8-week therapist-supervised	treatment enuponit	
	(n-10)	neurological	`		between groups
		deficits (Fugl-	program with 3 visits per week, and 4-		
		Meyer Motor	week self-instructed program);		
		Score 40 to 90);	The exercise program was designed to		
		30-90 days	improve strength, balance, and		
			endurance, using Neuromuscular		
			Facilitation Patterns or Theraband		
			exercise		
	Usual care		Usual care prescribed by physicians		
	(n=10)		and treatment might be provided		
Santana et	Early	FIM score < 100;	Rehabilitation began in stroke unit with	FIM score at 6	No significant difference in
al. (2017) ³⁸	supported	None specified	the following home-based training by	months after stroke	FIM score between groups
	discharge to		the early home-supported discharge	onset	at 6 months
	home with		team at home for approximately 8		
	home-based		training session for a maximum of 1		
	intervention		month;		
	(n=95)		The rehabilitation was focus on daily		
			activities valued by the patient in their	101	
			usual context		
	Usual care		Usual care rehabilitation was		
	(n=95)		frequently focus on components of		
			training of impairments, which might		
			be provided in convalescence unit or		
			home or long-term care unit		
Chaiyawat,	Home-based	None specified;	Home-based exercise was provided by	BI score at 2 years	BI score was significantly
&	intervention	The means of time	a physical therapist once a month with		improved in the

Kulkantrak	(n=30)	were 10 days	audiovisual materials provided for 6		intervention group more
	(11–30)	(intervention	months;		
orn.		`			than the control group
$(2012a)^{40}$		groups) and 10.9	The intervention strategy was based on		
		days (control	principles of exercise physiology,		
		group)	motor learning and mirror neuron		
			concept;		
			The audiovisual CD of rehabilitation		
			procedures included passive exercise,		
			active exercise, resistance exercise,		
			and activities of daily living (ADL),		
			including preparing a drink, lock and		
			key, putting on and taking off shoes,		
			how to use a cane or wheelchair, etc		
	Usual care		Might include outpatient rehabilitation		
	(n=30)		and instruction for home rehabilitation		
			without home visits		
Chaiyawat,	Home-based	None specified;	Home-based exercise was provided by	BI score at 2 years	BI score was significantly
&	intervention	The means of time	a physical therapist once a month with		improved in the
Kulkantrak	(n=30)	were 10 days	audiovisual materials provided for 6		intervention group more
orn.		(intervention	months;	101	than the control group
$(2012b)^{46}$		groups) and 10.9	The intervention strategy was based on	クル	
		days (control	principles of exercise physiology,		
		group)	motor learning and mirror neuron		
			concept;		
			The audiovisual CD of rehabilitation		
			procedures included passive exercise,		
			active exercise, resistance exercise, and		
			activities of daily living (ADL),		
	<u> </u>		1 (1		<u> </u>

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			including preparing a drink, lock and		
			key, putting on and taking off shoes,		
			how to use a cane or wheelchair, etc		
	Usual care		Might include outpatient rehabilitation		
	(n=30)		and instruction for home rehabilitation		
			without home visits		
Lindley et	Early	Mild to severe	The family rehabilitation training was	mRS and BI scores	No significant difference in
al. (2017) ⁴³	supported	disability (NIHSS	delivered by a rehabilitation	at 3 months and 6	BI scores between groups at
	discharge to	0-15, ≥15);	professional started in hospital	months after	3 months and 6 months
	home with	The range of time	continued at home (up to 6 home visits)	randomization	
	home-based	was 0-29 days	for up to 2 months;		
	intervention		After discharge, the home-based		
	(n=623)		intervention was provided by		
			caregivers at home;		
			The home-based intervention included		
			limb positioning, task specific		
			activities, training of ability of daily		
			activities and communication, and		
			provision of information, with an) 6	
			intervention manual provided for the	7 /)/.	
			patients and caregivers		
	Usual care		Some therapy by a physiotherapist		
	(n=627)		during hospital stay, with post-		
			discharge care vary from no therapy to		
			some outpatient therapy		
Barzel et al.	Home-based	Mild to moderate	Home-based constraint-induced	BI scores at	No significant difference in
$(2015)^{44}$	intervention	disability, with	movement therapy was provided in	treatment endpoint	BI scores between groups at
	(n=85)	subsequent mild	home environment for 2 hours each	and at 6 months	treatment endpoint and at 6

Gladman, intervention (n=94) I month daily activities was provided by an occupational therapist at home for up to score than control group		I	1			T
arm function and minimal residual hand function Usual care (minimum 10° active wrist extension, 10° active thumb abduction or extension, and 10° extension of two additional fingers); The mean of time were 56.57 (intervention group) months and 45.65 months (control group) Walker, Home-based Gladman, Lincoln, (m=94) Walker, Home-based Gladman, Lincoln, (m=94) active dunth and function 10° cxrecises and activities of daily living to immobilize their non-affected hand (Conventional physical or occupational therapy was provided either in a patient's home or in a therapeutic practice, but additional home training was not obligatory; Therapy might include neurodevelopmental treatment, Perfetti, proprioceptive neuromuscular facilitation, Affolter, apparatus therapy, functional training, massage therapy, and soft tissue manipulation, shoulder and hand mobilization, isometric training, strengthening of muscles, muscle tonus reduction, training of skills and activities of daily living, perceptual and sensory training, assisted movement, fine motor skills training, trunk mobilization and stabilization Training of personal and instrumental daily activities was provided by an occupational therapist at home for up to				,	follow up	months follow up
minimal residual hand function Usual care (minimum 10° conventional physical or occupational therapy was provided either in a patient's home or in a therapeutic practice, but additional fingers); The mean of time were 56.57 (intervention group) months and 45.65 months (control group) (control group) (control group) Walker, Gladman, Lincoln, Medical active thimb abduction or extension, and 10° extension of two additional fingers); The mean of time were 56.57 (intervention group) months and 45.65 months (control group) (control gr			*	5 7 1		
Lincoln, Lincoln Lin			arm function and	asked to wear a resting glove during		
Usual care (n=71) (minimum 10° active wrist extension, 10° active thumb abduction or extension, and 10° extension of two additional fingers); The mean of time were 56.57 (intervention group) months and 45.65 months (control group) Walker, Gladman, Lincoln, 10° active wrist extension (n=94) Usual care (n=71) (minimum 10° Conventional physical or occupational therapy was provided either in a patient's home or in a therapcutic practice, but additional home training was not obligatory; Therapy might include neurodevelopmental treatment, Perfetti, proprioceptive neuromuscular facilitation, Affolter, apparatus therapy, functional training, massage therapy, and soft tissue manipulation, shoulder and hand mobilization, training of skills and activities of daily living, perceptual and sensory training, assisted movement, fine motor skills training, trunk mobilization and stabilization Walker, Gladman, Lincoln, (n=94) Usual care (m=71) Active wrist extension, 10° practice, but additional home training was not obligatory; Therapy might include neurodevelopmental treatment, Perfetti, proprioceptive neuromuscular facilitation, Affolter, apparatus therapy, functional training, massage therapy, and soft tissue manipulation, shoulder and hand mobilization, training of skills and activities of daily living, perceptual and sensory training, assisted movement, fine motor skills training, trunk mobilization and stabilization Walker, Home-based intervention (n=94) None specified; Training of personal and instrumental daily activities was provided by an occupational therapist at home for up to			minimal residual	exercises and activities of daily living		
(n=71) active wrist extension, 10° active thumb abduction or extension, and 10° extension of two additional fingers); The mean of time were 56.57 (intervention group) months and 45.65 months (control group) Walker, Gladman, Lincoln, (n=94) (n=71) active wrist extension, 10° active thumb abduction or extension, and 10° extension of two additional fingers); The mean of time were 56.57 (intervention group) months and 45.65 months (control group) Walker, Home-based intervention (n=94) ### The mean of time were 56.57 (intervention group) months and 45.65 months (control group) ### The mean of time were 56.57 (intervention group) months and 45.65 months (control group) ### The mean of time were 56.57 (intervention group) months and 45.65 months (control group) ### The mean of time were 56.57 (intervention group) isometric training, strengthening of muscles, muscle tonus reduction, training of skills and activities of daily living, perceptual and sensory training, assisted movement, fine motor skills training, trunk mobilization and stabilization #### The mean of time were 56.57 (intervention group showed significantly higher BI score than control group) #### The mean of time were 56.57 (intervention group showed significantly higher BI score than control group)			hand function	to immobilize their non-affected hand		
extension, 10° active thumb abduction or extension, and 10° extension of two additional fingers); The mean of time were 56.57 (intervention group) months and 45.65 months (control group) Walker, Home-based Gladman, Lincoln, (n=94) Marcian Home-based Gladman, Lincoln, Control group		Usual care	(minimum 10°	Conventional physical or occupational		
active thumb abduction or extension, and 10° extension of two additional fingers); The mean of time were 56.57 (intervention group) months and 45.65 months (control group) Walker, Home-based Gladman, Lincoln, (n=94) active thumb abduction or extension, and 10° extension, and 10° extension of two additional fingers); The mean of time there are the mean of time were 56.57 (intervention group) months and 45.65 months are the mean of time were are the raining, strengthening of the raining, strengthening of training, strengthening of training, assisted movement, fine motor skills training, trunk mobilization and stabilization Walker, Gladman, Lincoln, (n=94) None specified; 1 month daily activities was provided by an occupational therapist at home for up to		(n=71)	active wrist	therapy was provided either in a		
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extension, and 10° extension of two additional fingers); The mean of time were 56.57 (intervention group) months and 45.65 months (control group) Walker, Gladman, Lincoln, (n=94) extension, and 10° therapy might include neurodevelopmental treatment, Perfetti, proprioceptive neuromuscular facilitation, Affolter, apparatus therapy, functional training, massage therapy, and soft tissue manipulation, shoulder and hand mobilization, isometric training, strengthening of muscles, muscle tonus reduction, training of skills and activities of daily living, perceptual and sensory training, assisted movement, fine motor skills training, trunk mobilization Walker, Gladman, Innervention I month cocupational therapist at home for up to			active thumb	practice, but additional home training		
extension of two additional fingers); The mean of time were 56.57 (intervention group) months and 45.65 months (control group) Walker, Gladman, Lincoln, (m=94) extension of two additional fingers); neurodevelopmental treatment, Perfetti, proprioceptive neuromuscular facilitation, Affolter, apparatus therapy, functional training, massage therapy, and soft tissue manipulation, shoulder and hand mobilization, isometric training, strengthening of muscles, muscle tonus reduction, training of skills and activities of daily living, perceptual and sensory training, assisted movement, fine motor skills training, trunk mobilization and stabilization BI score at 6 months significantly higher BI score than control group			abduction or	was not obligatory;		
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fingers); The mean of time were 56.57 (intervention group) months and 45.65 months (control group) Walker, Gladman, Lincoln, (n=94) fingers); The mean of time therapy, functional training, massage therapy, and soft tissue manipulation, shoulder and hand mobilization, isometric training, strengthening of muscles, muscle tonus reduction, training of skills and activities of daily living, perceptual and sensory training, assisted movement, fine motor skills training, trunk mobilization and stabilization BI score at 6 Intervention group showed months intervention (n=94)			additional	Perfetti, proprioceptive neuromuscular		
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and 45.65 months (control group) was a sisted movement, fine motor skills training, trunk mobilization and stabilization walker, Home-based Gladman, intervention Lincoln, (n=94) muscles, muscle tonus reduction, training reduction, training of skills and activities of daily living, perceptual and sensory training, assisted movement, fine motor skills training, trunk mobilization and stabilization BI score at 6 Intervention group showed daily activities was provided by an occupational therapist at home for up to score than control group			(intervention	shoulder and hand mobilization,		
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assisted movement, fine motor skills training, trunk mobilization and stabilization Walker, Home-based None specified; Training of personal and instrumental daily activities was provided by an occupational therapist at home for up to score than control group			(control group)	training of skills and activities of daily	101	
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Walker, Home-based Oladman, intervention Lincoln, (n=94) None specified; Training of personal and instrumental daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupational therapist at home for up to daily activities was provided by an occupation occupa				training, trunk mobilization and		
Gladman, intervention (n=94) I month daily activities was provided by an occupational therapist at home for up to score than control group				stabilization		
Lincoln, (n=94) occupational therapist at home for up to score than control group	Walker,	Home-based	None specified;	Training of personal and instrumental	BI score at 6	Intervention group showed
	Gladman,	intervention	1 month	daily activities was provided by an	months	significantly higher BI
	Lincoln,	(n=94)		occupational therapist at home for up to		score than control group
Siemonsma, 5 months	Siemonsma,			5 months		

& Whiteley	Usual care		No additional input from the research		
$(1999)^{45}$	(n=91)		therapist was provided, but participants		
(1999)			might have received input from		
			existing services, as would occur in		
			routine practice		
Mayo et al.	Early	None specified;	Home intervention was provided by a	BI scores at 1	Both groups improved
$(2000)^{49}$		< 28 days	1		
(2000)	supported	< 28 days	multidisciplinary team at home,	month and 3 months after stroke	significantly in BI score over time
	discharge to home with	0,4	offering nursing, physical therapy,		
			occupational therapy, speech therapy,	onset	No significant difference in
	home-based		and dietary consultation for 4 weeks		BI score between groups at
	intervention		(%)		either 1 or 3 months after
	(n=58)				stroke
	Usual care		A range of services were provided after		
	(n=56)		discharge, including physical therapy,		
			occupational therapy, speech therapy,		
			as requested by the patient's care		
			provider and offered through extended		
			acute-care hospital stay; inpatient or		
			outpatient rehabilitation; or home care	Jh .	
			via local community health clinics.	1)/,	
			Patients could also arrange for private		
			care for which they themselves paid		
			(rehabilitation services are covered by		
			the government only if offered through		
			a designated hospital or community		
			center).		
Wolfe,	Home-based	None specified;	Treatments were provided by a	BI score at 1 year	No significant difference in
Tilling, &	intervention	None specified	community rehabilitation team	post randomization	BI score between group at 1

Rudd.	(n=23)		consisting of a physiotherapist, an		year post randomization
$(2000)^{39}$			occupational therapist, a speech and		
			language therapist and a therapy aide at		
			home for a maximum of 3 months		
	Usual care		All other services apart from therapy		
	(n=20)		mentioned in intervention group:		
			outpatient resources available in the		
			district included a hospital-based stroke		
			clinic, geriatric day hospital, generic		
			domiciliary physiotherapy and speech		
			and language therapy, hospital		
			outpatient physiotherapy, and the usual		
			community resources. The maximum		
			level of home care available in the		
			study area to all patients was three 1-		
			hour visits daily by a home help for		
			personal care, meals on wheels, and		
			community nurse visits for specific		
			tasks		
Deng,	Home-based	NIHSS score of 4-	Stroke rehabilitation was performed by	MBI score at 8	The intervention group
Yang, &	intervention	15, mRS score of	therapists at home 1-3 times a week for	weeks after	showed significantly better
Xiong.	(n=49)	2-4;	8 weeks;	discharged from	results than the control
$(2020)^{41}$		The mean of time	Medication reconciliation and self-	stroke unit	group at treatment
		was 17 days	management education was performed		endpoint;
		-	by general practitioners and nurses		Significant difference
	Usual care		Medication therapy, strategies of		between groups at
	(n=49)		detection and control of potential risk		treatment endpoint
			factors were provided		

	T	T			
Lincoln, N.	Home-based	None specified;	Rehabilitation service including	BI score at 6	No significant difference in
B., Walker,	intervention	< 2 years	physiotherapy, occupational therapy,	months follow up	BI score between groups
M. F.,	(n=90)		speech and language therapy were	after randomization	
Dixon, A.,			provided at patients' own home by a		
& Knights,			multidisciplinary team for as long as it		
P. (2004) ⁴²			was considered they were benefiting		
	Usual care		Routine rehabilitation services were		
	(n=103)		provided including service at day		
		Ur	hospital, service at outpatient		
			departments and social services of		
			occupational therapy		
Koç.	Home-based	Baseline BI score	Home-based exercise program was	BI score at 12	The intervention group
$(2015)^{54}$	intervention	60–80, and	provided by a nurse at home twice a	weeks after	showed significant more
	(n=35)	patients were able	week for 3 months. And patients were	baseline assessment	improvement in BI score
		to walk with	instructed to continue the exercise		than control groups, and BI
		supervision and/or	program;		score was significantly
		an assistive	The exercise program included		higher than control groups
		device;	strengthening, range of motion exercise		at treatment endpoint
		30-90 days	proprioceptive neuromuscular		
			facilitation	7) /	
	No	-	No intervention was administered by	7/	
	intervention		the researcher, instead of home visits		
	(n=37)		by the research staff every 4 weeks for		
			health education and to check their		
			vital signs		
Wang et al.	Home-based	Mild to moderate	Caregiver-mediated, home-based	BI score at 12	Intervention group showed
$(2015)^{50}$	intervention	disability	intervention was provided at home for	weeks	significantly greater
(2013)	(n=25)	(Brunnstrom	3 months;	WOORS	improvement in BI score at
	(11 ⁻² 23)	(Dialilianolli	J monuis,		improvement in Di score at

	Г	T	1	Г	Г
		recovery stages	The intervention aimed at improving		treatment endpoint
		III-V);	body functions and structural		
		>6 month	components, ability of daily activities		
			and participation in outdoor leisure		
			activities;		
			Home visits were provided by a		
			physical therapist once a week for		
			approximately 90 minutes to teach both		
			patients and their caregivers, and		
			written training guideline and simple		
			illustrations were provided to the		
			caregivers		
	No		Home visits or telephone calls by		
	intervention		therapists without intervention		
	(n=26)				
Walker,	Home-based	None specified;	Dressing practice was provided by an	the Rivermead	Both groups showed
Drummon,	intervention	6 months	occupational therapist at home for 3	ADL score at post-	statistically significant
& Lincoln.	(n=15)		months;	treatment	improvement during the
$(1996)^{51}$			Treatment involved teaching patients) 6	treatment phase;
			and carers appropriate techniques such	1 /)/.	Neither group showed any
			as dressing the affected limb first,		change during the non-
			energy conservation, the use of red		treatment phase
			thread to overcome perceptual		
			difficulties and to mark alignment of		
			buttons, and advice on choice of		
			clothing;		
			Cares were encouraged to continue the		
			dressing practice between sessions		

	No intervention (n=15)		No intervention (as a crossover study)		
Lin, Hsieh, Lo, Chai, & Liao. (2004) ⁵³	Home-based intervention (n=9)	Moderate to severe residual disability with BI score (0-20) 5-14; >1 year	Home-based physical therapy was provided by a physical therapist at home once a week for 10 consecutive weeks, with each session lasting for 50 to 60 minutes; The intervention mainly included motor facilitation, postural control training, functional ambulation training with gait correction, and training of daily activities	BI score at post-treatment	No significant difference in changes in BI score at treatment endpoints between groups
	No intervention (n=10)		No intervention (as a crossover study)		
Wade, Collen, Robb, & Warlow (1992) ⁵²	Home-based intervention (n=49)	Patients used a walking or mobility aid, other than just a stick; had had a fall in the previous three months; were unable to manage stairs, slopes, or uneven surfaces independently; or had a slow gait	abnormal components; Practice walking inside and outside; Exercises to stimulate reactions; Obstacle courses; Practice on uneven surfaces; Re-education; Practice of correct sequence (feet back, lean forward); Removal of inappropriate aids;	treatment	No significant change in BI score over time in both groups; No significant difference in BI score at treatment endpoint between groups

Chumbles at	No intervention (n=45)	speed >10 s over 10 m if under 60, > 12.5 s if 60- 69, >16-5s if over 70; 2-7 years	practice of best way of performing daily activities; Referral to community occupational therapy; Demonstrate patient's ability to patient and carer; graduated exercise program No intervention (as a crossover study)	The motor subsects	No significant differences in
Chumbler et al. (2012) ⁵⁷	Home-based telerehabilitati on intervention + usual care (n=25)	FIM score 18-88; < 24 months	 Three 1-hour home tele-visits by a trained assistant to assess physical performance and help communicate the instruction of exercises and use of assistive technology and/ or adaptive techniques; In-home messaging device was daily used by participants which was monitored weekly by the teletherapist; Five telephone intervention calls between teletherapists and the participant to review the current exercise regimen and assistive technology, and to overcome barriers; The duration of telerehabilitation was 3 months and all participants also 	of the Telephone Version of FIM	No significant difference in the motor subscale of the Telephone Version of FIM score at treatment endpoint and 3 months after treatment

			received routine Veterans Affairs care		
	Usual care		Any services provided as part of their		
	(n=23)		usual Veterans Affairs or non-		
			Veterans Affairs care, such as home		
			health care.		
Corr, &	Home-based	None specified;	Rehabilitation was provided by an	BI scores at 1-year	No significant difference in
Bayer	intervention +	The range of time	occupational therapist at home;	poststroke	BI score between groups at
$(1995)^{58}$	usual care	were 7-317 days	The home-based intervention included		1-year poststroke
	(n=55)	(intervention	teaching new skills, facilitating more		
		group) and 8-221	independence in activities of daily		
		days (control	living, facilitating return of function,		
		group)	enabling patients to use equipment		
			supplied by other agencies, giving		
			information to the patient and carer,		
			and referring to or liaising with other		
			agencies;		
			In addition to any other follow-up		
			services arranged, such as day-hospital		
			attendance and community		
			physiotherapy.	1)/	
	Usual care		No special intervention or follow-up		
	(n=55)		was provided, and the participants		
			could receive any available services as		
			required		
Wong, &	Transitional	(1) slight to	Routine hospital-based physical	MBI score post-	The intervention group
Yeung	care program	moderate	training program was provided within	treatment and at 8	showed significantly higher
$(2015)^{64}$	with home-	neurological	the first 3 weeks after discharge;	weeks after	MBI scores at post-
	based	deficits with	Transitional care program was	discharge	treatment and at 4 weeks

		NIIIIOOS 4 -16	1 1 0 1 1		0 1 1 1
	intervention +		commenced before discharge and		after treatment than control
	routine	(2) slight to			groups
	hospital-based	moderate level of			
	training	disability, with	1 &		
	(n=54)	mRS >= 2 to <= 4;	home-based intervention consisting		
		None specified	training of self-care abilities and		
			exercise, emotion management etc.		
	Usual care		Routine hospital-based physical		
	(n=54)	Uh	training program was provided within		
		<i>'</i>	the first 3 weeks after discharge		
			10		
Gilbertson,	Home-based	None specified;	Domiciliary program was provided by	BI score at 8 weeks	No significant differences
Langhorn,	intervention +	The median of	a therapist for 6 weeks;	and at 6 months	in BI scores either at 8
Walker,	usual care	time were 31 days	The intervention aimed at recovery	follow up	weeks follow up or at 6
Allen, &	(n=67)	(intervention	goals identified by the patients such as	1	months follow up
Murray		group) and 23	regaining self-care or domestic or		-
$(2000)^{59}$		days (control			
		group)	liaised with other agencies for advice,		
		8 - 47)	services, and equipment;		
			Routine services as the same in the	7) /	
			control group		
	Usual care		Routine services included inpatient		
	(n=71)		multidisciplinary rehabilitation, a		
			predischarge home visit for selected		
			patients, the provision of support		
			services and equipment, regular		
			multidisciplinary review at a stroke		
			clinic, and selected patients referred to		
	l		omino, and beleeted patients referred to		

			a medical day hospital		
Batchelor,	Home-based	Were at high risk	Individually tailored falls prevention	FIM score at 12	No significant difference in
Hill,	intervention +	of falls (either had	program was provided by a	months after	FIM score between groups
Mackintosh,	usual care	fallen during	physiotherapist at home;	baseline assessment	at 12 months follow up
Said, &	(n=71)	hospital	Home exercise program (strength and		
Whitehead.		admission or had a	balance exercise and walking), falls		
$(2012)^{56}$		Step Test worse	risk minimization strategies, education,		
		leg score of less	injury risk minimization strategies,		
		than 7, or a Berg	with falls prevention booklet provided;		
		Balance Scale	Usual care might include referral for		
		score of less than	ongoing therapy (physiotherapy and		
		49);	occupational therapy)		
	Usual care	The mean of time	Usual care might include referral for		
	(n=85)	were 3 months	ongoing therapy (physiotherapy and		
		(intervention	occupational therapy);		
		group) and 3.1	Falls prevention booklet was also		
		months (control	provided		
		group)			
Sritipsukho,	Home-based	None specified;	Home-based rehabilitation program	The number of	No statistical analysis to
Riewpaibo	intervention +	The mean of time	based on exercise physiology and	participants in both	compare the effectiveness
on,	usual care	were 13 days	motor learning was provided by a	groups who achieve	of the intervention
Chaiyawat	(n=30)	(intervention	physical therapist at home once per	goals	
, &		group) and 10.9	month for 3 months, with audiovisual		
Kulkantra		days (control	materials provided to patients and		
korn		group)	caregivers for daily activity practice;		
$(2010)^{63}$			Conventional hospital services which		
			included outpatient rehabilitation		
	Usual care		Conventional hospital services which		

	(n=30)		included outpatient rehabilitation		
Ricauda et	Home-based	None specified;	The home rehabilitation program was	FIM score at 6	FIM scores significantly
al. (2004) ⁶¹	intervention +	>24 hours	provided by a physician, a nurse and a	months follow up	improved in both groups
	usual care		physical therapist daily at home;		over time;
	(n=60)		The intervention emphasized a task-		No significant difference in
			and context-oriented approach, which		FIM score between groups
			recommended that the patient perform		
			guided, supervised, and self-directed		
		Up.	activities in a functional and familiar		
			context;		
			Hospital rehabilitation service was		
			provided by physical therapists		
	Usual care		Hospital rehabilitation service was		
	(n=60)		provided by physical therapists		
Rudd,	Home-based	None specified;	Domiciliary treatment was provided by	BI score at 1 year	No significant difference in
Wolfe,	intervention +	None specified	a multidisciplinary team consisting of a	after stroke onset	BI score between groups at
Tilling, &	usual care		physiotherapist, an occupational		1-year poststroke
Beech.	(n=167)		therapist and a speech and language		
$(1997)^{62}$			therapist and a therapy aid for a)	
			maximum of 3 months; Treatment	7 /)/.	
			included physiotherapy, occupational		
			therapy and speech therapy;		
			Conventional services were provided		
			when appropriate		
	Usual care		Conventional services included		
	(n=164)		hospital-based stroke clinic, geriatric		
			day hospital, generic domiciliary		
			physiotherapy and speech and language		

Azab, Al-	Home-based	Mild to moderate	therapy, hospital outpatient physiotherapy, and the usual community resources; The maximum level of home care available in the study area to all patients was three one-hour visits daily by a home help for personal care, meals on wheels Home-based Constraint-Induced	BI score at 6	Intervention group showed
Jarrah, Nazzal,	intervention + usual care	hemiparesis of the affected upper	Movement Therapy (CIMT) supervised by caregivers for 6 to 7	months post- discharge	statistically significant improvement in BI score
Maayah,	(n=20)	limb, with	hours a day for 4 consecutive weeks;		compared to the control
Sammour,		Brunnstrom	Traditional physical and occupational		group
& Jamous.		recovery stages	therapy sessions for 40 minutes each,		
$(2009)^{55}$		III-VI, or BI	three time per week for 4 weeks	_	
	Usual care	scores 30-90, and	Traditional physical and occupational		
	(n=17)	the participants	therapy sessions for 40 minutes each,		
		were able to	three time per week for 4 weeks		
		voluntarily extend		リ カノ	
		their fingers and wrist slightly;		クケ	
		The mean of time			
		were 81 days			
		(male			
		participation) and			
		87 days (female			
		participation)			
Goldberg,	Home-based	None specified;	Home-based treatment was provided	Multiple regression	No comparison of FIM

Segal, Berk,	intervention +	2 weeks	to 3	by treatment team consisting of	models were used	score was made between
Schall, &	usual care	months		physiatrist, psychologist and	to look at the	two groups
Gershkoff.	(n=27)			recreational therapist with weekly	prediction of FIM	
$(1997)^{60}$				phone contact and monthly home	and FAI scores at 6	
				visits;	months and 1 year	
				Treatment included those needed from	follow up	
				therapeutic recreation, social work, and	assessments	
				psychology consultants; and special		
				access to educational resources,		
				including a stroke educational manual		
				with associated printed materials and a		
				stroke "hot-line" telephone number;		
				Standard outpatient follow-up services		
				were also provided (were as described		
				below)		
	Usual care			Standard outpatient follow-up services		
	(n=28)			included routine medical follow-up		
				visits and, when indicated, outpatient		
				rehabilitation services		

There were various home-based interventions performed in the included studies. Thirteen studies did not describe the details of treatment strategy. 19, 20, 24, 30-32, 35, 37, 39, 41, 42, 49, 62 Among 34 studies which reported the details of treatment strategy, 20 studies provided physical exercise practice, 21, 22, 26-29, 36, 40, 43, 46-48, 50, 52-54, 56, 57, 63, 64 21 studies provided training of daily activities, 18, 22, 25-28, 33, 38, 40, 43, 45, 46, 48, 50-53, 58, 59, 63, 64 7 studies provided task-/ functional-specific training, 18, 23, 29, 34, 36, 43, 61 2 studies provided constraint-induced movement treatment. 44, 55 Other treatments like speech and communication therapy, 33 psychosocial intervention, 60 emotion management, 64 electromyography-triggered neuromuscular stimulation, 27, 28 application of leisure activities, 59, 60, 64 providing adaptive aids and equipment, 52, 59 providing fall prevention strategies 56 and providing splint or orthoses 21 were also used as part of home-based intervention for stroke patients.

The delivery strategy of home-based intervention has transformed in recent years. Before 2009, all included trials provided home-based interventions by professionals during home visits. While, among 24 studies published from 2009, 13 studies involved self-/caregiver-mediated intervention, 21, 26-29, 40, 43, 44, 46, 50, 55, 57, 63 in which 4 studies provided tele-rehabilitation supervised by professionals. 27-29, 57

Risk of bias in included studies

Methodological quality of the included studies is presented (Table 2). Thirty-two out of the included 47 studies were of good methodological quality (PEDro score = 6-8). Eleven studies were of fair quality (PEDro score = 4-5), and four^{26, 29, 55, 60} were of poor quality (PEDro score = 1-3).

Table 2. Physiotherapy evidence database (PEDro) scores of included studies

Study, Year of	PE	Dro s	cale it	ems								PEDro
publication	1	$\frac{1}{2}$	3	4	5	6	7	8	9	10	11	score
puoneution	1						,			10	11	(0-10)
Kalra, 2000		√						√	√			8
Kalra, 2005		1	1				√	1	1	√		7
Gladman, 1993	1	V	V				√	V		√	√	6
Thorsén, 2005		√										5
Widén		V						√				6
Holmqvist, 1998												
von Koch, 2000	1	V	1				√	V		V	√	6
Özdemir, 2001	V	V	~	1				1	1		1	5
Hesse, 2011	V	V		V			V	V	1	V	V	7
Redzuan,	V	V				1				1	$\sqrt{}$	3
2012						4						
Baskett, 1999		1	√	1				V		1	V	7
Pandian 2015	V	V					V					2
Roderick,	V	1	√	1		4	-			1	√	5
2001												
Young, 1992							1	V				6
Chen, 2017								1				8
Chen, 2020								V				8
Han, 2020								√	V			7
Gladman,										$\sqrt{}$		5
1994												
Björkdahl, 2006		√	1	√			√	√	1		V	7
Hosfstad,	V	V	V	1	V		V		1	V	V	8
2014												
Taule, 2015	V	1	√				V			1	V	5
Rasmussen,	V	V	√	V						V	√	5
2016												
Duncan, 1998		√	√	V				√	√	V		6
Santana, 2017	V	1	√	V						V	√	6
Chaiyawat,	V	1	√	V				√	1	V	$\sqrt{}$	7
2012a												
Chaiyawat,	V	V						V	V	V		7

		1	I		ı		ı		I	I		
2012b												
Lindley, 2017												7
Barzel, 2015												8
Walker, 1999		√		1							1	7
Mayo, 2000												6
Wolfe, 2000												5
Deng, 2020							\checkmark					8
Lincoln, 2004												4
Koç, 2015												5
Wang, 2015							\checkmark					6
Walker, 1996												6
Lin, 2004	1	V				\checkmark						8
Wade, 1992	V	1		V			V	V		V	V	6
Chumbler,	V	1	1	V			V		V	V	V	7
2012												
Corr, 1995			V	V								5
Wong, 2015				1								8
Gilbertson,												7
2000												
Batchelor,												7
2012												
Sritipsukho,							V			V		6
2010												
Ricauda, 2004				1			1					6
Rudd, 1997				1								5
Azab, 2009							1	9				1
Goldberg,	V	√		V								2
1997												

1: eligibility criteria and source of participants; 2: random allocation; 3: concealed allocation; 4: baseline comparability; 5: blinded participants; 6: blinded therapists; 7: blind assessors; 8: adequate follow-up; 9: intention-to-treat analysis; 10: between-group comparisons; 11: point estimates and variability.

Good quality, PEDro score 6–10; fair quality, PEDro score 4–5; poor quality, PEDro score \leq 3.

Effectiveness of home-based intervention compared with institution-based intervention

Twenty studies investigated the effectiveness of home-based intervention comparing with institution-based intervention. One study did not specify the between-group or within-group

^{*}Item 1 does not contribute to the total score.

statistical comparison.²⁹ One study did not specify the between-group statistical comparison.²⁶ Fourteen studies found no significant difference between two groups in the ability of daily living no matter at treatment endpoints or at follow ups.^{18, 19, 22-24, 28, 30-37} Five studies reported improvement in ability of daily living in both groups.^{20-22, 26, 28} While three studies^{20, 25, 27} demonstrated the superiority of home-based intervention comparing with institution-based intervention, one study²¹ showed an opposite result.

Three studies with adequate data were included in the meta-analysis to evaluate the effect of home-based intervention comparing with institution-based intervention. ^{22, 26, 65} All measured the performance of BADL at treatment endpoint, and two studies^{22, 65} measured at the follow-up. For the endpoint analysis, a random-effects analysis produced an insignificant result with high heterogeneity between studies (SMD=-0.01; 95%CI= -0.49-0.47; n=194; I²=64%) (result not shown). A sensitivity analysis was performed after excluding one study with low methodological quality (PEDro scale = 3),²⁶ and statistical heterogeneity decreased but the result was also insignificant (SMD=0.24; 95% CI= -0.15-0.62; n=104; I²=0%) (Figure 2). For the follow-up analysis, a fix-effect analysis produced an insignificant result (SMD=0.16; 95% CI= -0.23-0.55; n=104; I²=0%) (Figure 3).

Effectiveness of home-based intervention compared with usual care

Fourteen studies investigated the effectiveness of home-based intervention comparing with usual care. Nine studies found no significant difference between two groups in the ability of daily living no matter at treatment endpoints or at follow ups. 18, 24, 38, 39, 42-44, 47, 49 Five studies showed significantly better improvement in the home-based intervention than in the usual care group. 40, 41, 45, 46, 48

Five studies were pooled in the meta-analysis to evaluate the effect of home-based intervention comparing with usual care.^{38, 41, 43, 44, 49} Two study measured the performance of BADL at treatment endpoint.^{41, 44} For the endpoint analysis, a random-effects analysis produced an insignificant result with high heterogeneity between studies (SMD=0.65; 95%CI=-0.73-2.04; n=254; I²=96%) (result not shown). Four studies measured outcome at the follow-up. ^{38, 43, 44, 49} For the follow-up analysis, a fix-effect analysis produced an insignificant result (SMD=-0.01.; 95% CI= -0.11-0.09; n=1444; I²=0%) (Figure 4).

Effectiveness of home-based intervention compared with no intervention

Five studies investigated the effectiveness of home-based intervention comparing with no intervention. Three studies demonstrated significant effects on the ADL in home-based intervention but not in control group. 50, 51, 54 The other two studies found no significant benefit from home-based intervention. 52, 53

Four studies were pooled in the meta-analysis to evaluate the effect of home-based intervention comparing with no intervention.^{50, 52-54} All of them measured the performance of BADL at treatment endpoint, and a random-effects analysis produced an insignificant result with high heterogeneity between studies (SMD=0.84; 95% CI= -0.38-2.05; n=231; I²=94%) (result not shown).

Effectiveness of home-based intervention addition to usual care compared with usual care. Ten investigated the effectiveness of home-based intervention comparing with no intervention. Two studies did not specify the between-group statistical comparison. 60, 63 Six studies found no significant difference between two groups in the ability of daily living no matter at treatment endpoints or at follow ups. 56-59, 61, 62 Two studies demonstrated significantly greater

improvement in home-based intervention group than control group.^{55, 64} Wong $et\ al^{64}$ and Ricauda $et\ al^{61}$ found significant improvement in both group while Batchelor $et\ al^{56}$ showed there was no significant improvement either in home-based intervention group or in the control group.

Four studies were pooled in the meta-analysis to evaluate the effect of home-based intervention addition to usual care comparing with usual care.^{56, 57, 62, 64} Two studies measured the performance of BADL at treatment endpoint, and a fix-effect analysis produced a significant result (SMD=0.55; 95% CI=0.22-0.87; n=152; I²=3%) (Figure 5). All of them measured at the follow-up and a random-effects analysis produced an insignificant result with high heterogeneity between studies (SMD=0.23; 95% CI= -0.16-0.62; n=545; I²=71%) (result not shown).

Subgroup analysis

We were unable to conduct subgroup analyses according to the level of disability of the stroke patients, the onset time of stroke, type of intervention or manner of delivery of the treatment because of the clinical diversity between studies, the insufficient information in the individual study and the limited number of included study.

DISCUSSION

Our review found that home-based intervention combined with usual care might have shortterm benefits for stroke patients compared with usual care alone. The long-term effect of homebased intervention might be no more or less than usual care and institution-based intervention, and the short-term effect of home-based intervention might be equivalent to the institutionbased intervention. However, the evidence strength was weak because of the limited number of studies.

There was insufficient evidence to prove the short-term effect of home-based intervention on ability of activities of daily living in stroke patients, when comparing with no intervention. There was no enough evidence to suggest the short-term effect of home-based intervention comparing with usual care, or to suggest the long-term effect of home-based intervention addition to usual care comparing with usual care. The heterogeneity between the studies limited the conclusions that could be drawn.

Many current rehabilitation interventions are developed in clinical setting, and some are translated to home. Home-based intervention strategies vary in type, duration, intensity, frequency and delivery way. This systematic review revealed that exercise physiology practice and training of activity of daily living were commonly performed as home-based interventions which are supported by current evidence. AHA/ASA Guideline suggested that lower extremity strengthening exercise and cardiovascular exercise are beneficial to improve gait capacity of stroke patients and also can improve their ability to perform gait-related mobility tasks. 66 And training of activities of daily living is strongly recommended for community-dwelling stroke patients.⁶⁷ Some newly developed home-based interventions like caregiver-mediated rehabilitation and tele-rehabilitation have emerged for the past two decades to replace the traditional home visits by professionals. A Cochrane systematic review found that the caregiver-mediated rehabilitation did not increase the caregiver burden but the effectiveness on the ability of performing BADL in stroke patients was uncertain.⁶⁸ One large study found that the lower dose of caregiver-guided rehabilitation training and non-multidisciplinary

coordination might decrease the efficacy of caregiver-mediated home-based interventions.⁴³ Tele-rehabilitation seemed to be a good alternative to traditional rehabilitation. Chen et al delivered the same treatment strategy to home-based telerehabilitation group and institutionbased rehabilitation group. 65 At the end of intervention and at follow up, both groups showed significant improvement in ability of daily living, and there was no significant difference between two groups throughout the time. Similarly, when comparing with the traditional faceto-face way of home-based intervention performed by professionals, home-based telerehabilitation showed equal positive effect on enhancing the ability of daily living of stroke patients.⁶⁹ More high-quality studies and practice are required to prove the effectiveness of · 5 those new strategies.

Limitations

There is no sufficient study to determine the effectiveness of home-based intervention comparing with other approaches. Although 47 studies were included in the review, many of them did not report adequate data so that they were not included in the meta-analyses. Nearly half of studies included into the meta-analyses had sample size smaller than 30. The clinical heterogeneity between studies in terms of severity of stroke, onset time of stroke, interventions and manner of delivery also compromised the evidence strength of our meta-analyses.

CONCLUSION

Our finding reveals that home-based rehabilitation may be an alternative to institution-based rehabilitation and usual care for stroke patients. And the home-based intervention combined with usual care may be more effective than usual care alone for the short-term effect. However, the evidence strength is weak and future research is needed to investigate the effectiveness of home-based rehabilitation on groups with stratification by stroke severity, stage of stroke, type of home-based intervention and manner of delivery. Moreover, more high-quality studies are required to prove the cost-effectiveness of newly developed strategies like caregiver-mediated rehabilitation and tele-rehabilitation.

Contributors Wei Xijun and Qin ping designed the review. Qin Ping and Chen Xuan screened and selected the study. Qin Ping and Cai Canxin rated the study quality and extracted the data. Qin ping analysed the data and wrote the paper. Wei Xijun revised the paper.

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Competing interests None

Ethics approval None. No human or animal was involved in this study, but the authors implemented systematic review and meta-analysis based on published articles.

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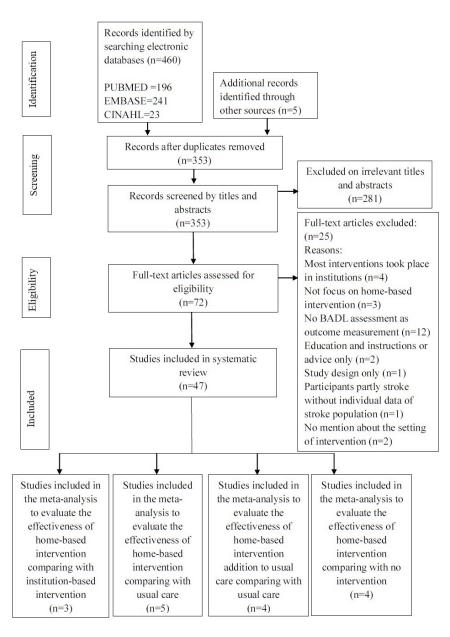


Figure 1. Flowchart of study selection

248x346mm (96 x 96 DPI)

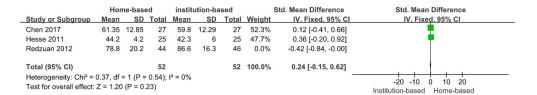


Figure 2. Forest plot comparing the effectiveness of home-based intervention with institution-based intervention at treatment endpoint (sensitivity analysis)

222x41mm (144 x 144 DPI)

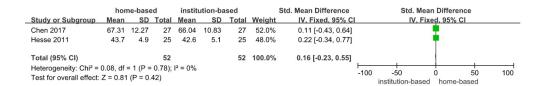


Figure 3. Forest plot comparing the effectiveness of home-based intervention with institution-based intervention at the follow up

222x38mm (144 x 144 DPI)

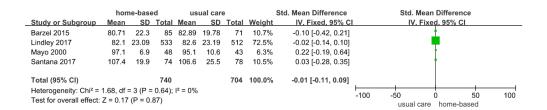


Figure 4. Forest plot comparing the effectiveness of home-based intervention with usual care at the follow up

557x120mm (57 x 57 DPI)

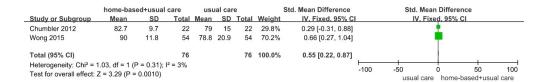


Figure 5. Forest plot comparing the effectiveness of home-based intervention addition to usual care with usual care at the endpoint

234x38mm (144 x 144 DPI)

Appendix 1.

Search strategy of Pubmed

Pubmed	
#1	stroke [Mesh]
#2	hemiplegia [Mesh]
#3	"cerebrovascular disorders" [Mesh]
#4	"cerebral vascular accident"
#5	"cerebrovascular accident"
#6	"cerebral vascular disease"
#7	"cerebrovascular disease"
#8	"cerebral vascular disorder"
#9	"cerebrovascular disorder"
#10	"stroke"
#11	"hemiplegia"
#12	"hemiplegic"
#13	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR
	#8 OR #9 OR #10 OR #11 OR #12
#14	"home care services" [Mesh]
#15	"home care service"
#16	"home care"
#17	"home based"
#18	home

#19	"residential care service"
#20	"residential care"
#21	"residence based"
#22	"residence"
#23	"resident"
#24	#14 OR #15 OR #16 OR #17 OR #18 OR #19 OR
0,	#20 OR #21 OR #22 OR #23
#25	activities of daily living [Mesh]
#26	"activities of daily living"
#27	"ADL"
#28	"barthel index"
#29	"BI"
#30	"FIM"
#31	"functional independence measure"
#32	"daily life activity"
#33	#25 OR #26 OR #27 OR #28 OR #29 OR #30 OR
	#31 OR #32
#34	#13 AND #24 AND #33
Filters:	Article types: randomized controlled trial
	Text availability: full text
	Publication date: to 2020.12.31
	Language: English

Search strategy of Embase

EMBASE	
#1	'cerebrovascular accident' / exp OR 'cerebrovascular accident'
#2	'cerebral vascular accident' / exp OR 'cerebral vascular accident'
#3	'cerebrovascular disease' / exp OR 'cerebrovascular disease'
#4	'cerebral vascular disease' / exp OR 'cerebral vascular disease'
#5	'cerebral vascular disorder' / exp OR 'cerebral vascular disorder'
#6	'cerebrovascular disorder' / exp OR 'cerebrovascular disorder'
#7	'stroke'/ exp OR 'stroke'
#8	'hemiplegia' / exp OR 'hemiplegia'
#9	'hemiplegic' / exp OR 'hemiplegic'
#10	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9
#11	'home care service' / exp OR 'home care service'
#12	'home care' / exp OR 'home care'
#13	'home based'
#14	'home' / exp OR 'home'
#15	'residential care service'
#16	'residential care' / exp OR 'residential care'
#17	'residence based'
#18	'residence' / exp OR 'residence'
#19	'resident' / exp OR 'resident'
#20	#11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19

#21	'activities of daily living' / exp OR 'activities of daily living'
#22	'daily life activity' / exp OR 'daily life activity'
#23	'adl'
#24	'barthel index' / exp OR 'barthel index'
#25	'bi'
#26	'functional independence measure' / exp OR 'Functional independence
	measure'
#27	'fim'
#28	#21 OR #22 OR #23 #24 OR #25 OR #26 OR #27
#29	#10 AND #20 AND #28
Filters:	Study type: randomized controlled trial
	Publication type: article
	Publication date: to 2020.12.31
	Language: English

Search strategy of CINAHL

CINAHL	,
S1	"cerebral vascular accident" (Find all my search terms)
S2	"cerebrovascular accident" (Find all my search terms)
S3	"cerebral vascular disease" (Find all my search terms)
S4	"cerebrovascular disease" (Find all my search terms)
S5	"cerebral vascular disorder" (Find all my search terms)
S6	"cerebrovascular disorder" (Find all my search terms)
S7	stroke (Find all my search terms)
S8	hemiplegia (Find all my search terms)
S9	"hemiplegic" (Find all my search terms)
S10	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9
S11	"home care service" (Find all my search terms)
S12	"home care" (Find all my search terms)
S13	"home based"
S14	home
S15	"residential care service" (Find all my search terms)
S16	"residential care" (Find all my search terms)
S17	"residence based" (Find all my search terms)
S18	residence
S19	resident
S20	S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19

"activities of daily living" (Find all my search terms)				
"ADL" (Find all my search terms)				
"barthel index" (Find all my search terms)				
"BI" (Find all my search terms)				
"functional independence measure" (Find all my search terms)				
"FIM" (Find all my search terms)				
"daily life activity" (Find all my search terms)				
S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27				
S10 AND S20 AND S28				
Randomized controlled trial				
Full text				
Publication date: to 2020.12.31				
English language				



PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2-3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	4-5
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	5
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	No review protocol
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	6
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	5-6
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	5-6, Supplementary appendix 1
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	6
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	6-7
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	7
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	7
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	7-8
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	7-8



42

43 44

45 46

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	8
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	9
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	9-38
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	39-41
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	41-45
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	41-45
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	41-45
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	42, 45
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	44-46
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	46
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	46-47
FUNDING	1		
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	47

40 From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

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Effect of Home-based Interventions on Basic Activities of Daily Living for Patients with Stroke: A Systematic Review with Meta-analysis

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Secondary Subject Heading:	Neurology
Keywords:	Stroke < NEUROLOGY, REHABILITATION MEDICINE, HEALTH ECONOMICS

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Effect of Home-based Interventions on Basic Activities of Daily Living for Patients with Stroke: A Systematic Review with Meta-analysis

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Keywords: Stroke, home-based rehabilitation, activities of daily living,

Word count: 4533

ABSTRACT

Objectives: To investigate the effectiveness of home-based interventions on improving the ability of basic activities of daily living in patients with stroke.

Methods: Randomised controlled trials were searched through MEDLINE, Embase and CINAHL from their inception to 31 December 2021. We included studies involving home-based intervention prescribed by professionals and implemented at patients' home. The characteristics of these studies were collected. Risk of bias of individual study was assessed by Physiotherapy Evidence Database scale. Meta-analyses were performed where studies reported comparable interventions and outcomes.

Results: In total, 49 studies were included in the systematic review and 16 studies had sufficient data for meta-analyses. The short-term effect of home-based intervention showed no significant difference when comparing with institution-based intervention (SMD=0.24, 95% CI -0.15 to 0.62, I²=0%). No significant difference was found between home-based intervention and usual care for long-term effect (SMD=0.02; 95% CI -0.17 to 0.22; I²=0%). Home-based rehabilitation combined with usual care showed a significant short-term effect on the ability of basic daily activities, comparing with usual care alone (SMD=0.55; 95% CI 0.22 to 0.87; p=0.001; I²=3%).

Conclusion: Home-based rehabilitation with usual care which varied from no therapy to in- or out-patient therapy may have a short-term effect on the ability of basic activities of daily living for patients with stroke comparing with usual care alone. However, the evidence quality is low because of the limited number of studies and participants included into the meta-analysis and the possible publication bias. Future research is needed to investigate the effectiveness of

home-based rehabilitation on groups with stratification by stroke severity and time since stroke onset, with elaboration of details of the home-based and the control intervention. Moreover, more high-quality studies are required to prove the cost-effectiveness of newly developed strategies like caregiver-mediated rehabilitation and tele-rehabilitation.

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Keywords: Stroke, home-based rehabilitation, activities of daily living

Strengths and limitation of this study:

- Investigated the effectiveness of home-based rehabilitation on improving the ability of basic activities of daily living in patients with stroke, comparing with institution-based intervention, usual care, no intervention respectively.
- ➤ Updated some newly developed home-based treatment strategies such as telerehabilitation and caregiver-mediated intervention and investigated the effectiveness of them.
- The number of studies included into the individual meta-analysis was limited, because of the inadequate data in the individual studies.
- The clinical heterogeneity between studies in terms of severity of stroke, onset time of stroke, interventions and manners of delivery also compromised the evidence strength of our meta-analyses.

INTRODUCTION

Stroke is one of the major causes of death and is a leading cause of adult disability worldwide.^[1] About half of patients with stroke are left with varying degrees of physical or cognitive impairments.^[2] Previous studies have shown that 25-74% of patients with stroke need assistance from caregivers for the activities of daily living, [3] and the quality of life of both patients and caregivers is heavily impacted.^[4] Although the need for rehabilitation services for the patients with stroke after discharge from acute hospitals is widely recognized, outpatient and inpatient rehabilitation are often compromised for reasons such as lack of accessibility, increased costs and poor compliance. [5, 6] On the other hand, the ability of performing activities of daily living in an institution-based environment may not be generalized to the home environment, which is the final discharge destination for most patients with stroke. [7] Moreover, the motor relearning of patients with stroke improves by context-specific training, and training in the patient's own environment is preferred. [8] Early supported discharge from hospital with subsequent rehabilitation services at home has shown to be more cost-effective than usual care, with a lower caregiver burden and shorter length of stay in hospital. [9, 10] Therefore, a homebased rehabilitation program could be a viable alternative to institution-based stroke rehabilitation.

A Cochrane review of home-based therapy programs for upper limb functional recovery following stroke found that there was insufficient good quality evidence to determine the relative effect of home-based upper limb programs on performance in basic activities of daily living (BADL), compared with placebo, no intervention or usual care. [11] The limited number of included studies and the heterogeneity in terms of the type of home-based therapy programs

limited the evidence strength. Apart from upper limb function, the ability to perform BADL in patients with stroke is influenced by much more factors such as mobility, cognition and communication,^[12] environmental limitation,^[13] and psychological adaptation^[14]. Moreover, upper limb function is not linearly related to the actual performance of daily activities, and the improved upper limb motor capacity dose not translate into the increased upper limb performance in daily life.^[15] Therefore, the effectiveness of home-based intervention including but not limited to upper extremity function training is needed to be investigated.

Another previous review found a significant short-term effect on functional independence in favour of home-based rehabilitation for community-dwelling people with stroke. [16] However, the evidence strength was weak because the control interventions mentioned in the previous review were mixed with usual care, center-based intervention and no intervention. Moreover, as the development of home-based treatment strategy and also for the purpose of reservation of medical services, novel home-based intervention strategies such as tele-rehabilitation and caregiver-mediated intervention have emerged nowadays. An updated review is needed to investigate the effectiveness of home-based interventions on improving the ability of performing self-care activities in patients with stroke.

The objective of this systematic review was to evaluate the effectiveness of home-based interventions on performance of BADL, when comparing with institution-based intervention, usual care and no intervention respectively in patients with stroke.

METHODS

The following items were reported according to the Preferred Reporting Items for Systematic

reviews and Meta-Analyses (PRISMA).[17]

Patient and Public Involvement

No patient involved.

Search strategy

The MEDLINE, Embase and CINAHL databases were searched through PubMed, EMBASE and EBSCOhost platforms respectively, from inception to 31 December 2021. The search strategy is presented in supplementary appendix 1.

Inclusion and exclusion criteria

We only included participants in home-based intervention groups who were living in their own home. Studies that included participants in home-based intervention groups who were living in care homes and other forms of supported or sheltered accommodation were excluded. We defined the home-based interventions as (1) prescribed by professionals; (2) implemented in patient's own home. Studies delivered solely environmental modifications, ergonomic intervention, psychosocial interventions or medication were excluded. The comparison interventions included institution-based intervention, usual care and no intervention. We included studies which measured the ability of BADL as one of the outcomes. Trials that studied solely instrumental activities of daily living were excluded. We only included peer reviewed studies in English language. Grey literature like unpublished studies or conference abstracts were excluded.

Selection of studies

Two reviewers independently extracted randomised controlled studies from the 3 databases.

The duplicate articles were deleted, and the obviously irrelevant studies were eliminated by

screening the titles and abstracts. If any one of the reviewers considered one reference as eligible, the full text was assessed and two reviewers evaluated the study separately based on the inclusion and exclusion criteria. The two reviewers also searched for relevant reviews reported on the similar topic from the 3 databases. Reference lists of those reviews were examined, and citation searching and full text assessment were conducted to identify the additional eligible studies. Only the studies identified by both reviewers were included in the review. Any disagreements between the two reviewers were resolved through discussion with the third reviewer.

Data extraction and management

Data were extracted from the included studies and recorded on a data extraction form by one reviewer and checked by another reviewer. The extracted information included the following items: (1) the total number of participants of each group; (2) characteristics of participants such as age, gender, disability level, time elapsed since stroke onset; (3) characteristics of homebased interventions and interventions in control group, and details of home-based interventions; (4) outcome measures of performance of BADL and the timepoints of outcome measures; (5) results of effectiveness.

Assessment of methodological quality

Two reviewers independently assessed the methodological quality of the included studies using the Physiotherapy Evidence Database scale (PEDro scale).^[18] The PEDro scale is an 11-item scale assessing the following items of individual study: (1) specified eligibility criteria and source of participants; (2) random allocation; (3) concealed allocation; (4) similarity at baseline; (5) blindness of participants; (6) blindness of therapists; (7) blindness of assessors; (8) less than

15% dropouts; (9) intention-to-treat analysis; (10) between-group statistical comparisons; (11) point and variability measures. Each satisfied item contributes one point to the total PEDro score, except for item 1 which pertains to external validity. Researchers have suggested that scores of < 4 are considered poor quality, 4 to 5 are considered fair quality, 6 to 8 are considered good quality and 9 to 10 are considered excellent quality. [19, 20] Any disagreements between the two reviewers were resolved through discussion with the third reviewer.

Data analysis

The Cochrane Collaboration's Review Manager software (RevMan 5.3) was used to carry out all statistical analyses. The overall estimate of the treatment effect was calculated using the means and standard deviations (SDs) of outcome scores with continuous data in the home-based intervention groups and control groups. Short-term effect and long-term effect were analyzed by comparing the statistical difference of outcome score between two groups at treatment endpoint and at the last follow up respectively. Those studies with no mean or SD of outcome measure reported were excluded from meta-analysis. For the studies that used the same measurement tool, we calculated a pooled estimate of the mean differences (MDs) with 95% confidence intervals. When different measurement tools were used, we used the standardized mean differences (Std. MDs) instead of MDs.

Statistical heterogeneity was measured using the I^2 statistic. $I^2 > 50\%$ was considered to indicate substantial heterogeneity, which would result in the use of a random-effect model for the meta-analysis. When I^2 was $\leq 50\%$, a fixed-effects model was used. [11] Inverse-variance method was used to estimate the treatment effect.

We planned to perform several meta-analyses to evaluate (1) the effectiveness of home-

based intervention comparing with institution-based intervention at treatment endpoint and the follow-up; (2) the effectiveness of home-based intervention comparing with usual care at treatment endpoint and the follow-up; (3) the effectiveness of home-based intervention combined with usual care comparing with usual care at treatment endpoint and the follow-up; and (4) the effectiveness of home-based intervention comparing with no intervention at treatment endpoint and the follow-up.

We planned to perform subgroup analyses to investigate the sources of heterogeneity, according to (1) the level of disability of the patients with stroke with stratification of mild, moderate and severe stroke; (2) the onset time of stroke; (3) type of home-based intervention; (4) self- and/or caregiver-mediated versus professional-mediated.

We also planned to perform a sensitivity analysis to diminish the influence of studies with poor methodological quality on the effect size estimate. The studies with poor PEDro score (\leq 3) were deleted from the meta-analysis. All of the statistical tests were two-tailed, and P<0.05 represented statistical significance.

We planned to test for funnel plot asymmetry to assess the publication bias if there were more than ten studies included in these meta-analysis.^[21]

Assessment of certainty of the evidence

Two reviewers independently assessed the quality of the evidence using the GRADE approach.^[22] Five factors result in rating down the quality of evidence including study limitations, inconsistency of results, indirectness of evidence, imprecision and publication bias. We rated the overall quality of evidence as high, moderate, low, or very low for each outcome. We justified all decisions to downgrade the quality of evidence.

RESULTS

Study identification

The search of the electronic bibliographic databases identified 460 articles (MEDLINE = 221, Embase = 231, CINAHL = 14). And 5 additional studies were identified through the references lists of relevant articles and reviews. In total, 49 studies met the eligibility criteria and were included into this systematic review (Figure 1).

Study characteristics

Twenty-one randomised controlled trials compared home-based rehabilitation with institution-based rehabilitation on an in- or out-patient basis.^[23-43] Fifteen randomised controlled trials compared home-based rehabilitation with usual care which was provided according to routine practice without involvement of research team and might include no therapy, home care, instructions for home rehabilitation, in-patient therapy and out-patient therapy.^[32, 38, 44-56] Five randomised controlled trials evaluated the effect of specific home-based interventions by comparing with blank control or sham control.^[57-61] Ten randomised controlled trials compared home-based interventions combined with usual care with usual care alone.^[62-71] The main characteristics of the included studies are shown (Supplementary table 1). Summary of details of the home-based intervention in each included study according to the Template for Intervention Description and Replication (TIDierR)^[72] are shown in an additional supplementary table (Supplementary table 2).

There were various home-based interventions performed in the included studies. Twelve studies did not describe the details of treatment strategy. [28, 29, 32, 33, 37, 43, 48, 50, 52, 56, 68, 70] Among

37 studies which reported the details of treatment strategy, 19 studies provided physical exercise practice, [23, 26, 27, 31, 34-36, 45-47, 49, 53, 57-59, 61, 63, 64, 71] 20 studies provided training of daily activities, [23-27, 30, 36, 38, 45, 46, 53-55, 58-61, 65, 66, 71] 8 studies provided task-/ functional-specific training, [35, 39-42, 51, 61, 69] 2 studies provided constraint-induced movement treatment. [44, 62] Other treatments like speech and communication therapy, [42] psychosocial intervention, [67] emotion management, [71] electromyography-triggered neuromuscular stimulation, [26, 27] environmental modification, [47, 64] application of leisure activities, [66, 67, 71] providing adaptive aids and equipment, [59, 66] providing fall prevention strategies [63] and providing splint or orthoses [34] were also used as part of home-based intervention for patients with stroke.

The delivery strategy of home-based intervention has transformed in recent years. Before 2009, 24 out of 25 included studies provided home-based interventions by professionals during home visits. Among 24 studies published from 2009, 11 studies involved self-/caregiver-mediated intervention, [23, 26, 27, 31, 35, 36, 44, 51, 61, 62, 64] in which 4 studies provided tele-rehabilitation supervised by professionals. [26, 27, 35, 64]

Risk of bias in included studies

Methodological quality of the included studies is presented (Table 1). Thirty-three out of the included 49 studies were of good methodological quality (PEDro score = 6-8). Twelve studies were of fair quality (PEDro score = 4-5), and four were of poor quality (PEDro score = 1-3).

Table 1. Physiotherapy Evidence Database (PEDro) scores of included studies

Studies –	Items										Score	
	1	2	3	4	5	6	7	8	9	10	11	(0-10)
Asano, 2021												5
Baskett, 1999										$\sqrt{}$		7
Björkdahl,												7
2006												

Chen, 2017 Chen, 2020 Gladman,	√ √ √	$\sqrt{}$	$\sqrt{}$	√ √ √		$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	√ √ √	8 8 5
1994 Gladman, 1993	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$			\checkmark	$\sqrt{}$		$\sqrt{}$	$\sqrt{}$	6
Han, 2020 Hesse, 2011	√ √ /	$\sqrt{}$	1	√ √	ı	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	7 7
Hosfstad, 2014 Kalra, 2000	√ √	√ √	√ √	√ √	٧	√ √	$\sqrt{}$	√ √	√ √	√ √	8
Özdemir, 2001	1	1		$\sqrt{}$. 1	$\sqrt{}$	$\sqrt{}$		$\sqrt{}$	5
Pandian 2015 Redzuan, 2012	$\sqrt{}$	√ √				٧			$\sqrt{}$		2 3
Roderick, 2001	√ ./	√ 	1	1		. 1			√ !	√ 	5
Taule, 2015 Thorsén, 2005	$\sqrt{}$	$\sqrt{}$	7) 3)			ν 1			7\ 3\	ν 1	5 5
von Koch,	$\sqrt{}$	$\sqrt{}$	V			V	V		V	V	6
2001	,	•	•			•	•		•	•	O
von Koch,		$\sqrt{}$									6
2000											
Widén		$\sqrt{}$	$\sqrt{}$			$\sqrt{}$			$\sqrt{}$	$\sqrt{}$	6
Holmqvist, 1998											
Young, 1992	$\sqrt{}$	$\sqrt{}$,	$\sqrt{}$		$\sqrt{}$	V		$\sqrt{}$	$\sqrt{}$	6
Barzel, 2015	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$			$\sqrt{}$	V	V	$\sqrt{}$	8
Chaiyawat,				$\sqrt{}$			V	V	7	V	7
2012	1	1	1	1			1	1	1	1	_
Chaiyawat, 2009	٧	V	V	V	,		٧	٧	1	V	7
Chen, 2021	V	V	1	V	V	1	V	V	V	V	7
Deng, 2020	٧	V	V	V		V	V	V	V	V	8
Duncan, 1998	$\sqrt{}$	V	7	V		1	V	V	V	1	6
Lincoln, 2004	$\sqrt{}$	V		. 1		V	.1	. 1	V	V	4
Lindley, 2017	√ ./	√ ./	-1	V		٧	N .l	٧	√ ./	V	7
Mayo, 2000	$\sqrt{}$	$\sqrt{}$	N al	N N			V		V	N N	6 5
Rasmussen, 2016	·V	·V	V	· V					N	V	3
Santana, 2017		$\sqrt{}$	$\sqrt{}$	$\sqrt{}$		$\sqrt{}$,		$\sqrt{}$	$\sqrt{}$	6
Walker, 1999	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$				$\sqrt{}$	1	$\sqrt{}$	$\sqrt{}$	7
Wolfe, 2000	V		V					V	V	V	5

Azab, 2009						$\sqrt{}$					1	
Batchelor,			$\sqrt{}$	$\sqrt{}$		$\sqrt{}$		$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	7	
2012												
Chumbler,			$\sqrt{}$	$\sqrt{}$					$\sqrt{}$	$\sqrt{}$	7	
2012												
Corr, 1995			$\sqrt{}$	$\sqrt{}$						$\sqrt{}$	5	
Goldberg,		$\sqrt{}$		$\sqrt{}$							2	
1997												
Gilbertson,		$\sqrt{}$	$\sqrt{}$			$\sqrt{}$	$\sqrt{}$		$\sqrt{}$	$\sqrt{}$	7	
2000												
Mandigout,		$\sqrt{}$		$\sqrt{}$		$\sqrt{}$		$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	6	
2021												
Ricauda, 2004	$\sqrt{}$	$\sqrt{}$		$\sqrt{}$		$\sqrt{}$		$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	6	
Rudd, 1997		$\sqrt{}$		$\sqrt{}$					$\sqrt{}$	$\sqrt{}$	5	
Wong, 2015		$\sqrt{}$	$\sqrt{}$	$\sqrt{}$			$\sqrt{}$			$\sqrt{}$	8	
Koç, 2015			$\sqrt{}$						$\sqrt{}$	$\sqrt{}$	5	
Lin, 2004		$\sqrt{}$			$\sqrt{}$	$\sqrt{}$	$\sqrt{}$		$\sqrt{}$	$\sqrt{}$	8	
Wade, 1992				V		$\sqrt{}$	$\sqrt{}$		$\sqrt{}$	$\sqrt{}$	6	
Walker, 1996				V		$\sqrt{}$	$\sqrt{}$		$\sqrt{}$	$\sqrt{}$	6	
Wang, 2015		$\sqrt{}$				$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	6	

Rating items:

1-eligibility criteria and source of participants; 2-random allocation; 3-concealed allocation; 4-baseline comparability; 5-blinded participants; 6-blinded therapists;7-blind assessors; 8-adequate follow-up; 9-intention-to-treat analysis; 10-between-group comparisons; 11-point estimates and variability.

Item 1 evaluates external validity, does not contribute to the total score.

Effectiveness of home-based intervention compared with institution-based intervention

Twenty-one studies investigated the effectiveness of home-based intervention comparing with institution-based intervention. Three study did not specify the between-group statistical comparison. [33, 35, 38] Fifteen studies found no significant difference between two groups in the ability of daily living no matter at treatment endpoints or at follow ups. [23-32, 37, 39-42] While one study [43] demonstrated the superiority of home-based intervention comparing with institution-based intervention, one study [34] showed an opposite result. Seven studies reported improvement in ability of daily living in both groups. [23, 26, 31, 32, 36, 37, 43]

Three studies with adequate data were included in the meta-analysis to evaluate the effect of home-based intervention comparing with institution-based intervention.^[31, 36, 73] Two studies measured the performance of BADL at treatment endpoint,^[26, 31] and one study^[26] measured at the follow-up after intervention ENREF 75. One study did the follow-up assessment during the treatment period.^[36] For the endpoint analysis, a fix-effect analysis produced an insignificant result (SMD=0.24; 95%CI=-0.15 to 0.62; n=104; I²=0%) (Figure 2).

At treatment endpoint, very low-quality evidence indicates the uncertainty of the effect of home-based intervention comparing with institution-based intervention. The evidence was downgraded one level for publication bias and two levels for imprecision as the sample size is small and the 95% CI estimated includes both null effect and appreciable benefit or harm.

Effectiveness of home-based intervention compared with usual care

Fifteen studies investigated the effectiveness of home-based intervention comparing with usual care. Ten studies found no significant difference between two groups in the ability of daily living no matter at treatment endpoints or at follow ups.^[32, 38, 44, 49-54, 56] Five studies showed significantly better improvement in the home-based intervention than in the usual care group.^[45-48, 55]

Six studies were pooled in the meta-analysis to evaluate the effect of home-based intervention comparing with usual care. [44, 47, 48, 51, 52, 54] Four studies measured the performance of BADL at treatment endpoint. [44, 47, 48, 52] For the endpoint analysis, a random-effects analysis produced an insignificant result with high heterogeneity between studies (SMD=0.62; 95%CI=-0.07 to 1.31; n=475; I²=92%) (figure was eliminated). Three studies measured outcome at the follow-up after intervention. [44, 52, 54] For the follow-up analysis (after

intervention), a fix-effect analysis produced an insignificant result (SMD= 0.02.; 95% CI= -0.17 to 0.22; n=399; I²=0%) (Figure 3). Three studies measured outcome during the period of treatment.^[47, 48, 51] For the follow-up analysis (during the treatment period), a random-effects analysis produced an insignificant result with high heterogeneity between studies (SMD=1.03; 95%CI=-0.21 to 2.27; n=1264; I²=98%) (figure was eliminated).

At treatment endpoint, very low-quality evidence indicates the uncertainty of the effect of home-based intervention comparing with usual care. The evidence was downgraded one level for publication bias, one level for inconsistency because of the heterogeneity between results, and one level for imprecision as the 95% CI estimated includes both null effect and appreciable benefit or harm.

At follow-up after intervention, very low-quality evidence indicates the uncertainty of the effect of home-based intervention comparing with usual care. The evidence was downgraded one level for publication bias and two levels for imprecision as the sample size is small and the 95% CI estimated includes both null effect and appreciable benefit or harm.

At follow-up during the intervention period, very low-quality evidence indicates the uncertainty of the effect of home-based intervention comparing with usual care. The evidence was downgraded one level for publication bias, one level for inconsistency because of the heterogeneity between results, and one level for imprecision as the 95% CI estimated includes both null effect and appreciable benefit or harm.

Effectiveness of home-based intervention compared with no intervention

Five studies investigated the effectiveness of home-based intervention comparing with no intervention. Four out of five included studies showed significantly greater improvements of

BADL in home-based intervention group than in the control group.^[57, 58, 60, 61] Three studies demonstrated significant improvements on the BADL in home-based intervention but not in control group.^[57, 60, 61]

Four studies were pooled in the meta-analysis to evaluate the effect of home-based intervention comparing with no intervention. [57-59, 61] All of them measured the performance of BADL at treatment endpoint, and a random-effects analysis produced an insignificant result with high heterogeneity between studies (SMD=0.84; 95% CI= -0.38 to 2.05; n=231; I²=94%) (figure was eliminated).

At treatment endpoint, very low-quality evidence indicates the uncertainty of the effect of home-based intervention comparing with no intervention. The evidence was downgraded one level for publication bias, one level for inconsistency because of the heterogeneity between results, and two levels for imprecision as the sample size is small and the 95% CI estimated includes both null effect and appreciable benefit or harm.

Effectiveness of home-based intervention addition to usual care compared with usual care Ten studies investigated the effectiveness of home-based intervention comparing with no intervention. One study did not specify the between-group statistical comparison. [67] Seven studies found no significant difference between two groups in the ability of daily living no matter at treatment endpoints or at follow ups. [63-66, 68-70] Two studies demonstrated significantly greater improvement in home-based intervention group than control group. [62, 71] Wong *et al* [71] and Ricauda *et al* [69] found significant improvement in both group while Batchelor *et al* [63] showed there was no significant improvement either in home-based intervention group or in the control group.

Four studies were pooled in the meta-analysis to evaluate the effect of home-based intervention addition to usual care comparing with usual care.^[63, 64, 70, 71] Two studies^[64, 71] measured the performance of BADL at treatment endpoint, and a fix-effect analysis produced a significant result (SMD=0.55; 95% CI=0.22 to 0.87; n=152; I²=3%) (Figure 4). All of them measured at the follow-up and a random-effects analysis produced an insignificant result with high heterogeneity between studies (SMD=0.23; 95% CI= -0.16 to 0.62; n=545; I²=77%) (figure was eliminated).

At treatment endpoint, low-quality evidence indicates the home-based intervention addition to usual care may have little or no effect on BADL comparing with usual care alone. The evidence was downgraded one level for publication bias, one level for imprecision as the sample size is small.

At follow-up after intervention, very low-quality evidence indicates the uncertainty of the effect of home-based intervention addition to usual care comparing with usual care alone. The evidence was downgraded one level for publication bias, one level for inconsistency because of the heterogeneity between results, and one level for imprecision as the 95% CI estimated includes both null effect and appreciable benefit or harm.

Subgroup analysis

We were unable to conduct subgroup analyses according to the level of disability of the patients with stroke, the onset time of stroke, type of intervention or manner of delivery of the treatment because of the clinical diversity between studies, the insufficient information in the individual study and the limited number of included studies.

Sensitivity analysis

We were unable to conduct sensitivity analyses because there was no low-quality study included in the meta-analyses.

Assessment of reporting bias

We were unable to conduct the funnel plot to assess the reporting biases because the limited number of included studies in each meta-analysis.

DISCUSSION

Our review found that home-based intervention combined with usual care may have short-term benefits for patients with stroke compared with usual care alone. However, the evidence strength was weak because of the limited number of studies and participants included into the meta-analysis and the possible publication bias. We speculated the intensive dosage of intervention attributes to the effect of home-based intervention combined with usual care. Most included studies conducted the professional-mediated home-based intervention to participants and the usual care was also provided, which ensured the high intensity of therapy to improve the recovery of stroke.

There was insufficient evidence to determine the short-term effect of home-based intervention comparing with the institution-based intervention, or to determine the long-term effect of home-based intervention comparing with the usual care, because of the limited number of studies and participants included into the meta-analyses. There was insufficient evidence to prove the short-term effect of home-based intervention on ability of activities of daily living in patients with stroke, when comparing with no intervention. There was insufficient evidence to suggest the short-term effect of home-based intervention comparing

with usual care, or to suggest the long-term effect of home-based intervention addition to usual care comparing with usual care. The heterogeneity between the studies limited the conclusions that could be drawn.

Many current rehabilitation interventions are developed in clinical setting, and some are translated to home. Home-based intervention strategies vary in type, duration, intensity, frequency and delivery way. This systematic review revealed that exercise physiology practice and training of activity of daily living were commonly performed as home-based interventions which are supported by current evidence. AHA/ASA Guideline suggested that lower extremity strengthening exercise and cardiovascular exercise are beneficial to improve gait capacity of patients with stroke and also can improve their ability to perform gait-related mobility tasks.^[74] And training of activities of daily living is strongly recommended for community-dwelling patients with stroke. [75] Some newly developed home-based interventions like caregivermediated rehabilitation and tele-rehabilitation have emerged for the past two decades to replace the traditional home visits by professionals. A Cochrane systematic review found that the caregiver-mediated rehabilitation did not increase the caregiver burden but the effectiveness on the ability of performing BADL in patients with stroke was uncertain.^[76] One large study found that the lower dose of caregiver-guided rehabilitation training and non-multidisciplinary coordination might decrease the efficacy of caregiver-mediated home-based interventions.^[51] Tele-rehabilitation seemed to be a good alternative to traditional rehabilitation. Chen et al delivered the same treatment strategy to home-based telerehabilitation group and institutionbased rehabilitation group.^[73] At the end of intervention and at follow up, both groups showed significant improvement in ability of daily living, and there was no significant difference

between two groups throughout the time. Similarly, when comparing with the traditional face-to-face way of home-based intervention performed by professionals, home-based tele-rehabilitation showed equal positive effect on enhancing the ability of daily living of patients with stroke.^[77] More high-quality studies and practice are required to prove the effectiveness of those new strategies.

Limitations

There is no sufficient study to determine the effectiveness of home-based intervention comparing with other approaches. Although 49 studies were included in the review, many of them did not report adequate data so that they were not included in the meta-analyses, therefore, only 2-4 studies were included into each meta-analysis. Moreover, among the 49 included studies, several studies of the original study and their follow-up study shared the same study population, including two studies conducted by Chaiyawat et al,^[45, 46] four studies conducted by von Koch et al,^[39-42] two studies conducted by Gladman et al^[28, 29]. Therefore, only 44 trials were included. Nearly half of studies included into the meta-analyses had sample size smaller than 30. The clinical heterogeneity between studies in terms of severity of stroke, onset time of stroke, interventions and manner of delivery also compromised the evidence strength of our meta-analyses. Estimation of publication bias using funnel plots was failed because of the insufficient number of included studies in each meta-analysis. Publication bias was possibly increased as we have not searched for the grey literature.

CONCLUSION

Our finding reveals that the home-based intervention combined with usual care may be more effective than usual care alone for the short-term effect. However, the evidence strength is weak. Future research with larger sample size is needed to investigate the effectiveness of home-based rehabilitation, including (1) on groups with stratification of stroke severity defined by Brunnstrom stage; (2) on groups with stratification of acute, subacute and chronic stroke; (3) with elaboration of the details of the home-based interventions and the control interventions. Moreover, more high-quality studies are required to prove the cost-effectiveness of newly developed strategies like caregiver-mediated rehabilitation and tele-rehabilitation.

Contributors Wei xijun and Qin ping designed the review. Qin Ping and Chen xuan screened and selected the study. Qin Ping and Cai canxin rated the study quality and extracted the data. Qin ping analysed the data and wrote the paper. Wei xijun revised the paper.

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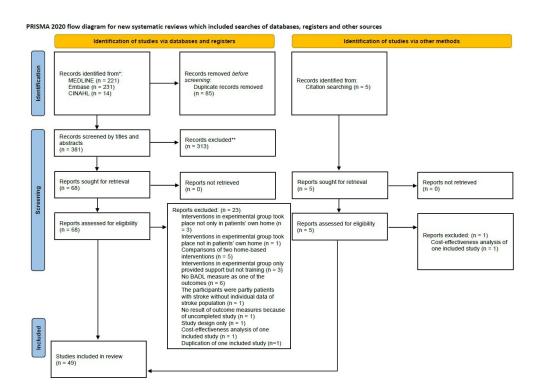


Figure 1
330x240mm (96 x 96 DPI)

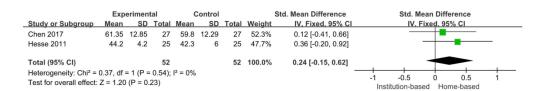


Figure 2 219x37mm (240 x 240 DPI)

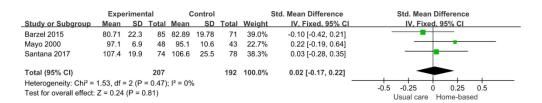


Figure 3 217x40mm (240 x 240 DPI)

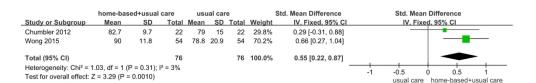


Figure 4 237x37mm (240 x 240 DPI)

Appendix 1.

Search strategy of MEDLINE through PubMed

MEDLINE	
#1	stroke [Mesh]
#2	hemiplegia [Mesh]
#3	"cerebrovascular disorders" [Mesh]
#4	"cerebral vascular accident"
#5	"cerebrovascular accident"
#6	"cerebral vascular disease"
#7	"cerebrovascular disease"
#8	"cerebral vascular disorder"
#9	"cerebrovascular disorder"
#10	"stroke"
#11	"hemiplegia"
#12	"hemiplegic"
#13	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR
	#8 OR #9 OR #10 OR #11 OR #12
#14	"home care services" [Mesh]
#15	"home care service"
#16	"home care"
#17	"home based"
#18	home

#19	"residential care service"
#20	"residential care"
#21	"residence based"
#22	"residence"
#23	"resident"
#24	#14 OR #15 OR #16 OR #17 OR #18 OR #19 OR
O ₂	#20 OR #21 OR #22 OR #23
#25	activities of daily living [Mesh]
#26	"activities of daily living"
#27	"ADL"
#28	"barthel index"
#29	"BI"
#30	"FIM"
#31	"functional independence measure"
#32	"daily life activity"
#33	#25 OR #26 OR #27 OR #28 OR #29 OR #30 OR
	#31 OR #32
#34	#13 AND #24 AND #33
Filters:	Article types: randomized controlled trial
	Text availability: full text
	Publication date: from 1000.1.1 to 2021.12.31
	Language: English

		Journal: MEDLINE
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Search strategy of Embase through EMBASE.com

EMBASE	
#1	'cerebrovascular accident' / exp OR 'cerebrovascular accident'
#2	'cerebral vascular accident' / exp OR 'cerebral vascular accident'
#3	'cerebrovascular disease' / exp OR 'cerebrovascular disease'
#4	'cerebral vascular disease' / exp OR 'cerebral vascular disease'
#5	'cerebral vascular disorder' / exp OR 'cerebral vascular disorder'
#6	'cerebrovascular disorder' / exp OR 'cerebrovascular disorder'
#7	'stroke'/ exp OR 'stroke'
#8	'hemiplegia' / exp OR 'hemiplegia'
#9	'hemiplegic' / exp OR 'hemiplegic'
#10	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9
#11	'home care service' / exp OR 'home care service'
#12	'home care' / exp OR 'home care'
#13	'home based'
#14	'home' / exp OR 'home'
#15	'residential care service'
#16	'residential care' / exp OR 'residential care'
#17	'residence based'
#18	'residence' / exp OR 'residence'
#19	'resident' / exp OR 'resident'

#20	#11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19
#21	'activities of daily living' / exp OR 'activities of daily living'
#22	'daily life activity' / exp OR 'daily life activity'
#23	'adl'
#24	'barthel index' / exp OR 'barthel index'
#25	'bi'
#26	'functional independence measure' / exp OR 'Functional independence
	measure'
#27	'fim'
#28	#21 OR #22 OR #23 #24 OR #25 OR #26 OR #27
#29	#10 AND #20 AND #28
	Sources: Embase
Filters:	Study type: randomized controlled trial
	Publication type: article
	Publication year: <1966 to 2021
	Language: English

Search strategy of CINAHL through EBSCOhost

CINAHL	
S1	"cerebral vascular accident" (Find all my search terms)
S2	"cerebrovascular accident" (Find all my search terms)
S3	"cerebral vascular disease" (Find all my search terms)
S4	"cerebrovascular disease" (Find all my search terms)
S5	"cerebral vascular disorder" (Find all my search terms)
S6	"cerebrovascular disorder" (Find all my search terms)
S7	"stroke" (Find all my search terms)
S8	"hemiplegia" (Find all my search terms)
S9	"hemiplegic" (Find all my search terms)
S10	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9
S11	"home care service" (Find all my search terms)
S12	"home care" (Find all my search terms)
S13	"home based" (Find all my search terms)
S14	"home" (Find all my search terms)
S15	"residential care service" (Find all my search terms)
S16	"residential care" (Find all my search terms)
S17	"residence based" (Find all my search terms)
S18	"residence" (Find all my search terms)
S19	"resident" (Find all my search terms)
S20	S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19

S21	"activities of daily living" (Find all my search terms)
S22	"ADL" (Find all my search terms)
S23	"barthel index" (Find all my search terms)
S24	"BI" (Find all my search terms)
S25	"functional independence measure" (Find all my search terms)
S26	"FIM" (Find all my search terms)
S27	"daily life activity" (Find all my search terms)
S28	S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27
S29	S10 AND S20 AND S28
Filters:	Publication type: Randomized controlled trial
	Linked full text
	Publication date: to 2021.12.31
	Language: English

Supplementary table 1 Characteristics of included studies

Author	Grouping		Characteristics	s of participants		Brief	Outcome meas	urement of BADL	Results
Year	(Number of	Age (year):	Gender:	Time after	Disability level	description of	Measurement tools	Measurement timepoints	
	participants)		Male/Female	stroke onset	of stroke	intervention			
						(Treatment			
						strategy, mode			
						of delivery,			
						treatment			
						provider)			
Asano	Home-based	mean (range):	32/29	Within 4 weeks	Not specified	Progressive	Modified Barthel Index	At 3 months after post	(1) Both the home-based
2021	tele-	63.8 (40.8-89.6)				rehabilitation	(MBI)	rehabilitation (at treatment	intervention group
	rehabilitation					exercises		endpoints)	and control group
	(n=61)					including			showed
					20	exercise training			improvements in
					C/	and training of			MBI score at
						functional			treatment endpoint
					, (activities were			(2) There was no
						prescribed by a			between-group
						tele-therapist and			difference at
						performed by			treatment endpoint
						patients	07/		
						themselves			
	Institution-	mean (range):	33/30			Centre-based			
	based	64.4 (40.7-86.6)				outpatient			
	intervention					rehabilitation			
	(n=63)					was provided			
						approximately			
						once or twice a			
						week			
Baskett	Home-based	mean (SD):	27/23	mean (SD):	Not specified	Home-based self-	Modified Barthel Index	(1) At 6 weeks after discharge	(1) There was no
1999	self-directed	67.8 (11.6)		38.6 (28.1) days		directed	(MBI)	from hospital	between-group
	exercises			staying in		exercises aiming		(2) At 3 months after	difference either at 6
	(n=50)			hospital		at improve the		discharge from hospital (at	weeks after discharge

ability of ADL treatment endpoints) or at treatment were prescribed endpoint by professionals for patients and their caregivers mean (SD): Institutionmean (SD): 30/20 Outpatient or day 37.5 (36.4) days based 71.7 (9.1) hospital therapy intervention staying in was provided (n=50)hospital (1) At 3 weeks after discharge (1) The home-based median (range): Not specified Functional Independence Björkdahl Home-based 22/8 mean (range): Home-based 52 (28-61) 27 (9-58) days Measure (FIM) 2006 intervention intervention (at treatment endpoint) intervention group staying in acute which was focus (2) At 3 months showed no improvement (n=30)hospital; on activities in (3) At 1 year follow-up in FIM motor sum score from discharge to the 1 patients' natural mean (range): 66 (24-155) days context year follow-up was provided (2) The control group staying in by professionals (day clinic group) showed rehabilitation during unit home improvements in FIM visits motor sum score from 22/7 discharge to the 1 year Institutionmedian (range): mean (range): Outpatient follow-up and from 3 30 (7-70) days based 55 (27-64) therapy which staying in acute was focus on the months follow-up to 1 intervention year follow-up (n=29)hospital; training of mean (range): deficits (3) There was no or 61 (20-134) days between-group difference of components function either at treatment staying was provided in a day rehabilitation endpoint or at follow-up clinic unit Modified (1) Both the home-based Chen Home-based mean (SD): 18/9 14 to 90 days National Institute Home-based Barthel Index (1) At 12 weeks after 2017 telesupervisin 66.52 (12.08) of Health Stroke (MBI) intervention group and intervention randomisation (at treatment Scale (NIHSS) control group showed including endpoint) scores from 2 to (2) At 24 weeks after rehabilitation physical improvements in MBI exercises (n=27)20 and modified with randomisation score at treatment ADL training and Rankin Scale endpoint

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					(mRS) scores	the ETNS			(2) There was no
					from 1 to 5	therapy was			between-group difference
					110111 1 10 3	performed by			either at treatment
						patients			endpoint or at follow-up
						themselves with			chapolit of at follow-up
						or without			
						caregivers' help			
						under the tele-			
						supervision by			
						professionals			
	Institution-	maan (SD).	15/12				-		
	based	mean (SD):	13/12			Outpatient rehabilitation			
		66.15 (12.33)		Ur.					
	intervention			Orpo		with the same			
	(n=27)				9	treatment			
					· 0/2	strategy of home-			
						based			
					16	intervention was			
						provided by			
						professionals			
Chen	Home-based	mean (SD):	14/12	Within 1-3 weeks	National Institute	Home-based	Modified Barthel Index	(1) At 12 weeks after	There was no between-
2020	motor training	64.19 (9.42)			of Health Stroke		(MBI)	randomisation (at treatment	group difference in the
	telerehabilitati				Scale (NIHSS)	_		endpoint)	mean change score of
	on				scores from 2 to	physical		(2) At 24 weeks after	MBI either at treatment
	(n=26)				20	exercises with		randomisation	endpoint or at follow-up
						ADL training and			
						the ETNS			
						therapy was			
						performed by			
						patients			
						themselves with			
						or without			
						caregivers' help			
						under the tele-			
						supervision by			
	•	•	•	For neer review on	ıly - http://bmjopen.k	omi com/site/ahout	/quidelines vhtml		

						professionals			
	Institution-	mean (SD):	12/14			Outpatient			
	based	59.42 (10.00)				rehabilitation			
	intervention					with the same			
	(n=26)					treatment			
						strategy of home-			
						based			
						intervention was			
						provided by			
			4			professionals			
Gladman	Domiciliary-	mean:	85/77	Not specified but	Not specified	Home-based	Barthel Index (BI)	At 6 months after discharge	There was no between-
1993	based	70		with description		intervention was		(at treatment endpoint)	group difference in the BI
	rehabilitation			of acute stroke		performed by			score at treatment
	(n=162)			106		professionals			endpoint
					-10-	during home			
					- / h	visits			
	Institution-	mean:	88/77			Outpatient			
	based	70				rehabilitation			
	intervention					according to the			
	(n=165)					usual practices in			
						Nottingham,	01/		
						where there had			
						hitherto been no			
						domiciliary			
						rehabilitation			
						service was			
						provided			
Gladman	Domiciliary-	mean:	85/77	Not specified but	•	Home-based	Barthel Index (BI)	At 12 months after discharge	There was no between-
1994	based	70		with description		intervention was			group difference in the BI
	rehabilitation			of acute stroke		performed by			score at 12 months follow
	(n=162)					professionals			up
						during home			
						visits			
	Institution-	mean:	88/77			Outpatient			

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	T	T = 0				1	-		
	based	70				rehabilitation			
	intervention					according to the			
	(n=165)					usual practices in			
						Nottingham,			
						where there had			
						hitherto been no			
						domiciliary			
						rehabilitation			
						service was			
						provided			
Han	Home-based	mean (SD):	8/4	mean (SD):	modified Rankii	Home-based	Barthel Index (BI))	At 6 weeks (at treatment	(1) There was no
2020	reablement	70.8 (6.5)		22.8 (17.7)	Scale (mRS)	intervention of		endpoint)	between-group
	programme			months	scores from 2 to 4	ADL training			difference in the
	(n=12)			O_{λ}		was provided by			change score of BI at
						professionals			treatment endpoint
					\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	during home			(2) There was no
						visits			between-group
	Institution-	mean (SD):	9/5	mean (SD):		Conventional			difference in the BI
	based	65.4 (16.7)		53.5 (43.7)		rehabilitation			score at treatment
	intervention			months		including 30			endpoint
	(n=14)					minutes of			_
						occupational	Uh1		
						therapy and 30			
						minutes of			
						physical therapy			
						for training			
						motor and			
						cognitive			
						functions was			
						provided in the			
						hospital for twice			
						a week			
Hesse	Intermittent	mean (SD):	13/12	mean (SD):	Patients could	1 (1) An	Rivermead Activities of	(1) At every second month	(1) Both the home-based
2011	high-intensity	62.4 (11.3)		12.9 (2.3) weeks	walk	intermittent	Daily Living scales	from the discharge from	intervention group
			I			n.bmi.com/site/about/			

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home-based				independently	high-		inpatient rehabilitation to	and control group
physiotherapy				within their home	intensity		home during the 12-	showed
programme				- technical aids	home-based		months study period (at 2	improvements in
(n=25)				were allowed -	physiotherap		months after discharge;	Rivermead Activities
				but they still	y programme		at 4 months after	of Daily Living
				needed help with	was provided		discharge; at 6 months	scales (self-care)
				personal hygiene,	by		after discharge; at 8	score overt time
				dressing, feeding	professional		months after discharge;	(2) There were no
				and stair	during home		at 10 months after	between-group
				climbing,	visits		discharge; at 12 months	differences in
				resulting in a	(2) Self-therapy		after discharge which	Rivermead Activities
		•		Barthel Index	programme		was at treatment	of Daily Living
				(BI, 0–100)	consisting of		endpoint)	scales (self-care)
				ranging from 55	various		(2) At 15 months after	score at any time
				to 80	stretching,		discharge (at 3 months	
					strengthenin		after treatment)	
				1	g and motor			
					tasks was			
					performed			
					by patients			
					and their			
					caregivers	Uh1		
Institution-	mean (SD):	14/11	mean (SD):		Regular	07/		
based	61.9 (9.4)		14.8 (3.9) weeks		physiotherapy			
intervention			()		programme			
(n=25)					which treatment			
					strategy was			
					similar to the			
					home-based			
					intervention,			
					consisting of two			
					weekly 30 to 45			
					minutes			
					physiotherapy			
					physiomerapy			

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						sessions was			
						provided by a			
						physiotherapist			
						in the private unit			
Hofstad	Early	mean (range):	61/43	Within 7 days	NIHSS score of	Home-based	Barthel Index (BI)	(1) At 3 months follow-up	(1) The home-based
2014	supported	72.00 (27-92)			2-26, and NIHSS	intervention was		(2) At 6 months follow-up	intervention group
	discharge to				<2 with modified	provided by a			showed improvement
	home with				Rankin Scale	multi-			in BI score at 3
	home-based				(mRS) score ≥2	disciplinary			months follow-up,
	intervention					community			and a trend for
	(n=104)					health team			improvement at 6
			•	06		during home			months follow-up
				-/ h		visits			(2) The institution-based
	Institution-	mean (range):	56/47			Rehabilitation			intervention group
	based	70.61 (29-91)			70%	treatment was			showed improvement
	intervention				- F	provided by			in BI score at 3
	(n=103)				16	professionals in a			months and 6 months
						community day			follow-up
						unit			(3) There was no
									between-group
									difference either at 3
							$\forall \mathcal{O} \land$		months or 6 months
									follow-up
Kalra	Domiciliary	median (IQR):	81/68	Within 72 hours	Moderately	Home-based	Barthel Index (BI)	(1) At 3 months after stroke	(1) A favourable
2000	stroke care	77.7 (67-83)			severe stroke	intervention was		onset	outcome of BI score
	(n=149)				(patients with	provided by a		(2) At 12 months after stroke	15–20 at 3 months
					persistent	specialist stroke		onset	was seen in 82% of
					neurological	team during			patients in the stroke-
					deficit affecting	home visits			unit group compared
	Institution-	median (IQR):	79/69		continence,	Coordinated			with 70% of patients
	based	75 (72-84)			mobility, and				in the stroke team
	intervention				ability to look	1			and 74% of patients
	(in stroke unit)				after themselves,	multidisciplinary			in the domiciliary-
	(n=148)				requiring	team in the stroke			care group

					multidisciplinary	unit			(2) There was no
	Institution-	median (IQR):	74/76		treatment)	Day-to-day			significant change in
	based	77.3 (71-83)				treatment was			BI score in any
	intervention					prescribed by a			groups between 3 and
	(in general					specialist team			12 months follow ups
	ward)					and was provided			
	(n=150)					by staff in the			
						general ward			
Özdemir	Home-based	48-80	19/11	mean (range):	Not specified	Home-based	Functional Independence	At treatment endpoint	(1) The institution-based
2001	rehabilitation			36 (15-75) days		interventions	Measure (FIM)		intervention group
	(n=30)					including			showed improvement
				04		exercises and			in FIM score at
				-/ h		provision of			treatment endpoint
						splints, orthoses			(2) The institution-based
					-102	and devices were			intervention group
					- / h	prescribed by			showed greater
					16	professionals and			improvement in FIM
						was performed			score than the home-
						by patients and			based intervention
						family members			group at treatment
	Institution-		21/9	mean (range):		Intense			endpoint
	based			41 (10-82) days		multidisciplinary	$\neg \cap \land$		
	intervention					rehabilitation	つりょ		
	(n=30)					services			
						including			
						therapeutical and			
						neuromuscular			
						exercises with			
						occupational			
						therapy were			
						provided in the			
						rehabilitation			
						clinic			
Pandian	Family-led,	mean (SD):	61/43	Within 1 month	Patients with	Home-based	modified Rankin Scale	(1) At 3 months follow up	(1) 26 (29%) patients had

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2015	trained	60 (13)			residual	interventions	(mRS)	(2) At 6 months follow up	a good outcome
	caregiver-				disability	including			(mRS 0–2) and 64
	delivered,				(defined as	_			(71%) a poor
	home-based				requiring help	transfers,			outcome (mRS 3–6)
	rehabilitation				from another	mobility, task-			at 3 months follow up
	intervention					•			(2) 35 (39%) had a good
					person for				
	(n=50)				everyday	training			outcome and 54
					activities)	(particularly			(61%) had a poor
						walking, upper-			outcome at 6 months
						limb, and self-			follow up
						care tasks)			
				04		prescribed by			
				- / b		professionals			
				Orpo		were performed			
						by patients'			
					1 h	caregivers			
	Institution-					Routine care was			
	based					provided on an			
	intervention					in- or out-patient			
	(n=54)					basis			
Redzuan	Video-based	mean (SD):	21/23	mean (SD):	10 patients with	Home-based	Modified Barthel Index	At 3 months after discharge	(1) More patients in the
2012	therapy	63.7 (12)		12.9 (8) days	mild stroke	interventions	(MBI)		home-based
	programme at			staying in	(NIHSS score <	including	1///		intervention group
	home			hospital	6);	exercises and			(60%) had improved
	(n=44)			-	26 patients with	training of			MBI scores
					moderate stroke	•			compared with
					(NIHSS score =	living were			patients in the control
					6-14);	prescribed by			group (45.7%)
					**	professionals and			(2) Both the home-based
					severe stroke	_			intervention group
					(NIHSS score >	by patients			and control group
					14)	and/or their			showed
					· · · · ·	caregivers			improvements in
	Institution-	mean (SD):	31/15	mean (SD):	17 patients with	_	-		MBI score at 3
	mstitution-	incan (SD).	31/13	For peer review on	•				WIDI SCOIC at 3

59.4 (11) 10.9 (7) mild stroke therapy for 1 months follow up days based intervention (NIHSS score < staying in hour each for (n=46)hospital 6); physical and 24 patients with occupational moderate stroke therapy was (NIHSS score = provided weekly 6-14); 5 patients with stroke severe (NIHSS score > 14) Domiciliary 33/33 median (IQR): Not specified Home-based Barthel Index (BI) At 6 months follow up (1) Both the home-based Roderick mean (range): 2001 rehabilitation 78.3 (62-91) 50 (36.8, 85.3) intervention group intervention was days staying in provided by a and control group service physiotherapist hospital (n=66)showed improvements in BI and an occupational score at 6 months therapist follow up Institutionmean (range): 32/42 median (IQR): Therapy (2) There was no was 79.6 (60-95) 48 (30, 80) days provided by between-group based multidifference at 6 intervention staying in (n=74)disciplinary months follow up hospital teams in day hospitals No within-group or Early median (range): 29/24 Within 1-7 days 2-26 in the Home-based (1) Assessment of Motor At 3 months follow-up Taule 2015 74 (42-92) NIHSS score and Process Skillsbetween-group statistical supported intervention was discharge at mainly directed motor scale (AMPSanalysis towards ADLs, motor scale) home (n=53)function-(2) modified and Rankin specific Scale (mRS) treatment was also provided by professional during home

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						visits			
	Institution-	mean (range):	29/21			Therapy which			
	based	72 (29-90)	29,21			focused on			
	intervention					specific functions			
	(n=50)					and on specific			
						instrumental			
						ADL activities			
						was provided by			
						the municipal			
						health-care team			
						in a day unit			
Thorsén	Early	mean:	15/15	5-7 days	Patients with	The home-based	Barthel Index (BI)	At 5 years after stroke	There was no between-
2005	supported	71		-/ h	mild to moderate	intervention			group difference at 5
	discharge				impairments	emphasizing a			years follow up
	(ESD) with				(independence in	task- and			
	continued				feeding and	context-oriented			
	rehabilitation				continence	approach, which			
	at home				according to Katz	implies that the			
	(n=30)				index of ADL	patient performs			
					with impaired	guided,			
					motor capacity	supervised, or			
					according to the	self-directed	07/2		
					Lindmark scale)	activities in a	1///		
						functional and			
						familiar context,			
						was provided by			
						professionals			
						during home			
		_				visits			
	Institution-		14/10			Routine			
	based					rehabilitation			
	intervention					service was			
	(n=24)					provided in the			
						hospital, day			

						1/			
						care, and/or			
						outpatient care			
von Koch	Early	Not specified	Not specified	5-7 days	Patients with		Barthel Index (BI)	At 12 months after stroke	There was no between-
2001	supported				moderate	intervention			group difference at 12
	discharge				impairments	emphasizing a			months follow up
	(ESD) with				(independence in				
	continued				feeding and				
	rehabilitation				continence	approach, which			
	at home				according to Katz	implies that the			
	(n=39)				index of ADL	patient performs			
					with impaired	guided,			
				04	motor capacity	supervised, or			
				-/ h	according to the	self-directed			
					Lindmark scale)	activities in a			
					-10 ₂	functional and			
					- F	familiar context,			
						was provided by			
						professionals			
						during home			
						visits			
	Institution-					Routine			
	based					rehabilitation			
	intervention					service was	1////		
'	(n=38)					provided in the			
						hospital, day			
						care, and/or			
						outpatient care			
von Koch	Early	median (range):	22/18	5-7 days	Patients with	The home-based	Barthel Index (BI)	At 6 months after stroke	There was no between-
2000	supported	72 (49-84)			moderate	intervention			group difference at 6
	discharge				impairments	emphasizing a			months follow up
	(ESD) with				(independence in	task- and			
	continued				feeding and	context-oriented			
	rehabilitation				continence	approach, which			
1	at home				according to Katz	implies that the			

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	(n=40)				index of AI	L patient performs			
	(II— 1 0)					-			
					with impair				
					motor capac	_			
					according to t				
					Lindmark scale				
						functional and			
						familiar context,			
						was provided by			
						professionals			
						during home			
						visits			
	Institution-	median (range):	21/17			Routine			
	based	73 (49-89)				rehabilitation			
	intervention			POPOG		service was			
	(n=38)			/ (provided in the			
	(== ==)				(C)	hospital, day			
						care, and/or			
						outpatient care			
Widén	Early	mean (SD):	22/19	5-7 days	Patients w		Barthel Index (BI)	At 3 months after stroke	There was no between-
	supported	70.8 (7.6)	22,19	3 / days	moderate	intervention	Burdier mach (B1)	THE STREET SHORE	group difference at 3
_	discharge	70.0 (7.0)			impairments	emphasizing a			months follow up
	(ESD) with				(independence				months follow up
	continued				feeding a				
	rehabilitation				continence	approach, which			
	at home					z implies that the			
	(n=41)				index of AI				
	(11-41)				with impair				
					-				
						y supervised, or			
						e self-directed			
					Lindmark scale				
						functional and			
						familiar context,			
						was provided by			
						professionals			

during home visits mean (SD): 22/18 Institution-Routine 72.6 (8.9) rehabilitation based service intervention was provided in the (n=40)hospital, day and/or care, outpatient care 38/25 Not specified but (1) Both the home-based Young Not specified Barthel Index (BI) At 6 months after discharge Home median (range): Home-based 70 (60-89) with description intervention group 1992 physiotherapy intervention was (n=63)of patients with a provided by one and control group stroke of five showed new episode experienced improvements in BI community score at 6 months physiotherapists follow up during (2) The home-based home visits intervention showed median (range): 31/30 Rehabilitation greater improvement Institutionwas provided in based 72 (60-88) in BI score than the one of intervention four institution-based geriatric day intervention group at (n=61)6 months follow up hospitals twice a week Home-based mean (SD): mean (SD): Minor: n=68 CIMT Barthel Index (BI) (1) At (1) The home-based Barzel 51/34 Home 4 weeks after (47.36)2015 62.55 (13.73) 56.57 Moderate: n=16 which intervention group constraintintervention was (at Major: n=1 showed improvement induced relevant treatment endpoint) months to everyday life was (2) At 6 months follow-up movement in BI score at performed with treatment endpoint therapy (CIMT) the coaching by relative to baseline, non-professional (n=85)but showed no family improvement at 6 (eg, member) months follow-up Usual care mean (SD): 43/28 mean (SD): Minor: n=54 Traditional (2) The usual care group

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	(71)	(5.20 (12.62)		15.65	(57.60)	M. J 16	1			-1 1
	(n=71)	65.30 (12.63)			(57.69)	Moderate: n=16	physiotherapy			showed no
				months		Major: n=1	and occupational			improvement in BI
							therapy were			score either at
							performed by			treatment endpoint or
							professionals			at 6 months follow-
							either in a			up
							patient's home or			(3) There was no
							in a therapeutic			between-group
							practice			difference at 6
										months follow-up
Chaiyawat	Home-based	mean (SD):	14/16	Patients	were	mean (SD):	Home-based	Barthel Index (BI)	At 2 years after discharge	(1) Both the home-based
2012	individual's	67 (10)		screened	for	16.4 (4.1) in the	individual's		from the hospital	intervention group
	exercise			eligibility	around	National Institute	exercise			and the usual care
	programme			3 days	after	of Health Stroke	programme			group showed
	(n=30)			stroke onse		Scale (NIHSS)	included			improvement in BI
						score	exercises and			score at 2 years
						' / 6	ADL practice			follow-up
							was performed			(2) The home-based
							by a professional			intervention group
							during home			showed significantly
							visits, with			greater improvement
							provision of	Uh1		than usual care group
							standard	7/1		at 2 years follow-up
							materials on an			7
							audiovisual CD			
							of rehabilitation			
							procedures			
	Usual care	mean (SD):	13/17	1		mean (SD):	Might include			
	(n=30)	66 (11)				17.8 (3.9) in the				
		()				NIHSS score	rehabilitation and			
							instruction for			
							home			
							rehabilitation at			
							the discretion of			
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						their physicians			
Chaiyawat	Home-based	mean (SD):	14/16	Not specified	mean (SD):	Home-based	Barthel Index (BI)	At 3 months after discharge	(1) The home-based
2009	individual's	67 (10)			16.4 (4.1) in the	individual's		from the hospital	intervention group
	exercise				National Institute	exercise			showed improvement
	programme				of Health Stroke	programme			in BI score at 3
	(n=30)				Scale (NIHSS)	included			months
					score	exercises and			(2) The home-based
						ADL practice			intervention group
						was performed			showed significantly
						by a professional			greater improvement
						during home			than usual care group
				0 %		visits, with			at 3 months
				-/ h		provision of			
				Orpo		standard			
					-10-	materials on an			
					- / h	audiovisual CD			
					16	of rehabilitation			
						procedures			
	Usual care	mean (SD):	13/17		mean (SD):	Might include			
	(n=30)	66 (11)			17.8 (3.9) in the	outpatient			
					NIHSS score	rehabilitation and			
						instruction for	$\sqrt{\Omega}$		
						home			
						rehabilitation at			
						the discretion of			
						their physicians			
Chen	Nurse-guided	mean (SD):	41/18	mean (SD):	Not specified	Environmental	Barthel Index (BI)	(1) At 3 months after	
2021	home-based	55.41 (6.78)		3.41 (0.79)		modification of		initiation o	
	rehabilitation			months		home and		rehabilitation	showed significantly
	exercise					exercise		(2) At 6 months after	
	programme					programme		initiation o	
	(n=59)					mainly including		rehabilitation	months, 6 months
						strengthening		(3) At 12 months after	
						training of the		initiation o	initiation of

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	Usual care (n=62)	mean (SD): 56.41 (6.13)	44/18	mean (SD): 3.23 (0.82) months	20/10	lower muscle groups were provided by a nurse during home visits Conventional rehabilitation included issuing a rehabilitation manual for stroke, performing telephonic follow-up and completing follow-up medical appointments for assessment of		rehabilitation (at treatment endpoint)	rehabilitation (2) The home-based intervention group showed significantly greater improvement than usual care group at 3 months, 6 months and 12 months after initiation of rehabilitation
						recovery at 3, 6 and 12 months	0.5		
Deng	Integrated	mean (SD):	32/17	mean (SD):	mean (SD):	Stroke	Modified Barthel Index		(1) The home-based
2020	transitional	60.7 (17.8)		15 (6) days' stay	8.9 (4.9) in the	rehabilitation	(MBI)	discharge from stroke	intervention group
	care			in stroke unit	NIHSS score	was provided by		unit	showed significantly
	programme					a multidissinlinam		(2) At 8 weeks after	higher MBI score
	(n=49)					multidisciplinary poststroke		discharge from stroke unit (at treatment	than usual care group at 4 weeks and 8
						consultation team		unit (at treatment endpoint)	weeks after discharge
						during home		Chapolin)	from stroke unit
						visits			(2) The home-based
	Usual care	mean (SD):	30/19	mean (SD):	mean (SD):	Usual post-			intervention group
	(n=49)	62.9 (20.5)		17 (9) days' stay	9.1 (4.5) in the	discharge care			showed significantly
				in stroke unit	NIHSS score	consisted of			greater improvement
						detection and			than usual care group
	•			Ear poor rovious on	lv - http://bmionen.h	mi com/sito/about/	auidalinas yhtml	1	

control of at 4 weeks and 8 risk potential weeks after discharge from stroke unit factors and medication therapy based on secondary stroke prevention strategy Therapistmean (SD): Not described 30 to 90 days Minimal Home-based Barthel Index (BI) At 12 There was no between-Duncan weeks after the 1998 supervised 67.3 (9.6) moderately exercises baseline group difference at 12 assessment were (at impaired provided by a treatment endpoint) weeks follow-up home-based sensorimotor physical therapist exercise function (Fuglduring programme home (n=10)Meyer Motor visits Score 40 to 90 mean (SD): Usual care Usual care included (n=10)67.8 (7.2) home health visits and outpatient therapy NIHSS score of 61/43 Within 7 days Barthel Index (BI) (1) At 3 months follow-up (1) The home-based Hofstad Early mean (range): Home-based 2014 2-26, and NIHSS intervention was supported 72.00 (27-92) (2) At 6 months follow-up intervention group <2 with modified showed improvement provided by a discharge (ESD) Rankin Scale multiin BI score at 3 to home with (mRS) score ≥ 2 disciplinary months follow-up, home-based community and a trend for health improvement at 6 intervention team during months follow-up (n=104)home visits (2) The usual care group showed no Usual care mean (range): 52/47 Usual care (n=99)74.19 (32-98) without improvement in BI any intervention from score either at 3 months or 6 months the study follow-up (3) There was no

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								between-group difference either at 3 months or 6 months follow-up
Lincoln 2004	Home-based intervention (n=189)	mean (SD): 72.8 (11.4)	94/95	Within 2 years Not described	Home-based intervention including physiotherapy, occupational therapy, speech and language therapy were provided by a multidisciplinary team during home visits	Barthel Index (BI)	At 6 months after randomization	There was no between-group difference in BI score at 6 months after randomization
	Usual care (n=232)	mean (SD): 71.2 (11.5)	128/104		Routine rehabilitation services included day hospitals, outpatients departments and social services occupational therapy			
Lindley 2017	Family-led home-based rehabilitation (n=623)	mean (SD): 57.5 (12.92)	421/202	Within 1 month mean (SD): 10.1 (4.9) in the NIHSS score	(1) Family	Barthel Index (BI)	(1) At 3 months after randomization (2) At 6 months after randomization	There was no between- group difference in BI score either at 3 months or at 6 months follow-up

	Usual care (n=627)	mean (SD): 58.0 (14.21)	416/211		mean (SD): 9.6 (4.8) in the NIHSS score	task-specific training was performed by a professional during home visits (2) Home-based intervention for patients was mediated by caregivers Usual care consisted of some therapy, in the form of assessment and treatment by a physiotherapist, during hospital stay, with post-discharge care varying from no therapy to some outpatient therapy sessions			
Mayo	Tailor-made	mean (SD):	37/21	28 days	mean (SD):	Home-based	Barthel Index (BI)	(1) At 1 month (at treatment	
2000	home	70.3 (12.7)			8.9 (2.2) in the			endpoint)	intervention group
	programme				Canadian	including		(2) At 3 months follow-up	showed improvement
	with prompt				Neurological	physical therapy,			in BI score at 1
	discharge				Scale (CNS)	•			month and at 3
	from hospital				score	therapy, speech			months follow-up
	(n=58)					therapy, and			(2) The usual care group

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	Usual care (n=56)	mean (SD): 69.6 (12.7)	40/16	Orpo	mean (SD): 8.9 (2.1) in the Canadian Neurological Scale (CNS) score	dietary consultation was provided by a multidisciplinary team during home visits Usual care comprised a range of services, including PT, OT and ST as requested by the patient's care provider and offered through extended acute- care hospital stay; inpatient or outpatient rehabilitation; or home care via			showed improvement in BI score at 1 month and at 3 months follow-up (3) There was no between-group difference either at 1 month or at 3 months follow-up
						local community health clinics.			
Rasmussen	Early home-	median (IQR):	16/22	Not specified but	median (IQR):	Home-based	Modified Barthel Index	At 90 days follow-up	There was no between-
2016	based	78 (72-84)		with description	44 (37-46) in the	interventions	(MBI)	_	group difference in MBI
	rehabilitation			of acute stroke	Scandinavian	including			score at 90 days follow-
	(n=38)				Stroke Scale Score	physical exercises and			up
					Score	training of			
						activities of daily			
						living were			
						provided by a			
						multidisciplinary			
					nly - http://hmionen.l	team during			

Usual care (n-33)										
Park							home visits			
Sontinan Early home supported of 5,5 (40-84) of 19 of 19 of 100 of 100 of 19 of 100		Usual care	median (IQR):	14/19		median (IQR):				
Santana 2017 Santana Early bone Gr. 60.5 (30.84) 8.		(n=33)	79 (71-85)			42 (31-46) in the	provided by			
Santana 2D17 Supported (2HSD) Service (n=95) Usual care (n=95) Roant						Scandinavian	professionals in			
Satana 2017 Sartana CEHSD Sartana CHSD Sarta						Stroke Scale	the stroke unit			
Santama 2017 Santama 2017 Sary						Score	and after hospital			
2017 Supported discharge discharge discharge (FHSD) Service (n=95) Supported discharge (n=95) Supported discharge (n=95) Supported discharge (n=95) Supported (n=95) Suppo							discharge			
discharge (FHSD) service (n=95) Usual care (n=95) Usual care (n=95) 66.5 (35.84) Usual care (n=95) Observed (n=95) Usual care (n=95) Observed (n=95) Ob	Santana	Early home-	mean (range):	47/48	Not specified	Had some	Home-based	Functional Independence	(1) At 2 months after	There was no between-
(EHSD) service (n=95) Usual care (n=95) Usual care (n=95) Usual care (n=95) Oc. (35-84) Usual care (n=95) Oc. (35-84) Functional Independence therapy and psychology which was focused on training of daily activities were provided by professionals during home visits Usual care included standard care in the stroke unit and standard rehabilitation available in the region following discharge including no further rehabilitation,	2017	supported	67.5 (40-84)			residual	interventions	Measure (FIM)	randomisation	group difference in FIM
Service (n=95) Functional Independence (n=95)		discharge				disability in the	including		(2) At 6 months after	score either at 2 months
Independence Measure (FIM) psychology which was focused on training of daily activities were provided by professionals during home visits Usual care (n=95)		(EHSD)				form of an initial	physiotherapy,		randomisation	or at 6 months
Independence Measure (FIM) of up to 100 Measure (FIM) of		service			04	Functional	occupational			
Usual care (n=95) 66.5 (35-84) Usual care (n=95) 66.5 (35-84) Usual care included standard care in the stroke unit and standard rehabilitation available in the region following discharge including no further rehabilitation,		(n=95)			- h	Independence	therapy and			
Usual care (n=95) 66.5 (35-84) Usual care (n=95) 66.5 (35-84) Usual care included standard care in the stroke unit and standard rehabilitation available in the region following discharge including no further rehabilitation,						Measure (FIM)	psychology			
Course on training of daily activities were provided by professionals during home visits Usual care										
Usual care (n=95) 66.5 (35-84) Usual care (n=96): 66.5 (35-84) Usual care included standard care in the stroke unit and standard rehabilitation available in the region following discharge including no further rehabilitation,							focused on			
Usual care (n=95) 66.5 (35-84) Usual care (n=96): 66.5 (35-84) Usual care included standard care in the stroke unit and standard rehabilitation available in the region following discharge including no further rehabilitation,							training of daily			
Usual care (n=95) 66.5 (35-84) Usual care (n=96): 66.5 (35-84) Usual care included standard care in the stroke unit and standard rehabilitation available in the region following discharge including no further rehabilitation,										
Usual care (n=95) 66.5 (35-84) Usual care (n=96): 66.5 (35-84) Usual care included standard care in the stroke unit and standard rehabilitation available in the region following discharge including no further rehabilitation,							provided by			
Usual care (n=95) 66.5 (35-84) Usual care (n=96) 66.5 (35-84) Usual care included standard care in the stroke unit and standard rehabilitation available in the region following discharge including no further rehabilitation,										
Usual care (n=95) 66.5 (35-84) Usual care (n=96) 66.5 (35-84) Usual care included standard care in the stroke unit and standard rehabilitation available in the region following discharge including no further rehabilitation,										
(II-93) OU.3 (33-64) Care in the stroke unit and standard rehabilitation available in the region following discharge including no further rehabilitation,								U h /		
(II-93) Ob.3 (33-64) care in the stroke unit and standard rehabilitation available in the region following discharge including no further rehabilitation,		Usual care	mean (range):	54/41			Usual care	'///		
care in the stroke unit and standard rehabilitation available in the region following discharge including no further rehabilitation,		(n=95)					included standard			
rehabilitation available in the region following discharge including no further rehabilitation,							care in the stroke			
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Taule 2015	Early supported discharge (ESD) at home (n=53) Usual care (n=51)	median (range): 74 (42-92) median (range): 74 (32-98)	30/21	Within 1-7 days	2-26 in the NIHSS score	ambulatory rehabilitation, inpatient rehabilitation Home-based intervention was mainly directed towards ADLs, and function- specific treatment was also provided by a professional during home visits Usual care might involve no follow-up rehabilitation, treatment at	 (1) Assessment of Motor and Process Skillsmotor scale (AMPSmotor scale) (2) modified Rankin Scale (mRS) 	At 3 months follow-up	There were no between- group differences in the change of AMPS score and mRS score at 3 months from baseline
						home by a nurse, physical therapist, or occupational therapist from the home municipality and/or treatment			
						by a private practising physiotherapist			
Walker 1999	Home-based occupational	mean (SD): 73.6 (8.1)	52/42	Within 1 month	Not specified	Home-based occupational	Barthel Index (BI)	At 6 months after randomisation	There was significant between-group difference

(n=94)provided the home-based to improve the intervention group at 6 independence in months follow-up personal and instrumental ADL by professional during home visits Usual care mean (SD): 42/49 Usual care involved existing (n=91)75.1 (8.6) services of routine rehabilitation Wolfe Home-based Not specified Modified Barthel Index At 1 year after randomisation mean (SD): 10/13 Not specified Home-based There was no between-2000 rehabilitation 72 (12) (MBI) group difference in MBI intervention was (n=23)provided by score at 1 year follow up professionals during home visits mean (SD): 8/12 Usual care Usual care was 76 (7.04) defined as all (n=20)services other from apart therapy in homebased intervention group Home-based Not specified Not specified Not specified Patients (1) Home-based Barthel Index (BI) (1) At 4 weeks following (1) The home-based Azab with 2009 constraintmild CIMT was CIMT (at treatment intervention group endpoints) showed greater induced (Brunnstrom supervised (2) At 6 months follow up improvement in BI recovery scale and movement score of 5 to 6, or therapy encouraged score than the control (CIMT) BI score of 65 to by a trained group at treatment

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	combined with usual care (n=20) Usual care (n=17)				90) to moderate (Brunnstrom recovery scale score of 3 to 4, or BI score of 30 to 64) hemiparesis of the affected upper limb	family member (2) Usual care included physical and occupational therapy Usual care included physical and occupational therapy			endpoint (2) The home-based intervention group showed improvement in BI score at 6 months follow up
Batchelor 2012	Home-based multifactorial Falls prevention programme combined with usual care (n=71)	mean (SD): 70.8 (11.4)	45/26	mean (SD): 3.0 (1.6) months	Patients with high falls risk who either had fallen during hospital admission or had a Step Test worse leg score of less than 7, or a Berg Balance Scale score of less than 49	(1) Home-based exercise programme addressing balance and mobility problems and falls risk minimizatio n strategies and injury risk minimizatio n strategies were performed by a professional (2) Usual care including physical and occupational therapy was	Functional Independence Measure (FIM)	At 12 months after baseline assessment	(1) There was no withingroup difference of FIM score either in the home-based intervention group or in the control group at 12 months follow up (2) There was no between-group difference in FIM score at 12 months follow up

	Usual care (n=85)	mean (SD): 72.2 (9.9)	54/31	mean (SD): 3.1 (1.9) months		provided by professionals Usual care including physical and occupational therapy was provided by professionals			
Chumbler	Multifaceted	mean (SD):	24/1	Within 24	mean (SD):	(1) The STeleR	The motor subscale of the	(1) At 3 months (at	There was no between-
2012	stroke telerehabilitati on (STeleR) intervention combined with usual care (n=25)	67.1 (9.5)		months	6.7 (1.3) of the Goldstein and Chilukuri algorithm of the Canadian Neurological Scale score	included home televisits and	Telephone Version of the Functional Independence Measure (FONEFIM)	treatment endpoint) (2) At 6 months follow up	group difference in FONEFIM score either at treatment endpoint or at 6 months follow up
	Usual care (n=23)	mean (SD): 67.7 (10.0)	23/0		mean (SD): 6.8 (1.4) of the Goldstein and Chilukuri algorithm of the Canadian Neurological Scale score	Usual VA or non- VA care was provided	のカル		
Corr 1995	Home-based occupational therapy combined with usual care	mean (range): 75.1 (41-96)	15/40	median (range): 11 (2-88) days from stroke onset to stroke unit admission;	Not specified	(1) The home- based intervention including teaching new	Barthel Index (BI)	At 1 year after stroke	There was no between- group difference in BI score at 1 year follow up

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	(n=55)			median (range):		skills; facilitating			
				50 (5-229) days		more			
				staying in stroke		independence in			
				unit		activities of daily			
						living;			
						facilitating return			
						of function;			
						enabling patients			
						to use equipment			
						supplied by other			
						agencies, was			
			4	06		provided by an			
)		occupational			
				\mathcal{O}_{λ}	Per ro	therapist during			
						home visits			
					- F	(2) Any other			
					16	10110w up			
						services such as			
						day-hospital			
						attendance and	>		
						community			
						physiotherapy	9 0/		
						were provided	1///		
	Usual care	mean (range):	26/29	median (range):		Any available	07/		
	(n=55)	75.8 (54-94)		10 (1-52) days		services as			
				from stroke onset		required were			
				to stroke unit		provided			
				admission;					
				median (range):					
				50 (7-169) days					
				staying in stroke					
				unit					
Gilbertson	Domiciliary	median (IQR):	29/38	median (IQR):	Not specified	(1) Home-based	Barthel Index (BI)	(1) At 8 weeks (at treatment	There was no between-
2000	occupational	71 (28-89)		31 (17-57) days		intervention		endpoint)	group difference in BI
				For peer review on	ly - http://bmiopen.l	omj.com/site/about/	auidelines xhtml		

multidisciplinary rehabilitation, a	therapy combined with usual care (n=67) Usual care (n=71)	median (IQR): 71 (31-89)	31/40	median (IQR): 23 (13-66) days	Per to	clinic, and selected patients referred to a medical day hospital Routine services included	(2) At 6 months follow up	score either at treatment endpoint or at 6 months follow up
For near review only, http://hmienen.hmi.com/cite/ahout/guidelines.yhtml								

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Goldberg 1997	Home-based, case-managed care combined with usual care (n=21)	median (range): 72 (65-84)	10/11	Within 2-months	severe pre- morbid or comorbid conditions sufficient to impact	intervention including therapeutic recreation, social work, and psychology consultation was provided by a		(1) At 6 months (2) At 1 year	No within-group or between-group statistical analysis
------------------	---	----------------------------	-------	-----------------	--	---	--	-------------------------------	---

		T	T		T	ı	1		
						outpatient			
						rehabilitation			
						service			
	Usual care	median (range):	11/9			Standard			
	(n=20)	72 (65-81)				outpatient			
						follow-up			
						services included			
						routine medical			
						follow-up visits			
						and, when			
						indicated,			
				0 6		outpatient			
				-/ h		rehabilitation			
				$\mathcal{O}_{\mathcal{L}}$		service			
Mandigout	Individualized	median (IQR):	30/11	Within 6 months	Not specified	(1) The	Barthel Index (BI)	(1) At 6 months (at	There was no between-
2021	home-based	63 (12)				treatment		treatment endpoint)	group difference in BI
	coaching					strategy of		(2) At 12 months follow up	score either at treatment
	programme					home-based			endpoint or at 12 months
	combine with					intervention			follow up
	usual care					was not			
	(n=41)					specified			
						(2) Usual care	U D 1		
						which might			
						include			
						outpatient			
						therapy,			
						medical			
						appointment			
	Usual care	median (IQR):	32/10			Usual care which			
	(n=42)	58 (24)				might include			
						outpatient			
						therapy, medical			
						appointments at			!
						1, 6 and 12			!

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					months was provided for 12 months			
Ricauda 2004	Home hospitalization service combined with usual care (n=60)	median (IQR): 83 (78-89)	24/37 Within 24 hours	median (IQR): 24 (22-26.5) of NIHSS score	(1) The home-	Measure (FIM)	At 6 months	(1) Both the home-based intervention group and the control group showed improvement in FIM score at 6 months follow up (2) There was no between-group difference in FIM score at 6 months follow up

therapists Usual care median (IQR): 30/29 median (IQR): Routine hospital (n=60)80 (74-87) 24 (22-26.5) of rehabilitation NIHSS score service was provided by physical therapists At 12 months after stroke Early mean (SD): 92/75 mean (SD): Not specified (1) Home-based Modified Barthel Index There was no between-Rudd discharge with 70 (11) 22 (25) intervention (MBI) group difference in MBI 1997 days including score at 12 months follow home staying in rehabilitation hospital before physiotherap up randomisation combined with usual care occupational (n=167)therapy and speech therapy was provided by professionals during home visits (2) Conventiona care included inpatient treatment, discharge planning, and outpatient care Usual care mean (SD): 93/71 mean (SD): Conventional 25 (30) care included in-(n=164)72 (12) days staying patient treatment, in discharge before hospital

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				randomisation			planning, and							
							outpatient care							
Wong	4-week	mean (SD):	20/34	Not specified	Patients	with	(1) TCP	Modified	Barthel	Index	(1) At 4	weeks	after	(1) Both the home-based
2015	transitional	67.5 (11.6)			slight	to	included	(MBI)			discharge	e (at trea	atment	intervention group
	care				moderate		home-based				endpoint)		and the control group
	programme				neurologica	ıl	intervention				(2) At 8	weeks	after	showed improvement
	(TCP) with				deficits (N	NIHSS	consisting of				discharge	e		in MBI score at
	home-based				score ≥4 or	< 16)	management							treatment endpoint
	intervention				and with sli	ght to	and							and at 8 weeks follow
	combined with				moderate le	vel of	prevention of							up
	usual care		/		disability	(mRS	stroke							(2) The home-based
	(n=54)			06	score ≥2 to	≤4)	recurrence;							intervention group
				- h			symptoms							showed higher MBI
							assessment							scores than the
							and							control group at
						4	management							treatment endpoint
							; enhancing							and at 8 weeks follow
							physical							up
							function:							
							self-care							
							abilities and							
							exercise;	Or						
							healthy							
							behaviour:							
							adherence to							
							medication							
							and diet;							
							building							
							resilience:							
							connections							
							with the self,							
							family,							
							social life							
							and a Higher							
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Being; and emotion management (2) Routine hospitalbased physical training programme was provided within the first 3 weeks after hospital discharge Usual care mean (SD): 20/34 Routine hospital-(n=54)71.5 (11.6) based physical training programme was provided within the first 3 weeks after hospital discharge Home-based Not specified Not specified 30-90 days with Home-based Barthel Index (BI) (1) At 4 weeks (1) The home-based Koç **Patients** baseline Barthel intervention group 2015 exercise intervention (2) At 8 weeks index (BI) scores showed improvement (n=35)including (3) At 12 weeks of 60-80 who stretching treatment endpoint) in BI score over time and were ambulatory flexibility (2) The control group with supervision exercises, showed no and/or assistive improvement in BI and assistive device resistive score over time exercises, active-(3) The home-based assisted range of intervention group motion exercises, showed higher BI and progressive score than the control

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						walking			group over time
						programme and			
						relaxation			
	No	1				N/A	-		
	intervention								
	(n=37)								
Lin	Home-based	mean (SD):	7/2	More than 1 year	Severe to		Barthel Index (BI)	At 11 weeks (at treatment	The intervention group
2004	physical	61.4 (11.2)			moderate	intervention		endpoint)	showed greater
	therapy				residual	mainly consisted			improvement in BI score
	programme				disability with BI	of motor			than the control group
	(n=9)			^	score 5–14	facilitation,			
				O _{<i>F</i>}		postural control			
				1		training,			
						functional			
					704	ambulation			
					~ / L	training with gait			
						correction, and			
						ADL training			
	No	mean (SD):	6/4			N/A			
	intervention	62.8 (9.4)							
	(n=10)								
Wade	Home-based	mean (SD):	27/22	More than 1 year	Patients had	The home-based	Barthel Index (BI)	At 3 months (at treatment	There was no between-
1992	physiotherapy	72.3 (9.7)			mobility	intervention	1///	endpoint)	group difference in BI
	intervention				problems more	including			score at treatment
	(n=49)				than one year	exercises to			endpoint
					after stroke: they	improve the			
					used a walking or	walking and			
					mobility aid,	balance and ADL			
					other than just a	practice was			
						provided by a			
			i	i		-			
					fall in the	physiotherapist			
						physiotherapist during home			
					previous three				

	intervention (n=45)	72.0 (10.6)			stairs, slop					
	(11-43)				independen					
					had a slo					
					speed >10					
					10m if					
					60, > 12.5					
					69, >16.5					
					over 70	, 3 11				
Walker	Home-based	mean (SD):	9/6	6 months	Patients	with	Home-based	Rivermead Activities of	At 3 months (at treatment	(1) The home-based
1996	dressing	65.9 (8.16)		, memus	dressing	*******	intervention	Daily Living scales (self-	endpoint)	intervention group
1330	practice				problems		involving	care)		showed improvement
	(n=15)				Prooreins		teaching patients			in Rivermead
	(11 10)						and carers			Activities of Daily
				7			appropriate			Living scales (self-
							techniques such			care) score at
							as dressing the			treatment endpoint
							affected limb			(2) The control group
							first, energy			showed no
							conservation, the			improvement in
							use of red thread			Rivermead Activities
							to overcome			of Daily Living
							perceptual			scales (self-care)
							difficulties and to			score at treatment
							mark alignment			endpoint
							of buttons, and			(3) The home-based
							advice on choice			intervention group
							of clothing, was			showed greater
							provided by an			improvement in
							occupational			Rivermead Activities
							therapist during			of Daily Living
							home visits			scales (self-care)
	No	mean (SD):	7/8				N/A			score than the control
	intervention	70.2 (10.35)								group at treatment

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	(n=15)								endpoint
Wang	Caregiver-	mean (SD):	13/12	More than	6 Patients with	Home	Barthel Index (BI)	At 12 weeks (at treatment	(1) The home-based
2015	mediated,	62.0 (9.5)		months	mild to moderate	intervention was		endpoint)	intervention group
	home-based				disability	designed to			showed improvemen
	intervention				(Brunnstrom	improve patients'			in BI score at
	(CHI)				recovery stages	body functions			treatment endpoint
	(n=25)				III-V)	and structural			(2) The control group
						components; to			showed no
						improve patients'			improvement in BI
						ability to			score at treatment
						undertake			endpoint
			•	06		everyday			(3) The home-based
				Orp		activities within			intervention group
						their living			showed greater
					40%	environments			improvement in BI
						using task-			score than the control
						specific			group at treatment
						restorative and			endpoint
						compensatory			
						training methods;			
						and to help the			
						patients	7/1		
						reintegrate into			
						the society by			
						participating in			
						restorative			
						outdoor leisure			
						activities			
	No	mean (SD):	17/9			N/A			
	intervention	65.4 (10.6)							
	(n=26)								

N/A: Not applicable

Table 2 Summary of intervention details in individual studies

Author	Brief name	Why	What	What	Who provided	How	Where	When and	Tailoring	Modifications	Strategies to	Extent of
Year			(materials)	(procedures)				how much		of intervention	improve or	intervention
										throughout	maintain	on fidelity
										trial	intervention	
											fidelity	

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Asano	Progressive	Tele-	Not specified	(1) Participants	(1) A resear	h Online	exerc	cises	(1) Training	(1) Training of	The	Not described	Adherence of	50/61
2021	rehabilitation	rehabilitation		and their	assistant	and	video	calls	of the use	the use of	difficulty		therapy was	completed the
	exercises	can enable		caregivers	trained the u	se during	a	tele-	of	hardware	level and		recorded by	3-month
	through tele-	therapists to		were	of hardwa	re consult	ation		hardware	and	minimum		the subject in	assessment
	rehabilitation	work with		trained to	and software	:			and	software	range of		a diary to	
		and evaluate		use the	(2) A te	-			software:	before	motion		record the	
		their patients		hardware	therapist				in acute	discharge	desired		number of	
		remotely and		and	prescribed t	ne			hospital	or after	for each		minutes	
		the patients		software	progressive				before	discharge	exercise		subject spent	
		to perform		(2) Participants	rehabilitatio				discharge	from acute	prescribe		each day.	
		rehabilitation		received	exercises a	d			or in	hospital: 1-	d is		And the tele-	
		in the		progressive	provided te	e-			homes	3 sessions	determine		therapist	
		comfort of		rehabilitatio	consultation				after	with each	d by the		checked the	
		their own		n exercises	consultation				discharge	session	tele-		entering data	
		home and at		including		0 4		((2) The	being an	therapist		during tele-	
		their own		upper limb		-			progressi	hour long	who will		consultations	
		convenience		strengtheni					ve	(2) The	assess			
				ng, lower		· ·			rehabilita	progressiv	and			
				limb				16	tion	e	inform			
				strengtheni					exercises	rehabilitati	the			
				ng, seated					took	on	patient of			
				balance					place in	exercises	the			
				exercise,					participa	were	change			
				standing					nts' home	provided in	before			
				balance						participant	increasin			
				exercise						s' home	g the			
				and training						after	difficulty			
				of						discharge	level			
				functional						for three				
				activities						months,				
										with tele-				
										consultatio				
										ns once a				
										week				

Baskett	Home-based	Outpatient	Not specified	(1) Advice on	(1) A	(1) Advice was	At patients'	(1) Advice	Not	Not described	The subje	ct or	46/50
1999	self-directed	therapy		the self-	physiotherapis	provided	home	was	described		caregiver	was	completed the
	exercises	might		directed	t and an	during home		provided			asked	to	3-month
		disempower		therapy	occupational	visits		by			record	the	assessment
		the patient		programme	therapist	(2) Home-based		profession			type	and	
		and caregiver		(2) Self-	provided the	interventions		als once a			duration	of	
		from		directed	advice	for patients		week for as			activities	they	
		believing that		exercises	(2) Home-based	were provided		long as			achieved	each	
		they can be		aiming at	intervention	by themselves		judged			day		
		actively		improve the	for patients	with or without		necessary,					
		involved in		ability of	was mediated	the help of		or for a					
		their own		ADL were	by themselves	caregivers at		maximum					
		rehabilitation		prescribed	or caregivers	home		of 13					
		programme.		for patients	MO			weeks					
		Furthermore,		and their	(0)	L		(2) Patients					
		in the		caregivers		caregivers at home		was					
		hospital				101		encourage					
		setting, it is						d to					
		often				16	91.	attempt the					
		difficult to					· 1/	prescribed					
		plan ongoing						home-					
		therapy											
		without a						directed					
		detailed						exercises					
		understandin						programm					
		g of and						e several					
		continuing						times a day					
		supervision											
		within the											
		home											
		environment.											
		Therefore,											
		this study											
		investigated											

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		the feasibility										
		of the home-										
		based self-										
		directed										
		exercises										
		programme										
Björkda	Home-based	Aiming to	Not specified	Home-based	A physiotherapist	Home-based	At patients'	9 hours of	Individua	Not described	Not described	30/30
hl	intervention	evaluate if		intervention	and an		home	home-based	lly			completed the
2006		three weeks		which was focus	occupational	patients were		training per	tailored			3-week
		of		on activities in	_	provided by		week for three	training,			assessment
		rehabilitation		patients' natural				weeks was	based on			
		in the home		context, varing		during home visits		provided after	the			
		setting of		from personal		_		discharge from	patient's			
		younger		care to shopping	ω_{0}			the	needs and			
		patients with		and leisure	, ,			rehabilitation	desires			
		stroke would		activities was				ward	was			
		improve		provided		revie			provided			
		activity to a				(//;						
		larger extent				1	D ,					
		than ordinary					- 11,					
		outpatient										
		rehabilitation						/)/				
		at the clinic						1///				
		and facilitate										
		the										
		rehabilitation										
		process										
Chen	Home-based	Aiming to	Not specified	(1) Home-	Therapists	(1) Instructions	At patients'	(1) Instruction	Individua	Not described	The	26/27
2017	telesupervisi	evaluate the		based	provided	and	home	s and	lized		caregivers	completed the
	ng	efficacy of a		intervention	instructions and	demonstrations		demonstrat	physical		were asked to	12-week
	rehabilitation	telerehabilita		including	demonstrations of	of the home-		ions of the	exercise		keep training	assessment
		i .	1	i	i e	I	1	l ,			1	
		tion system,		physical	the home-based	based		home-	plan was		logs in the	
I		tion system, which		physical exercises	the home-based intervention and			home- based	provided provided		logs in the record plate	

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electromyogr	training and	by	n were	that faithfully
aphy-	the ETNS	professionals	n were provided	recorded the
triggered	therapy was	face to face	until the	survivors'
neuromuscul	prescribed	during home	participant	daily training
ar	and taught	visits	s or the	
stimulation	by	(2) Home-based	caregivers	
(ETNS)	professiona	interventions	could	
rehabilitation	ls	were	manage it	
, detection of	(2) The home-	performed by	without the	
physiological	based	patients	help of the	
parameters,	intervention	themselves	therapists	
medical	was	with or without	(2) The	
history	performed	the help of	physical	
records, data	by	caregivers at	exercises	
storage, and	participants	home	with ADL	
high-quality	and the	C b	training	
video-audio	caregivers	review,	were	
system on	with the		conducted	
physical	tele-		for 1 hour,	
function for	supervision		twice in a	
stroke	by		working	
survivors	professiona		day for 12	
	ls		weeks, a	
			total of 60	
			sessions	
			(3) The ETNS	
			was	
			conducted	
			for 20	
			minutes,	
			twice in a	
			working	
			day for 12	
			weeks, a	
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								total of 60				
								sessions				
Chen	Home-based	Home-based	Not specified	(1) Home-	Therapists	(1) Instructions	At patients'	(1) Instruction	Individua	Not described	The	26/26
2020	motor	telerehabilita		based	provided	and	home	s and	lized		caregivers	completed the
	training	tion (TR) has		intervention	instructions and	demonstrations		demonstrat	physical		were asked to	12-week
	telerehabilita	been		including	demonstrations of	of the home-		ions of the	exercise		keep training	assessment
	tion	indicated that		physical	the home-based	based		home-	plan was		logs in the	
		TR		exercises	intervention and	intervention		based	provided		record plate	
		approaches		with ADL	tele-supervision	were provided		interventio			of the system	
		can be as		training and		by		n were			that faithfully	
		efficacious as		the ETNS		professionals		provided			recorded the	
		conventional		therapy was	<i>h</i>	face to face		until the			survivors'	
		rehabilitation		prescribed	/ /	during home		participant			daily training	
		(CR) in		and taught	MA	visits		s or the				
		improving		by	, 60	(2) Home-based		caregivers				
		activities of		professiona		interventions		could				
		daily living		ls		were		manage it				
		(ADL), and		(2) The home-		performed by		without the				
		enhanced the		based		patients	\mathbf{Q}_{I}	help of the				
		compliance		intervention		themselves	* <i>U</i> //	therapists				
		of		was		with or without		(2) The				
		rehabilitation		performed		the help of		physical				
		training. The		by		caregivers at		exercises				
		study aimed		participants		home		with ADL				
		to determine		and the				training				
		the effects of		caregivers				were				
		a 12-week		with the				conducted				
		home-based		tele-				for 1 hour,				
		motor		supervision				twice in a				
		training TR		by				working				
		procedure in		professiona				day for 12				
		subcortical		ls				weeks, a				
		stroke						total of 60				
		patients with						sessions				

		T		T	<u> </u>	1	1		I			
		motor						(3) The ETNS				
		dysfunction						was				
								conducted				
								for 20				
								minutes,				
								twice in a				
								working				
								day for 12				
								weeks, a				
								total of 60				
								sessions				
Gladma	Domiciliary-	Aiming to	Not specified	Home-based	Two	Home-based	At patients'	The	Not	Not described	Not described	157/165
n	based	determine		intervention	physiotherapists	intervention was	home	domiciliary	described			completed the
1993;	rehabilitation	whether		including	and one	performed		rehabilitation				domiciliary
Gladma		stroke		physiotherapy	occupational	professionals		service was				rehabilitation
n		patients		and	therapist provided	during home visits		provided for up				
1994		would make		occupational	the domiciliary	10.		to six months				
		greater		therapy	service	Pevi						
		improvement				16) ,					
		s in ADL					"h					
		after										
		discharge						/				
		from hospital						1/1/				
Han	Home-based	There is	Not specified	Home-based	One occupational	Home-based	At patients'	The home-	Not	Not described	Not described	12/12
2020	reablement	evidence		intervention of	therapist provided	intervention was	home	based	described			completed the
	programme	supporting		ADL training	the home-based	performed		intervention				6-weeks
		that the			intervention	professionals		was provided				assessment
		reablement				during home visits		50 minutes				
		intervention						each time, once				
		leads to						a week for 6				
		significant						weeks				
		improvement										
		s in ADL for										
		older adults.										

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		However,									
		evidence on									
		the									
		effectiveness									
		of									
		reablement									
		for patients									
		with stroke is									
		limited. The									
		study aimed									
		to investigate									
		the effects of		′ ()	1						
		reablement in			6 6						
		patients with			r pee						
		stroke from			700						
		the 3									
		concepts of									
		ADL				101/3					
Hesse	Intermittent	Aiming to	Not specified	(1) Intermittent		(1) Home-based	At patients' (1) The home-	Individua	Not described	The patients	25/25
2011	high-	evaluate	rvot specifica	high-	physiotherapis		home based	lized self-	1107 405011004	and their	completed the
2011	intensity	whether		intensity	ts provided the		interventio	therapy		caregivers	12-months
	home-based	patients		home-based	home-based	professionals	n was	program		kept a diary,	home-based
	physiotherap	undergoing		intervention	intervention	during home	provided in	me was		in addition the	intervention
		the pulsed		of	(2) Self-therapy	visits	three two-	prescribe		therapists	intervention
	y programme	high-		physiothera	was						
						(2) Self-therapy	month blocks	d		phoned the	
		intensity		py based on	performed by					patients every	
		treatment		the Bobath	patients	was performed	(months 1			14 days	
		design would		approach	themselves	by patients	+ 2,			during self-	
		have better		and the			months 5 +			therapy	
		motor		motor	caregivers	their caregivers	6, months			period	
		functions in		relearning		at home	9 + 10),				
		one year		programme			consisting				
		compared to		was			of four				
		those		provided to			therapy				

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		receiving continuous low-intensity training		improve motor function relevant for				sessions every week, one session				
				relevant for patients' everyday life (2) Self-therapy programme consisting	r pee	t tevie	21/C	session lasted 30 to 45 minutes net. The three two- month blocks totalled 96				
Hofstad	Early	Aimed to	•	Not specified	A multi-	(3) Home-based	At patients'	for at least 30 minutes in every workday (1) The	Not	Not described	Not described	(1) Many
2014	supported	compare the			disciplinary	interventions	home	scheduled	described			patients

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	discharge	rehabilitation			community health	were pro	vided		treatment				did not
	(ESD) to	results after			team, consisting of	during	home		period was				comply
	home with	ESD to			a nurse, a	visits			five weeks				with the
	home-based	rehabilitation			physiotherapist				and				schedule
	intervention	as usual, and			and an				maximally				d
		to investigate			occupational				four hours				treatment
		the effect of			therapist provided				per day,				(2) 85/104
		community			the home-based				five days a				complete
		treatment			intervention				week				d the
		given in two							(2) During the				home-
		different							treatment				based
		settings;		′ ()	b				period,				interventi
		either in a			/ h				team				on
		day unit or in			intervention				members				
		the patients'			, 60				were				
		homes				<i>-</i>			present				
						10			three days				
							//°		a week,				
									and the last				
									two the				
									days of the				
									week the				
									patients				
									trained by				
									themselves				
									after				
									instruction				
									s from the				
									team				
Kalra	Domiciliary	Aimed to	Not specified	Not specified	A specialist stroke	Home-based		At patients'	The home-	Individua	Not described	Not described	144/153
2000	stroke care	compare the			team provided the	interventions	were	home	based	lised care			(including
		efficacy of			home-based	•	during		intervention	plan			149
		stroke unit,			intervention	home visits			was provided	outlining			confirmed
		stroke team,							for a maximum	activities			stroke and 10
				For p	eer review only - http	://bmjopen.bmj	i.com/si	te/about/guideli	nes.xhtml				

		and domiciliary stroke care in reducing mortality, dependence, and institutionali sation in patients with moderately severe strokes		<i>F</i> ₀				of 3 months	and the objectives of treatment were provided			confirmed no- stroke) completed the 12-months assessment
Özdemir 2001	Home-based rehabilitation	Aimed to test the hypothesis that medical rehabilitation gains can be obtained through home-based rehabilitation services with professional staff supervision of family members	Not specified	(1) Instructions from professiona 1 were provided (2) Home-based intervention including convention al exercises and provision of splints, orthoses and devices were provided	rehabilitation physician and a physiotherapis t provided the instructions for family caregivers (2) Family caregivers performed the home-based intervention to patients	interventions were provided by patients and their family caregivers at home	At patients' home	(1) The home-based interventio n was provided for at least 2 hours a day, 7 days a week (2) The mean rehabilitati on period at home was 64 days (range, 29—150 days)	Not described	Not described	Not described	Not specified
Pandian 2015	Family-led, trained caregiver-		A culturally appropriate, simple,	Home-based intervention including	(1) A physiotherapis t prescribed		At patients' home	Caregivers performed the home-based	Not described	Not described	Not described	44/50 completed the 6-months

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	delivered,	determine the	pictorial	positioning,	the home-	patients' caregivers	intervention				assessment
	home-based	feasibility of	'manual'	transfers,	based	at home	when the				
	rehabilitation	a multicenter,	covering key	mobility, task-	intervention		patients were				
	intervention	randomized,	exercises	orientated	(2) Patients'		discharged				
		controlled	relevant to	training	caregivers		home				
		trial in India	activities of	(particularly	delivered the						
		of a family-	daily living	walking, upper-	home-based						
		led, trained	was provided	limb, and self-	intervention to						
		caregiver-	for patients'	care tasks) was	patients						
		delivered,	caregivers	provided							
		home-based									
		rehabilitation			h						
		intervention			/ /						
		vs. routine			Ma						
		care			· CO						
Redzuan	Video-based	Aiming to	A self-	Home-based	(1) Home-based	(1) Home-based At patie	nts' Upon	An	Not described	Caregivers	44/53
2012	therapy	evaluate the	instructional	self-	self-	self- home	discharge,	investigat		and/or	completed the
	programme	effectiveness	audiovisual	instructional	instructional	instructional	caregivers	or and the		patients were	3-months
	at home	of an	DVD of	intervention	intervention	intervention	and/or patients	therapist		encouraged to	assessment
		intervention	standardized	including	was	was prescribed	were	would go		do the	
		using video	rehabilitatio	patient	prescribed and	and taught to	encouraged to	through		exercises	
		to deliver	n procedures	positioning and	taught to	patients and/or	do the exercises	the video		along with the	
		therapy at	and patient	handling; bed	patients and/or	their caregivers	along with the	content		video as often	
		home for	handling	mobility;	their	by therapists	video as often	with each		as possible	
		patients with	techniques	passive range of	caregivers by	face to face	as possible	patient		and were	
		stroke	was provided	motion	therapists	(2) Home-based		and		asked to	
				exercises,	(2) Home-based	self-		determine		record their	
				stretching, and	self-	instructional		the		exercises in a	
				strengthening of	instructional	intervention		appropria		diary	
				the upper limbs	intervention	was performed		te			
				and the lower	was	by patients		sections			
				limbs; transfer	performed by	and/or their		and/or			
				techniques from	patients and/or	caregivers with		exercises			
				bed to	their	the guidance of		and			

				wheelchair and vice versa, and wheelchair into the car and vice versa; and activities of daily living	caregivers	a video at home			emphasiz e the important parts of the video according to the patient's stroke severity and resulting			
Roderic	Domiciliary	Aiming to	Not specified	Not specified	Home-based	Home-based	At patients'	The home-	impairme nt Not	Not described	Not described	54/66
k 2001	rehabilitation service	compare the effectiveness and costs of a new domiciliary rehabilitation service for elderly stroke patients with			intervention was provided by a physiotherapist and an occupational herapists		home	based intervention was provided until maximum potential for recovery was reached	described			completed the 6-months assessment
Taule 2015		geriatric day- hospital care Current evidence supports ESD from hospital to home after acute hospital		Home-based intervention was mainly directed towards ADLs, and function-specific treatment was also offered	provided the		At patients' home	(1) ESD intervention was provided during hospitalization and at home	Not described	Not described	Not described	39/53 completed the 3 months assessment

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		treatment as						(2) A home				
		patients have						visit was				
		demonstrated						provided				
		benefits in						after				
		independenc						discharge				
		e. However,						within				
		the influence						three days,				
		of different						and lasted				
		rehabilitation						for a				
		models on						maximum				
		the patients'						of five				
		ADL ability		(()	b			weeks after				
		is still			/			the home				
		scarcely			100	revie		visit				
		explored.			' (0							
		This study				6						
		aimed to				10.						
		compare										
		three models				1/6),					
		of					- 1/					
		rehabilitation										
		: ESD in a										
		day unit,						1/1/				
		ESD at home										
		and										
		traditional										
		treatment in										
		the										
		municipality										
Thorsén	Early	Aiming to	Not specified	Home-based	Two physical	Home-based	At patients'	The home-	The	Not described	The duration	(1) 41/41
2005;	supported	determine		intervention	therapists, two		home	based	home-		and type of	complete
von	discharge	whether the		emphasizing a	occupational	provided during		intervention	based		therapy were	d the 3
Koch	(ESD) and			task- and	therapists, and one			programme	interventi		recorded in a	months
2001;	continued	rehabilitation		context-oriented	speech therapist			approximately	on was		protocol by	assessme
				For p	eer review only - http	://bmjopen.bmj.com/si	te/about/quideli	nes.xhtml				

von	rehabilitation	model as		approach, which	provided the	;		3 to 4 months in	tailored		the therapists.	nt
Koch	at home	developed at		implies that the	home-based			duration. The	for each		Patients were	(2) 40/41
2000;		the		patient performs	intervention			frequency of	patient		asked to keep	complete
Widén		Department		guided,				therapy			diaries	d the 6
Holmqvi		of Neurology		supervised, or				contacts for the			between	months
st		was more		self-directed				patients			therapy	assessme
1998		effective		activities in a				receiving			sessions on	nt
		and/or		functional and				rehabilitation at			time and type	(3) 39/41
		resource		familiar context,				home was			of training	complete
		efficient than		was provided				decided by the				d the 12
		current,						providing				months
		organization		(()	b			therapist in				assessme
		ally diverse			/			consultation				nt
		rehabilitation			100	revie		with the patient				(4) 30/41
		in a hospital			, CK	/_		and his or her				complete
		or day care or				1 h		family. The				d the 5
		through				10.		frequency of				years
		outpatient						home visits was				assessme
		care						gradually				nt
							- 1/	reduced until				
								the therapist				
								discharged the				
								patient				
Young	Home	Aiming to	Not specified	Not specified	One of five	Home-based	At patients'	Not specified	Not	Not described	Not described	56/63
1992	physiotherap	compare the			experienced	intervention was	home		described			completed the
	у	effectiveness			community	provided during						6 months
		of day			physiotherapists	home visits						assessment
		hospital			provided the	;						
		attendance			home-based							
		with home			intervention							
		physiotherap										
		y for stroke										
		patients to										
		determine										

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		which										
		service										
		produces										
		greater										
		functional										
		and social										
		improvement										
		for the										
		patient,										
		reduces										
		emotional										
		stress for the		10	La							
		caregiver,			/ h							
		and lessens			ω_{Δ}							
		the need for			, 60							
		community										
		support										
Barzel	Home-based	Home CIMT	Not specified	(1) Patients	(1) A physical or	(1) 2 home visits to	At patients'	(1) 2 home	Exercises	Not described	The non-	82/85
2015	constraint-	is a modified	rvorspecified	received	occupational	provide	home	visits of	were	1101 deserroed	professional	completed the
2013	induced	form of		information	therapist	information	nome	50-60 min	adapted		coach	home CIMT
	movement	CIMT that		and	provided	and instruction		in the first	to the		maintained a	Home Chvi i
					_							
	therapy	reduces the		instruction	information	(2) 3 home visits to		week	patient's		training diary	
	(CIMT)	need for		of home	and	supervise and		(2) 3 home	abilities		to document	
		professional		CIMT	instruction of	3		visits of			the time per	
		assistance in		(2) Patients	home CIMT	exercises and		50-60 min			exercise	
		ambulatory		were	and provided	_		in the next			(using a	
		care, training		supervised	supervision	(3) Face-to-face		3 weeks			stopwatch),	
		the increased		by a	and	coaching of		(3) Home			the number of	
		use of the		professiona	adjustment	home CIMT by		CIMT was			repetitions,	
		stroke-		1 who	through	non-		recommen			and the time	
		affected arm		solved	problem	professional		ded for 2 h			of practising	
		in daily life		problems	solving			each				
		within the		and	(2) Home CIMT			weekday,				
		patient's		adjusted	was coached			giving 40 h				
L	1		1			://bmionon.hmi.com/s					1	1

		home		exercises	by a non-			of	f practice					
		environment		and practice	professional			in	20 days					
				which were	(eg, family									
				relevant to	member)									
				everyday										
				life with										
				special										
				focus on										
				activities of										
				daily living										
				(ADL)										
				(3) Patients	b									
				were										
				instructed	100									
				to do home	' (0									
				CIMT		4								
Chaiyaw	Home-based	The	Standard	(1) Individual	A physical	Intervention was	At patients'	(1) In	dividual	Individua	Not described	(1) The	(1) 30/3	0
at	individual's	programme	materials on	counseling,	therapist provided	provided during	home	co	ounseling	1		duration	comp	plete
2012	exercise	would be	an	which	the individual	home visits	\mathbf{Q}_{I}	wa	as	counselin		and type	d	the
	programme	able to	audiovisual	focused on	counseling and		1//	pre	rovided	g, which		of	hom	e-
		improve the	CD of	education,	home-based			be	efore	focused		therapy	base	d
		ADL and	rehabilitatio	applying	rehabilitation			ho	ome-	on		were	rehal	bilita
		function,	n	information				ba	ased	education		recorded	tion	
		decrease	procedures:	learned in				rel	habilitati	, applying		on a case	prog	ram
		disability and	passive	practical				on		informati		report	me	
		increase	exercise,	situations,				(2) Ho	ome-	on		form by	(2) Com	-
		quality of life	active	and solving					ased	learned in		the		with
			exercise,	problems				rel	habilitati	practical		therapist	the	
			resistance	was offered				on		situations		(2) Patients	inter	venti
			exercise, and	to the				pre	rovided	, and		or		as
			ADL	caregiver if						solving		caregiver		cated
				needed						•		s were		daily
				(2) The						occurring		asked to	recor	
				intervention				Ea	ach	at home		keep	was l	high

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				strategy included exercises and ADL practice				home- based rehabilitati on lasted approximat ely 1 h			diaries between therapy sessions on the time and type of training	
Chaiyaw	Individual's	Because	Standard	(1) Individual		Intervention was	-	(1) Individual	Individua	Not described	(1) The	(1) 30/30
at	home-based	inpatient	materials on	counseling,	therapist provided	-	home	counseling	l		duration	complete
2009	exercise	rehabilitation	an	which	the individual	home visits		was	counselin		and type	d the
	programme	programmes	audiovisual CD of	focused on	counseling and			provided	g, which		of	home-
		in Thailand are not	CD of rehabilitatio	education, applying	home-based rehabilitation			before home-	focused on		therapy were	based rehabilita
		widely	n	information	Tellaolittation			based	education		recorded	tion
		available, the	procedures:	learned in				rehabilitati	, applying		on a case	program
		demand for	passive	practical		revie		on	informati		report	me
		home	exercise,	situations,				(2) Home-	on		form by	(2) Complia
		rehabilitation	active	and solving		16	0,	based	learned in		the	nce with
		is increasing.	exercise,	problems			- 1/	rehabilitati	practical		therapist	the
		Therefore, a	resistance	was offered				on was	situations		(2) Patients	interventi
		model for	exercise, and	to the				provided	, and		or	on (as
		effective	ADL	caregiver if				once a			caregiver	indicated
		home		needed				month for	-		s were	by daily
		rehabilitation		(2) The				3 months;	occurring		asked to	records)
		for stroke patients will		intervention				Each home-	at home		keep diaries	at one,
		help improve		strategy included				based			between	two, and three
		stroke care		exercises				rehabilitati			therapy	months
		stroke care		and ADL				on lasted			sessions	was 94%,
				practice				approximat			on the	95%, and
				_				ely 1 h			time and	95%
											type of	
											training	

Chen	Nurse-	Exercise	Not specified	(1) Environme	An advanced	Environmental	At (1) During the	The	Not described	Not described	59/70
2021	guided	training is		ntal	practice registered	modification and	participants' first home	home-			completed the
	home-based	strongly		modificatio	nurse (APRN) who		home visit, the	based			home-based
	rehabilitation	recommende		n was	had received	programme were	nurse	rehabilitat			rehabilitation
	exercise	d for patients		provided to	professional	provided during	modified	ion			exercise
	programme	post-stroke,		diminish	physiotherapy	home visits	the	exercise			programme
		and the time		any	training provided		environme	program			
		spent in		environmen	environmental		ntal	me was			
		hospital may		tal hazards	modification and		hazards	an			
		not be		(2) Exercise	guidance of		(2) During the	individual			
		sufficient to		programme	patients during the		first 3	ly tailored			
		prepare		was	exercise		months,	rehabilitat			
		patients for		provided	programme		patients	ion			
		further		which	ω_{0}		underwent	interventi			
		rehabilitation		mainly	. (0		months, patients underwent three exercise sessions per week, with each session lasting 30 min	on			
		. Also, home-		included		L	exercise	program			
		based		strengtheni		10.	sessions	me			
		rehabilitation		ng the lower			per week,				
		was proved		limb muscle			with each				
		to decrease		groups with			session				
		the level of		exercises,			lasting 30				
		disability and		such as joint			11111				
		correspondin		training, sit-			(3) During the				
		gly improve		ups,			next 3				
		functional		balance			months,				
		recovery		training			patients				
		among		while			underwent				
		patients with		standing,			one session				
		motor		standing,			per week				
		impairments		bending to			(4) Thereafter,				
				pick things			the				
				up, straight			frequency				
				leg-lifting,			of the				
				and			supervised				

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				climbing				exercise				
				stairs				dropped to				
								once a				
								month, and				
								once every				
								other				
								month, up				
								to 12				
								months				
Deng	Integrated	Transitional	Not specified	As soon as the	A	Home-based	At patients'	(1) The	Not	Not described	Not described	49/49
2020	transitional	care (TC)		patient was	multidisciplinary	interventions were	home	scheduled	described			completed the
	care	interventions		discharged to	poststroke	provided during		treatment				Integrated
	programme	have		home, the	consultation team	home visits		was 8				transitional
		emerged as a		home-based	consisting of a			weeks and				care
		potential		intervention was	community-based			maximally				programme
		solution to		performed,	general	h		2 hours per				
		ensure the		including (1)	practitioner, a	101		day				
		continuity		ongoing stroke	nurse and a			(2) During the				
		and		rehabilitation,	rehabilitation	7/6	91.	first 4				
		coordination		(2) medication	therapist. The	revie	· 1//	weeks,				
		of healthcare		reconciliation	extended team			team				
		when		and (3) self-	members meruded			members				
		patients		management	a neurologist, a			were				
		transfer		education	rehabilitation			present				
		across care		regarding risk	specialist and			three days				
		settings and		factors control	social workers. To			a week				
		between		and stroke	ensure the			(3) Periodic				
		providers		warning signs	continuity of care			phone calls				
					delivery, a nurse in			were used				
					the community			to				
					setting was			understand				
					designated as a			patient				
					coordinator			changes.				
						·//hmionen hmi com/s		At a				

								minimum,				
								patients				
								were				
								contacted				
								twice a				
								week for				
								the first				
								four weeks				
								postdischar				
								ge				
								(4) During the				
				1	1-			next 4				
					1 h	r revi		weeks,				
								team				
					100			members				
								were				
								present				
						101/3		once a				
							3 .	week				
Duncan	Therapist-	Emerging	Not specified	(1) 10-minute	A physical	Home-based	At patients'		(1) Resis	Not described	Not described	10/10
1998	supervised	evidence		warm-up	therapist provided			experiment	tance			completed the
	home-based	suggested		session of				al exercise	progr			home-based
	exercise	that intensive		stretching	exercise	home visits		interventio	essio			exercise
	programme	remedial		and	programme			n was	n was			programme
	F8	therapy like		flexibility	18			initiated	based			F8
		aerobic		exercise				within 5	on a			
		training may		(2) The first				days of	proto			
		be beneficial		block				baseline	col in			
		for stroke		included				testing	whic			
		survivors, as		assistive				(2) The	h			
		a result,		and				programm	when			
		researchers		resistive				e included	subje			
		combined all		exercises				3 visits a	cts			
		3						week for 8	could			
		٥		using				week for 8	could			

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components (strength,

balance, and endurance)

intervention

into

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Propriocept				weeks, and	comp		
ive				the patients	lete 2		
Neuromusc				were	sets		
ular				instructed	of 10		
Facilitation				to continue	repeti		
Patterns				the	tions		
(PNF) or				exercise	throu		
Theraband				programm	gh		
exercise to				e on their	the		
the major				own for 4	avail		
muscle				additional	able		
groups of	h			weeks	range		
the upper	/			(3) Each	of		
and lower	100			exercise	motio		
extremities	, (0			session	n,		
(3) The second		revie		lasted	resist		
block		10.		approximat	ance		
included 15				ely 1.5 h	was		
minutes of		1/6			incre		
balance			- 1/		ased		
exercises,					by		
(4) In the third				クル	progr		
block,				1/1/	essio		
participants					n of		
were					Thera		
encouraged					band		
to use the					elasti		
affected					city		
upper					(level		
extremity in					s of		
functional					resist		
activities					ance)		
(5) The final					or by		
	1		l		incre		1

				included a progressive walking programme or progressive exercise on a bicycle ergometer		revie	240		ased manu al resist ance in PNF exerc ises (2) Indiv idual s were instru cted to walk at their usual pace or bicyc le at low revol ution s per minut			
Hofstad	Early	Aimed to	Not specified	Not specified	A multi-	Home-based	At patients'	(1) The	Not	Not described	Not described	(3) Many
2014	supported	compare the			disciplinary	interventions were	home	scheduled	described			patients
	discharge	rehabilitation			community health	provided during		treatment				did not
	(ESD) to	results after			team, consisting of	home visits		period was				comply

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	home with	ESD to			a nurse, a			five weeks				with the
	home-based	rehabilitation			physiotherapist			and				schedule
	intervention	as usual, and			and an			maximally				d
		to investigate			occupational			four hours				treatment
		the effect of			therapist provided			per day,				(4) 85/104
		community			the home-based			five days a				complete
		treatment			intervention			week				d the
		given in two						(2) During the				home-
		different						treatment				based
		settings;						period,				interventi
		either in a						team				on
		day unit or in		(()	b			members				
		the patients'			/ h	revie		were				
		homes			00			present				
					, (0			three days				
						6		a week,				
								and the last				
								two the				
						1/6		days of the				
								week the				
								patients				
								trained by				
								themselves				
								after				
								instruction				
								s from the				
								team				
Lincoln	Home-based	Aimed to	Not specified	Rehabilitation	A	Home-based	At patients'	Home-based	Not	Not described	Not described	Not described
2004	intervention	assess		service	multidisciplinary	interventions were	home	rehabilitation	described			
	performed by	whether		including	team provided the	provided during		was provided				
	a community	rehabilitation		physiotherapy,	home-based	home visits		for as long as it				
	stroke team	by a		occupational	intervention			was considered				
		specialist		therapy, speech				patients were				
		multiprofessi		and language				benefiting				
	•	•			eer review only - http	://bmjopen.bmj.com/si	te/about/quideli	nes xhtml	•	•		

		onal team		therapy								
		improved the										
		outcome, in										
		terms of										
		functional										
		abilities,										
		mood,										
		quality of life										
		and										
		satisfaction										
		with care, as										
		compared		(()	b							
		with			/							
		conventional			r pee							
		outpatient			, (0	<i>I</i> -						
		rehabilitation				L						
		services				10.						
Lindley	Family-led	Given that	An	(1) Family	(1) A	(1) Family	(1) The	(1) The family	Not	Not described	(1) For	(1) The
2017	rehabilitation	low-income	intervention	rehabilitatio	rehabilitation	rehabilitation	family	rehabilitati	described		family	family
	after stroke in	and middle-	manual was	n training	professional	training was	rehabilita	on training			rehabilita	rehabilita
	India	income	provided for	involved	provided the	provided	tion	was			tion	tion
		countries	the patient	training	family	during home	training	designed to			training,	training
		have only	and	family	rehabilitation	visits	was	take place			a log of	program
		about 3%	caregiver	members to	training	(2) Home-based	started in	for about 1			trial	me was
		equivalent		provide a	(2) Home-based	interventions	hospital,	h a day in			interventi	delivered
		purchasing		simplified	intervention	for patients	and	hospital for			ons was	as
		power to		version of	for patients	were provided	continue	about 3			kept by	planned
		spend on		evidence-	was mediated	by caregivers	d at home	days. After			the	with a
		health care		based	by caregivers	at home	(2) The	hospital			professio	mean
		compared		rehabilitatio			home-	discharge,			nal for	time of
		with high-		n, and			based	up to six			each	3.0 h in
		income		included			interventi	home visits			participa	hospital.
		income countries,		included comprehens ive			interventi on was performe	were provided to			participa nt for hospital	hospital. And an additiona

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model of	impairment	d at home assess	and home	1 3·1 h of
stroke	and	progress,	visit	training
rehabilitation	disability	continue	activities	were
should be	assessment	caregiver	(2) Patients	delivered
both	by the	training	and their	during
sustainable	coordinator	activities,	caregiver	home
and effective.	s;	and reset	s were	visits
Researchers	information	goals	encourag	(2) Patients
hypothesised	provision;	(2) Patients	ed to	and
that family	joint goal	and their	perform	caregiver
caregiver	setting with	caregivers	family-	s reported
delivered	the patient	were	led	17·8 h of
rehabilitation	and	encourage	rehabilita	family-
would	caregiver	were encourage d to performed the home- based interventio n after discharge to home	tion and	led
increase	for basic	performed	they were	rehabilita
independenc	activities of	the home-	encourag	tion
e and	daily living	based	ed to	given in
survival after	(ADL),	interventio	keep log	the first
stroke unit	extended	n after	of	30 days
admission	ADL	discharge	rehabilita	after
	(EADL),	to home	tion	hospital
	and		activities	discharge
	communica		for 30	
	tion;		days after	
	caregiver		discharge	
	training for			
	limb			
	positioning;			
	encourage			
	ment of the			
	practice of			
	task-			
	specific			
	activities;			
	For peer review only - http	o://bmjopen.bmj.com/site/about/guidelines.xhtml		

Mayo 2000	Tailor-made home programme of rehabilitation and nursing services with prompt discharge from hospital	Aimed to evaluate the effectiveness of prompt discharge combined with home rehabilitation on health-related quality of life (HRQL), community reintegration, and function Aimed to	After being	and reminders to prepare the patient and carer for hospital discharge (2) Home-based intervention mediated by caregivers was prescribed for patients and their caregivers Home-based intervention included physical therapy, occupational therapy, and dietary consultation	A multidisciplinary team provided the home-based intervention	Home-based interventions were provided during home visits and supplemented with telephone monitoring	At patients' home	duration of the intervention was 4 weeks (2) Subseque thome visits were arranged as needed	individ ualized to a patient' s needs Home-	Not described Not described	Not described Not described	Not described
en	based	evaluate the	discharged to	based	multidisciplinary,	interventions were	home	an	based			completed the

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2016	rehabilitation	efficacy of	homes,	intervention	intersectoral and	provided during	inpatient	training		home-based
		early home-	written plans	s before	interventional	home visits	was able to	was based		intervention
		based	for training	discharge	team including a		train at	upon the		
		rehabilitation	sessions	included	nurse,		home,	patient's		
		compared	were given to	physical	physiotherapists,		home-	needs and		
		with standard	patients	exercises	occupational		based	rehabilitat		
		care three		and training	therapists and		interventio	ion goals		
		months after		of activities	physicians,		ns were			
		stroke onset.		of daily	provided the		performed			
				living	home-based		one to			
				(2) After being	intervention		three times			
				discharged	h		per week			
				to homes,	b		(2) After			
				patients			discharged			
				received	, 60	tevien c	to home,			
				written			the home-			
				plans for		101	based			
				training			interventio			
				sessions,		1691	ns were			
				and		+ <i>U</i> /	provided			
				received			one to five			
							days per			
				perform			week for			
				activities of			up to four			
				daily living			weeks			
				and			according			
				continued			to the			
				rehabilitatio			ability and			
				n training,			needs of			
				which			the patients			
				focused on						
				the patient's						
				occupationa						
i				l problems						

Santana	Early home-	While EHSD	Not specified	(1) Patients and	Two	Home-based	The EHSD	(1) EHSD	(1) Infor	Not described	Not described	Not described
2017	supported	services for		carers	physiotherapists,	interventions were	intervention	interventio	matio			
	discharge	stroke		received	two occupational	provided during	was started in	n started	n and			
	(EHSD)	patients have		education	therapists and a	home visits	hospital, and	during	traini			
	service	been		on healthy	psychologist		continued at	patients'	ng			
		researched in		behaviours			home	stay at the	was			
		Scandinavia		and				stroke unit	tailor			
		and the		information				(2) Approxima	ed to			
		United		about stroke				tely eight	the			
		Kingdom, no		(2) The mix of				home-	patie			
		trials have		physiothera				based	nt's			
		taken place		py,	h			training	needs			
		in the health		occupationa	/			sessions	(2) Reha			
		systems		l therapy	r pee			for a	bilitat			
		environment		and		4		maximum	ion			
		of Southern		psychology		/		of one	was			
		Europe. The		sessions		101		month	focus			
		present study		was also				were	ed on			
		was		adapted to			91.	provided	daily			
		developed as		the specific			· 1//		activi			
		part of a		condition of					ties			
		European		each				\mathcal{D}	value			
		project on		patient.					d by			
		integrated		Rehabilitati					the			
		care		on was					patie			
				focused on					nt in			
				daily					their			
				activities					usual			
				valued by					conte			
				the patient					xt			
				in their								
				usual								
				context								
				(3) Caregivers								

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Taule	Early	Current	Not specified	were trained and made aware of the competenci es and ability of the patient and were encouraged to follow their progress Home-based	An occupational	Home-based		At patients'	(1) ESD	Not	Not described	Not described	39/53
2015	supported	evidence	140t specified	intervention was	therapist and/or a	intervention	was	home	interventio	described	140t described	1401 described	completed the
	discharge	supports		mainly directed	physiotherapist	provided d	during		n was				3 months
	(ESD) at	ESD from		towards ADLs,	provided the	home visits			provided				assessment
	home	hospital to		and function-	home-based				during				
		home after		specific	intervention				hospitaliza				
		acute		treatment was				Ph.	tion and at				
		hospital		also offered					home				
		treatment as							(2) A home				
		patients have							visit was				
		demonstrated							provided				
		benefits in							after				
		independenc							discharge				
		e. However,							within				
		the influence							three days,				
		of different							and lasted				
		rehabilitation							for a				
		models on							maximum				
		the patients'							of five				
		ADL ability							weeks after				
		is still				//b.mai.a.m.a.m.b.mai			the home				

Walker 1999	Home-based occupational therapy	scarcely explored. This study aimed to compare three models of rehabilitation : ESD in a day unit, ESD at home and traditional treatment in the municipality Aimed to evaluate the effect of occupational therapy on stroke patients who were not admitted to hospital	Not specified	Occupational therapy was provided to improve the independence in personal and instrumental ADL	A research occupational therapist provided the home-based intervention		At patients' home	The home-based intervention was provided for patients with stroke 1 month after onset for up to 5 months	on was agreed between	Not described	Not described	Not described
Wolfe 2000	Home-based rehabilitation	Stroke patients requiring rehabilitation	Not specified	Not specified	A rehabilitation team including a physiotherapist, occupational	Home-based intervention was provided during home visits	At patients' home	The home- based intervention was provided		Not described	Not described	Not described
		, those not			therapist, a speech			for a maximum				

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		admitted to			and language			of 3 months				
		hospital were			therapist and a							
		significantly			therapy aid,							
		less likely to			provided the							
		receive			home-based							
		rehabilitation			intervention							
		than those										
		admitted. In										
		an attempt to										
		redress this										
		situation,										
		researchers			6							
		aimed to			6							
		assess the			ω_{0}							
		effectiveness			1 (0)							
		of providing										
		rehabilitation				revi						
		to non-				C//;						
		admitted				///) ,					
		stroke					- 11,					
		patients in a										
		pilot trial						/				
Azab	Home-based	Aiming to	Not specified		A family member		The home-	(1) The home-	Participan	Not described	Compliance	Not described
2009	constraint-	investigated		based	supervised and	supervised and	based	based	ts were		was reported	
	induced	the effect of		CIMT	encouraged the	encouraged the	intervention	interventio	encourag		by the trained	
	movement	home-based		consisted of	patients to perform	patients to perform	was	n was	ed to		family	
	therapy	CIMT on the		the	the home-based	the home-based	performed at	performed	progress		member in the	
	(CIMT)	Barthel Index		participant	intervention	intervention	patients'	for 6 to 7	the task		home diary	
	combined	(BI)		wearing a			home	hours per	goal		activities	
	with usual			"mitt" on				day for a			sheet	
	care			the				period of 4	to their			
				uninvolved				consecutiv	motor			
				hand while				e weeks	capabiliti			
				practicing a				(2) The usual	es or the			
				For n	neer review only - http	://bmjopen.bmj.com/s	ite/about/quideli	nes.xhtml				

				full				care was	speed of			
				functional				performed	performa			
				task				for 80	nce			
				(2) Usual care				minutes,	nec			
				included				three times				
				physical				per week				
				and				for 4 weeks				
				occupationa				101 1 11 2011				
				l therapy								
				which								
				included								
				active range								
				of motion of								
				bilateral	O_{Δ}	revie						
				upper	100	*						
				extremities,		C L						
				stretching								
				exercises in								
				the upper		1/6) ,					
				extremity,			- 11,					
				hand-eye								
				coordinatio				Δ				
				n activities,				'////				
				ambulation,								
				and								
				strengtheni								
				ng exercises								
				for bilateral								
				upper								
				extremities								
Batchelo	Home-based		Not specified	(1) Home-	A physiotherapist			Not specified	Individua	Not described	Adherence	(1) 75/85
r	multifactoria	determine		based	_	intervention was			lised		was assessed	complete
2012	1 Falls			multifactori	home-based	provided during	intervention		home		through	d the 12
	prevention	multifactoria		al Falls	intervention	home visits	was		exercise		exercise	months

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with usual care reduces falls included home-based included home-based in people with stroke at risk of recurrent falls and whether this programme leads to improvement s in gait, balance, strength, and fall-related efficacy (2) Usual care including physical and occupationa l therapy was	
reduces falls in people with stroke at programme risk of recurrent falls and whether this programme programme programme programme programme programme programme programme problems. leads to improvement minimizatio s in gait, balance, strength, and fall-related efficacy (2) Usual care including physical and occupationa 1 therapy was provided by professiona	2) Of the 64
in people with stroke at risk of recurrent addressed falls and whether this programme leads to improvement s in gait, slane, strength, and fall-related efficacy (2) Usual care including physical and occupationa I therapy was provided by professiona	interventi
with stroke at risk of which addressed falls and balance and whether this programme leads to improvement minimization s in gait, balance, strength, and fall-related efficacy (2) Usual care including physical and occupationa l therapy was provided by professiona	on
risk of recurrent addressed balance and whether this programme leads to improvement s in gait, balance, strength, and fall-related efficacy (2) Usual care including physical and occupationa I therapy was provided by professiona	participa
recurrent falls and whether this programme leads to improvement s in gait, balance, strength, and fall-related efficacy (2) Usual care including physical and occupationa I therapy was provided by professiona	nts for
falls and whether this programme problems, falls risk minimizatio s in gait, balance, strength, and fall-related efficacy (2) Usual care including physical and occupationa 1 therapy was provided by professiona	whom
whether this programme problems, falls risk minimization improvement sin gait, balance, strength, and fall-related efficacy (2) Usual care including physical and occupationa I therapy was provided by professiona	falls data
programme leads to improvement s in gait, balance, strength, and fall-related efficacy (2) Usual care including physical and occupationa l therapy was provided by professiona	were
leads to improvement so in gait, balance, strength, and fall-related efficacy (2) Usual care including physical and occupationa l therapy was provided by professiona	available,
provided by professiona	16
provided by professiona	(25.0%)
provided by professiona	fully
provided by professiona	adhered,
provided by professiona	36
provided by professiona	(56.3%)
provided by professiona	partially
provided by professiona	adhered,
provided by professiona	and 12
provided by professiona	(18.7%)
provided by professiona	did not
provided by professiona	adhere to
provided by professiona	the
provided by professiona	exercise
provided by professiona	program
	me
Chumbl Multifaceted Aiming to Not specified (1) Home A physiotherapist The home-based At patients' The STeleR The Not described An in-home (1)	.) 22/25
er stroke determine televisits or an occupational intervention was home intervention prescribe messaging	complete
2012 telerehabilita whether a were therapist provided provided through lasted 3 months d exercise device	d the 3
tion (STeleR) multifactoria provided to tele-rehabilitation telerehabilitation which included was (IHMD) was	months
intervention 1 falls demonstrat intervention 3 1-hour home selected used to	follow up
combined prevention e exercise tele-visits and 5 by the enhance (2)	2) 24/25

with usual	programme	which		telephone	therapist	exercise	complete
care	reduces falls	focused on		intervention	based on	adherence	d the 6
	in people	strength and		calls	patients'		months
	with stroke at	balance, to			physical		follow up
	risk of	developed a			performa		
	recurrent	treatment			nce		
	falls and	plan which			measures		
	whether this	might					
	programme	include					
	leads to	modificatio					
	improvement	n of home					
	s in gait,	environmen					
	balance,	t and					
	strength, and	application	revieu				
	fall-related	of new	1 6				
	efficacy	adaptive					
		equipment	101				
		or					
		techniques,	1/6)				
		to solve	- <i>U</i>				
		interval					
		problems		40/			
		(2) Telephone					
		intervention					
		was					
		provided to					
		review					
		current					
		exercise					
		regimen					
		and					
		assistive					
		technology					
		and to					

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				reassess and advance the exercise							
				program							
				(3) Routine							
				Veterans Affairs							
				, í							
				was provided							
Corr	Home-based	Aiming to	Not specified	(1) The home-	An occupational	The home-based At patients'	Not specified	Appropri	Not described	Not described	46/55
1995	occupational	evaluate the	Not specified	based		intervention was home	Not specified	ate	Not described	Not described	completed the
1773	therapy	influence of		intervention	the home-based			therapeuti			1 year
	combined	continued		including	intervention	home visits		c			assessment
	with usual	rehabilitative		teaching new				interventi			
	care	intervention		skills;				ons were			
		by an		facilitating more		review		carried			
		occupational		independence in		6//:		out as			
		therapist on		activities of				needed,			
		stroke		daily living;				based on			
		patients after		facilitating				the model			
		their		return of			/)/.	of human			
		discharge		function;			1///	occupatio			
		from a stroke		enabling				n			
		unit		patients to use							
				equipment							
				supplied by							
				other agencie,							
				was provided by							
				an occupational							
				therapist during							
				home visits							
				(2) Any other							
				follow up		·//hmionen hmi com/site/ahout/quideli					

				services such as day-hospital									
				attendance and									
				community									
				physiotherapy									
				were provided									
Gilberts	Domiciliary	Aiming to	Not specified	(1) Home-based	An occupational	The home	e-based	At patients'	The home-	The	Not described	Not described	(1) 64/67
on	occupational	establish if a	-	intervention	therapist provided			home	based	home-	1 (or described	1 vot described	complete
2000	therapy	brief		which was			during	1101110	intervention	based			d the 8
2000	combined	programme		tailored to	intervention	home visits	auring		was provided				weeks
	with usual	of		recovery ability		1101110 (1510)			for 6 weeks for	on was			assessme
	care	domiciliary											nt
		occupational		domestic or					lasting 30-45	d tailored			(2) 60/67
		therapy could		leisure activities	r pee				minutes	to			complete
		improve the		(2) Routine	100					recovery			d the 6
		recovery of		services						goals			months
		patients with		included						identified			assessme
		stroke		inpatient						by the			nt
		discharged		multidisciplinar) ,		patients			
		from hospital		y rehabilitation,				- 1/					
				a predischarge									
				home visit for									
				selected									
				patients, the									
				provision of									
				support services									
				and equipment,									
				regular									
				multidisciplinar									
				y review at a									
				stroke clinic,									
				and selected									
				patients referred									
				to a medical day									

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				hospital								
Goldber	Home-based,	Aiming to	A stroke	(1) Home-based	A physiatrist,	The home-based	At patients'	The home-	Not	Not described	Not described	21/27
g	case-	develop a	educational	intervention	psychologist, and	intervention was	home	based	described			completed the
1997	managed	systematic	manual with	included	recreational	provided during		intervention				1 year
	care	follow-up	associated	therapeutic	therapist provided	home visits		was provided				assessment
	combined	program for	printed	recreation,	the home-based			bimonthly for				
	with usual	stroke	materials	social work, and	intervention			hour-long				
	care	survivors and	was provided	psychology								
		their		consultation								
		caregivers		(2) Standard								
		during the		outpatient								
		first year		follow-up	/							
		after		services	b							
		discharge		included routine	MO							
		from		medical follow-	, 60	revie						
		inpatient		up visits and,		h						
		rehabilitation		when indicated,		101						
		, and to test a		outpatient								
		new model of		rehabilitation		7/6	91					
		delivery of		service			· 1//					
		health										
		services to										
		this										
		population										
Mandigo	Individualize	Aiming to	Not specified	(1) The	A therapist	The home-based	At patients'	The home-	Individua	Not described	An activity	39/42
ut	d home-	investigate		treatment	provided the	intervention was	home	based	lized		tracker was	completed the
2021	based	whether an		strategy of	home-based	provided during		intervention	coaching		used to	home-based
	coaching	individualise		home-based	intervention	home visits		was provided	program		monitor	intervention
	program	d home		intervention				through home	was		physical	
	combine with	coaching		was not				visits once	provided		activities at	
	usual care	program		specified				every 3 weeks			home	
		improved		(2) Usual care				for 6 months				
		walking		which								
1		capacity (at 6										

		ا با د									1	
		months) and		include								
		promoted		outpatient								
		long-term		therapy,								
		benefits (at		medical								
		12 months)		appointmen								
		in subacute		t								
		post-stroke										
		patients										
Ricauda	Home	Aiming to	Not specified	(1) The home-	Physiotherapists,	The home-based	At patients'	Not specified	Not	Not described	Not described	39/60
2004	hospitalizatio	evaluate		based	speech therapists,	intervention was	home		described			completed the
	n service	whether		intervention	occupational	provided during						6 months
	combined	home-treated		emphasized	therapists and	home visits						assessment
	with usual	patients have		a task- and	psychologists,							
	care	different		context-	provided the							
		mortality		oriented	home-based	4						
		rates from		approach,	intervention	C h						
		those of		which		10.						
		patients		recommend		revi						
		admitted to		ed that the) ,					
		and treated		patient			- 1/					
		on a general		perform								
		medical ward		guided,								
		(GMW), and		supervised,				1/1/				
		to evalute		and self-								
		residual		directed								
		functional		activities in								
		impairment,		a functional								
		neurological		and familiar								
		deficit,		context								
		depression,		(2) Routine								
		morbidity,		hospital								
		and		rehabilitatio								
		admission to		n service								
		long-term										
		rong-term									l	

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		facilities in										
		the two										
		groups of										
		patients										
Rudd	Early	Aiming to	Not specified	(1) Home-	Therapists	The home-based	At patients'	The home-	Individua	Not described	Not described	136/167
	discharge	assess the	- varage access	based	•	intervention was	home	based	l care plan			completed the
	with home	clinical		intervention	home-based	provided during	1101110	intervention	was			12 months
	rehabilitation	effectiveness		included	intervention	home visits		was provided				assessment
	combined	of an early		physiothera				for maximum	_			
	with usual	discharge		py,				once a day, for	patient			
	care	policy for		occupationa				up to 3 months	1			
		patients with		1 therapy								
		stroke by		and speech								
		using a		therapy								
		community-		(2) Convention								
		based		al care		F L						
		rehabilitation		included in-								
		team		patient		revie						
				treatment,		1/6) ,					
				discharge			- 11,					
				planning,								
				and				/)/				
				outpatient				1/1/				
				care								
Wong	4-week	Aiming to	Not specified	(1) TCP	A trained nurse	The home-based	At patients'	(1) Home-	Not	Not described	Not described	(1) 47/54
2015	transitional	test the		included	provided the	intervention was	home	based	described			complete
	care	effects of a		home-based	home-based	provided during		interventio				d the 4
	programme	transitional		intervention	intervention	home visits		n was				weeks
	(TCP) with	care model		consisting				provided				assessme
	home-based	with a		of				three days				nt
	intervention	specified		managemen				per week				(2) 45/54
	combined	dose of		t and				for 4 weeks				complete
	with usual	intervention		prevention				(2) The				d the 8
	care			of stroke				routine				weeks

		
recurrence;	hospital-	assessme
symptoms	based	nt
assessment	physical	
and	training	
managemen	programm	
t; enhancing	e was	
physical	offered	
function:	within the	
self-care	first 3	
abilities and	weeks after	
exercise;	hospital	
healthy		
behaviour:		
adherence	discharge	
to		
medication		
and diet;		
building		
resilience:		
connections		
with the		
self, family,		
social life		
and a		
Higher		
Being; and		
emotion		
managemen		
t		
(2) routine		
hospital-		!
based		
physical		
training		
	review only - http://bmiopen.bmi.com/site/about/guidelines.xhtml	

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				programme									
				was									
				provided									
Koç	Home-based	Aiming to	Not specified	Home-based	A nurse provided	The home	e-based	At patients'	Home-based	Not	Not described	Not described	Not described
2015	exercise	assess the		intervention	the home-based	intervention	was	home	intervention	described			
		efficiency of		including	intervention	provided	during		was provided				
		structured		stretching and		home visits			twice a week				
		home-based		flexibility					for 12 weeks,				
		exercises for		exercises,	<i>-</i>				with each				
		patients with		assistive and					treatment				
		subacute		resistive	1000				session lasting				
		ischemic		exercises,					1 hour				
		stroke in		active-assisted	r pee								
		terms of their		range of motion									
		activities of		exercises, and				5 ,					
		daily living		progressive				- 11,					
				walking									
				programme and					/				
				relaxation					1//1				
Lin	Home-based	Aiming to	Not specified	Home-based	One of four	The home-	At pati	ents' home	Home-based	Daily	Not described	Not described	9/10
2004	physical	examine the		intervention	physical	based			intervention	exercise			completed the
	therapy	effects of		mainly	therapists	intervention			was provided	program			home-based
	programme	low-intensity		consisted of	provided the	was provided			once a week for	mes were			intervention
		home-based		motor	home-based	during home			10 consecutive	tailor-			
		physical		facilitation,	intervention	visits			weeks, with	made to			
		therapy on		postural control					each treatment	the			
		the		training,					session lasting	_			
		performance		functional					about 50 to 60	individual			
		of ADL and		ambulation					minutes	needs			
		motor		training with									

		C4:		:4								
		function in		gait correction,								
		patients more		and ADL								
		than 1 year		training								
		after stroke										
Wade	Home-based		Not specified	Home-based	A	The home-	At patients' home	Home-based	Not	Not described	Not described	48/49
1992	physiotherap	determine		intervention	physiotherapist	based		intervention	described			completed the
	у	whether the		included	provided the	intervention		was provided				3 months
	intervention	home-based		exercises to	home-based	was provided		for 3 months				assessment
		intervention		improve the	intervention	during home						
l		of a		walking and		visits						
		physiotherap		balance and								
		ist improved		ADL practice	<i>h</i>							
		mobility in			/ /							
		patients seen			Ma							
		more than			· CK),_						
		one year after				/ h						
		stroke										
Walker	Home-based	Aiming to	Not specified	Home-based	An occupational	The home-	At patients' home	Home-based	Not	Not described	Not described	Not described
1996	dressing	investigate		intervention	therapist	based	10,	intervention	described			
l	practice	the intensive		involved	provided the	intervention	\'\/,	was provided				
		treatment for		teaching	home-based	was provided	1	for 3 months				
		patients with		patients and	intervention	during home		/)/				
		persistent		carers		visits		1/1/				
I		dressing		appropriate								
		problems at		techniques such								
		six months		as dressing the								
		after		affected limb								
		discharge		first, energy								
1		from hospital		conservation,								
		1		the use of red								
l				thread to								
				overcome								
				perceptual								
				difficulties and								
]	arricardes and]						

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				to mark							
				alignment of							
				buttons, and							
				advice on							
				choice of							
				clothing							
Wang	Caregiver-	Aiming to	Individualize	Home	(1) A physical	(1) The	At patients' home (1) The	A	Not described	Caregivers	25/25
2015	mediated,	examine	d training	intervention was	therapist	teaching	teaching of		Not described	was requested	completed the
2013	home-based	whether CHI	_		_	of the	the home-	zed		_	home-based
			_	designed to	prescribed					to record the	
	intervention	based on the	and simple	improve	the home-	home-	based	training		frequency of	intervention
	(CHI)	ICF	illustrations	patients' body	based	based	interventio	schedule		training and	
		conceptual	were	functions and	intervention	intervent	n was	was		tasks	
		framework	provided by	structural	and taught	ion was	provided	provided		completed	
		was effective	a physical	components; to	home-based	provided	once a	for each		each week,	
		in improving	therapist for	improve	intervention	during	week for	patient		and during the	
		the physical		patients' ability	to patients	home	12 weeks			home visits,	
		functioning	caregivers	to undertake	and their	(2) The	with each			the physical	
		of patients		everyday	caregivers	home-	session			therapist	
		with chronic		activities within	(2) Patients and	based	lasting			examined the	
		stroke		their living	their	intervent	approximat			activities	
				environments	caregivers	ion was	ely 90			practiced, the	
				using task-	performed	provided	minutes			frequency of	
				specific	the home-	by	(2) The home-			practice, and	
				restorative and	based	caregiver	based			the overall	
				compensatory	intervention	s at home	interventio			progress of	
				training			n was			the patient	
				methods; and to			encourage			during the	
				help the patients			d to be			past week.	
				reintegrate into			performed				
				the society by			at least				
				participating in			twice a				
				restorative			week and,				
				outdoor leisure			if possible,				
				activities			every day				
							ni com/sito/about/guidolinos yhtml				

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PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	2-3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	4-5
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	5
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	6
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	6
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	supplementary appendix 1 (search strategy)
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	7
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	7
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	7
)	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	7
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	8
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	8-9
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	8-9
, ,	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	8-9
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	8-9
)	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	8-9
?	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	9
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	9
Reporting bias	14	Describe any methods usefotopassess/risk of bjashdue:/domissingnessultscimassyn/thlesist/grisinglifremx/epoliting biases).	9-10



PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
assessment			
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	10
RESULTS	1		
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	10, Figure 1 (process of study selection)
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Figure 1 (process of study selection)
Study characteristics	17	Cite each included study and present its characteristics.	12-93
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	94-96
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	96-100
Results of	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	96-100
syntheses	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	96-100
3	20c	Present results of all investigations of possible causes of heterogeneity among study results.	101
))	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	101
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	101
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	96-100
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	101-102
; ;	23b	Discuss any limitations of the evidence included in the review.	101-104
,	23c	Discuss any limitations of the review processes used.	103-104
3	23d	Discuss implications of the results for practice, policy, and future research.	104
OTHER INFORMA	TION		
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	The review was not registered
3 - -	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared. For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml	A protocol was not prepared



PRISMA 2020 Checklist

3 4 5	Section and Topic	Item #	Checklist item	Location where item is reported
6		24c	Describe and explain any amendments to information provided at registration or in the protocol.	Not applicable
7	Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	103
9	Competing interests	26	Declare any competing interests of review authors.	103
11	Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	No mention

From: 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;372:n71. doi: 10.1136/bmj.n71

For more information, visit: http://www.prisma-statement.org/