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EDUCATIONAL INTERVENTIONS FOR TRAINING CAREGIVERS OF STROKE SURVIVORS: A SCOPING REVIEW

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ABSTRACT

Objective: to identify the content covered in educational interventions aimed at training family caregivers of stroke survivors.
Method: a scoping review, based on the JBI theoretical framework, registered in the Open Science Framework. A search was conducted in four databases for articles published between 2010 and 2023 in English, Portuguese and Spanish.
Results: twenty-two studies were included with pre-discharge hospital training programs, home visits, telephone/video calls and provision of an educational manual. The interventions identified involved: (a) caregiver education, with training for performing daily care and physical rehabilitation; (b) identifying priorities and problem-solving; (c) emotional support, through group support activities, active listening or psychotherapy; (d) social support, such as identifying health and community services and how to access them, strategies for obtaining help and support from family and friends. Nurse-led interventions demonstrated their important educational role. Studies using internet-based technologies are still in their infancy in the literature.
Conclusion: this review demonstrated the existence of four main topics addressed in educational interventions aimed at training family caregivers of stroke survivors.

DESCRIPTORS: Caregivers. Education. Nursing care. Stroke. Hospital to home transition.

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INTERVENÇÕES DE EDUCAÇÃO PARA CAPACITAÇÃO DE CUIDADORES DE SOBREVIVENTES DE ACIDENTE VASCULAR CEREBRAL: SCOPING REVIEW

RESUMO

Objetivo: identificar o conteúdo abordado nas intervenções de educação voltadas à capacitação dos cuidadores familiares de sobreviventes de acidente vascular cerebral.
Método: revisão de escopo, com base no referencial teórico do *Joanna Briggs Institute*, registrada na *Open Science Framework*. Realizou-se busca em quatro bases de dados, em artigos publicados entre 2010 e 2023 em inglês, português e espanhol.
Resultados: incluídos 22 estudos com programas de treinamento hospitalar pré-alta, visitas domiciliares, chamadas telefônicas/vídeo e fornecimento de manual educativo. As intervenções identificadas envolviam: (a) educação de cuidadores, com o treinamento para execução de cuidados diários e reabilitação física; (b) identificação de prioridades e resolução de problemas; (c) apoio emocional, através de atividades de apoio em grupo, escuta ativa ou psicoterapia; (d) apoio social, como identificar serviços de saúde e da comunidade e como acessá-los, estratégias para obter ajuda e apoio da família e dos amigos. Intervenções lideradas por enfermeiros evidenciaram o seu importante papel educativo. Os estudos com tecnologias baseadas na internet ainda mostram-se incipientes na literatura.
Conclusão: esta revisão demonstrou a existência de quatro principais temas abordados nas intervenções educativas voltadas à capacitação dos cuidadores familiares de sobreviventes de acidente vascular cerebral.

DESCRITORES: Cuidadores. Educação. Cuidados de enfermagem. Acidente vascular cerebral. Transição do hospital para o domicílio.

INTERVENCIONES EDUCATIVAS PARA FORMAR A CUIDADORES DE SUPERVIVIENTES DE ACV: REVISIÓN DEL ALCANCE

RESUMEN

Objetivo: identificar los contenidos cubiertos en las intervenciones educativas dirigidas a la formación de cuidadores familiares de supervivientes de un accidente cerebrovascular.
Método: revisión del alcance, basada en el marco teórico del JBI, registrado en el Open Science Framework. Se realizó una búsqueda en cuatro bases de datos de artículos publicados entre 2010 y 2023 en inglés, portugués y español.
Resultados: se incluyeron 22 estudios con programas de capacitación hospitalaria previos al alta, visitas domiciliarias, llamadas telefónicas/videollamadas y suministro de un manual educativo. Las intervenciones identificadas involucraron: (a) educación de los cuidadores, con capacitación para realizar el cuidado diario y la rehabilitación física; (b) identificar prioridades y resolver problemas; (c) apoyo emocional, a través de actividades de apoyo grupal, escucha activa o psicoterapia; (d) apoyo social, cómo identificar los servicios comunitarios y de salud y cómo acceder a ellos, estrategias para obtener ayuda y apoyo de familiares y amigos. Las intervenciones dirigidas por enfermeras resaltaron su importante papel educativo. Los estudios con tecnologías basadas en internet son aún incipientes en la literatura.
Conclusión: esta revisión demostró la existencia de cuatro temas principales abordados en las intervenciones educativas dirigidas a la formación de cuidadores familiares de supervivientes de ictus.

DESCRIPTORES: Cuidadores. Educación. Atención de enfermería. Accidente cerebrovascular. Transición del hospital al hogar.

INTRODUCTION

Stroke is the second leading cause of death in Brazil and worldwide, responsible for 102,000 and 6.6 million deaths in 2019, respectively, mainly affecting older adults[1]. Older adults who survive a stroke usually need help with self-care after discharge from hospital, and the family, in turn, is the main provider of this care. Hospital to home care transition requires planning and educational actions, since it requires not only preparation from caregivers but also physical, psychological and care skills[2–3].

A descriptive cross-sectional study conducted in southern Brazil characterized informal caregivers of dependent older adults with stroke regarding aspects related to care, and described the activities performed and the difficulties they faced. The main care activities performed were providing materials and/or support for eating, dressing, and taking care of medications. The activities that caregivers presented the greatest difficulty with were transferring and positioning, due to lack of guidance on how to perform them[4].

Different strategies have been developed in different health settings, aiming at safe transition from care offered in the hospital to that provided at home[5]. One of the strategies that have been proposed is educational intervention, which refers to the action of facilitating learning and/or acquiring knowledge, skills and habits. International studies have shown that educational interventions help reduce burden[6], which improves caregivers' quality of life (QoL)[6], and present good results in stroke survivors' functional capacity and cognitive impairment[5].

Considering the complexity and variety of components that make up these interventions, it is important to identify the most viable and effective ones so that this scientific knowledge can be applied in clinical practice, ensuring the best results for the population, healthcare professionals and managers. Thus, by seeking to identify the content covered in educational interventions aimed at training family caregivers of stroke survivors, we intended to offer support to explore new alternatives for transition of care, offer evidence that demonstrates the effectiveness of these interventions as well as the optimization of resources and better use of nurses' job tenure.

This study aimed to identify the content covered in educational interventions aimed at training family caregivers of stroke survivors.

METHOD

This is a scoping review on educational interventions aimed at training caregivers of stroke survivors, with a focus on transition of care. The study was based on the JBI[7] theoretical framework, adopting the recommendation of the protocol established by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR)[8] for writing and review. To formulate the research question, the PCC strategy was used, which stands for the acronym Population, Concept and Context. Thus, P (Population) was defined as family caregiver of stroke survivors; C (Concept) was defined as transition of care; C (Context) was defined as educational intervention programs. To this end, the following guiding question emerged: what content is addressed in educational interventions aimed at training family caregivers of stroke survivors?

Chart 1 shows the search strategy using Medical Subject Headings (MeSH) and/or Health Sciences Descriptors (DeCS), combining them with the Boolean operators AND and OR, according to the specifications of each database, and was developed with the support of a librarian. Moreover, sources from the gray literature were included, and the studies' reference lists were reviewed. The search included articles published between 2010 and 2023 in English, Portuguese and Spanish in the MEDLINE/PubMed, SciELO, Web of Science (WoS) and Cumulative Index to Nursing and Allied Health Literature (CINAHL) databases. The period of inclusion of the articles was determined by the time the authors of this review have been working on the topic in question. Inclusion criteria were defined as follows: a) experimental, quasi-experimental research designs and randomized clinical trials (RCTs) that addressed intervention programs with educational components; b) studies that targeted family caregivers and stroke survivors as intervention targets.

Studies underwent a two-stage selection process to determine inclusion or exclusion: (a) initial title and abstract review and (b) full-text analysis. Study protocols were excluded because they did not present results. The selection of included articles was performed by two independent reviewers. Disagreements presented in each of the two stages were resolved between the two reviewers, and it was not necessary to engage a third reviewer. Potentially relevant sources were retrieved in full and exported to a reference management software, Mendeley®. Duplicate articles were identified and excluded by one reviewer and checked by another reviewer. A standardized instrument was used for data extraction, developed from the adaptation of a research protocol registered in the Open Science Framework (OSF)[9]. The instrument includes design, authorship, year of publication, country, interventions applied, participants and outcomes assessed. From the description of the interventions, the contents addressed emerged and could be grouped into topics.

Review studies, based on Resolution 510 of 2016, do not require approval by a Research Ethics Committee, ensuring the integrity and authorship of the documents researched. The protocol for this research is also registered on the OSF[10].

Chart 1 – Representation of strategies and respective search formulas in databases. Porto Alegre, RS, Brazil, 2024.

Database	Search strategy
MEDLINE/PubMed	(intervention OR *intervenção*) AND (stroke OR “*acidente vascular cerebral*”) AND (skills OR preparedness OR knowledge OR *habilidades* OR *capacidade* OR *conhecimento*) AND (“informal caregivers” OR “family caregivers” OR “*cuidadores familiares*” OR “*cuidadores informais*”)
WoS	(intervention OR *intervenção*) AND (stroke OR “*acidente vascular cerebral*”) AND (skills OR preparedness OR knowledge OR *habilidades* OR *capacidade* OR *conhecimento*) AND (“informal caregivers” OR “family caregivers” OR “*cuidadores familiares*” OR “*cuidadores informais*”)
SciELO	(intervention OR *intervenção*) AND (stroke OR *acidente vascular cerebral*) AND (caregivers OR *cuidadores*)
CINAHL	(intervention OR *intervenção*) AND (stroke OR “*acidente vascular cerebral*”) AND (skills OR preparedness OR knowledge OR *habilidades* OR *capacidade* OR *conhecimento*) AND (“informal caregivers” OR “family caregivers” OR “*cuidadores familiares*” OR “*cuidadores informais*”)

RESULTS

Figure 1 shows the process of searching, excluding and selecting the studies found. From this process, 22 studies were selected that applied structured intervention programs aimed at family caregivers of stroke survivors.

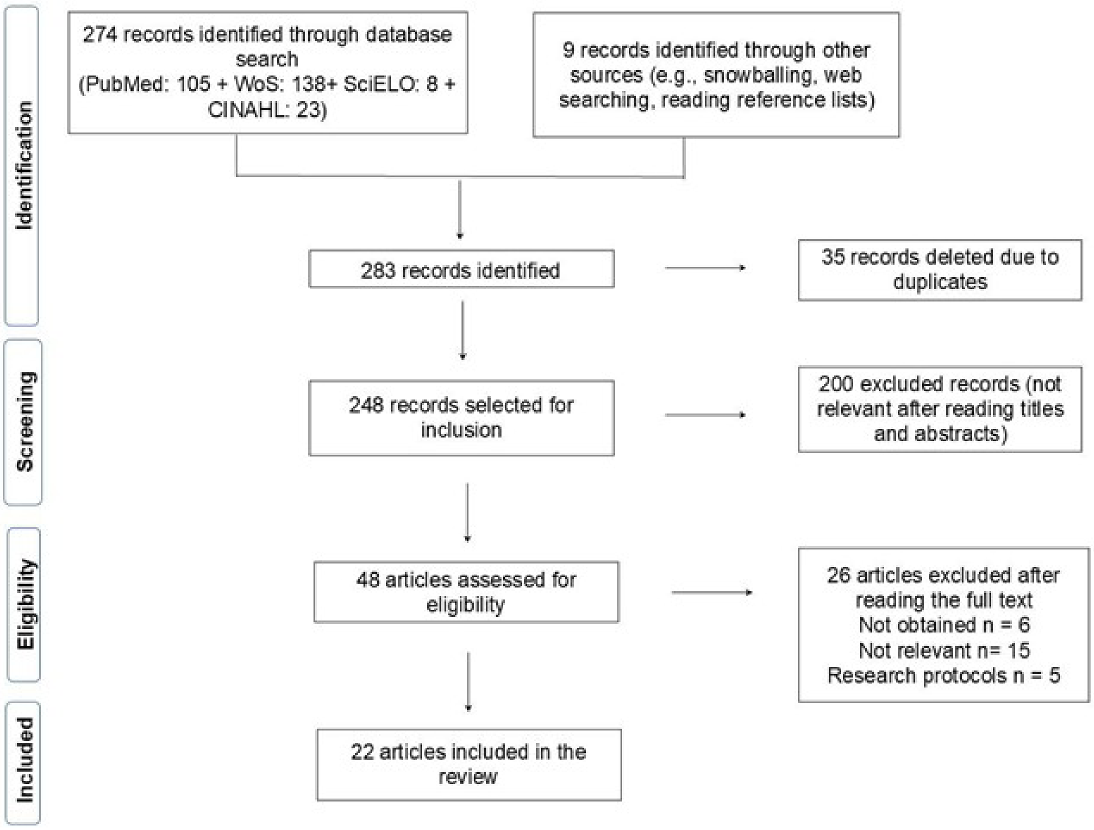

Figure 1 – Flow diagram according to PRISMA-ScR[8] guidelines, Porto Alegre, RS, Brazil, 2024.

Chart 2 presents a summary of studies identified in the review, according to the location, level of evidence, objectives, outcomes assessed, study design, participants and findings. Regarding the year of publication of studies, a greater volume of publications was observed in 2021, evidencing the recent increase in studies addressing these initiatives. There is a concentration of studies in Asia (nine publications) and America (eight publications), followed by Europe (three publications). Three publications report Brazilian studies.

Regarding design, most of these studies were RCTs (13 studies). The research sample consisted mainly of dyads of stroke survivors and their respective caregivers – and only informal caregivers. The main outcomes assessed were caregiver burden, capacity for care, caregivers' depressive symptoms and QoL, functional capacity, self-efficacy, and stroke survivors' cognitive impairment. Furthermore, it was shown that interventions with educational programs can reduce levels of depression and burden as well as prevent problems resulting from these[6,11,12]. When analyzed according to modality, interventions that combined in-person and telephone approaches[13–16] revealed positive results.

Chart 3 presents a summary of studies identified in the review, according to the intervention, duration and period of application of the intervention. Considering the baseline data of included studies, sample size ranged from 10[17] to 928 participants[18]. Study analysis, which had overload as an outcome, made it possible to identify that, regarding the duration of the interventions, those lasting less than three months did not obtain positive results[18–19].

Four main topics stood out in the content covered by educational interventions: (a) caregiver education, with training for performing daily care and physical rehabilitation; (b) identifying priorities and solving problems; (c) emotional support, through group support activities, active listening or psychotherapy; (d) social support, such as identifying health and community services and how to access them, strategies for obtaining help and support from family and friends.

Concerning the setting of the interventions, studies with mixed components (pre- and post-discharge monitoring) stand out. Nurse-led interventions were predominant.

Chart 2 – Summary of studies identified in the review according to the location, level of evidence, objectives, outcomes assessed, study design, participants and findings. Porto Alegre, RS, Brazil, 2024.

Study/country/ level of evidence*	Objectives	Conclusions	Study design/ participants	Findings
Lin *et al*. (2022)[13]/China/ 1.c	Assess the effects of a nurse-led health coaching program for stroke survivors[†] and family caregivers during the hospital to home transition.	Survivor self-efficacy and QoL[‡]; caregiver burden	RCT[§]/140 dyads (stroke survivors[†] and family caregivers)	Improved health outcomes for stroke survivors[†] and their caregivers.
Elsheikh *et al*. (2022)[20]/ Egypt/ 1.c	Assess the effectiveness of a multidimensional intervention in reducing the burden of family caregivers of stroke survivors[†].	Caregiver burden	RCT[§]/110 caregivers	Participants in the intervention group[‖] (IG) showed no improvement in the main outcomes.
Silva e Boery (2021)[11]/ Brazil/ 2.c	Analyze the effectiveness of a supportive intervention on family caregiver burden and stress and on stroke survivor[†] degree of independence.	Caregiver burden	Quasi-experimental/37 caregivers	Reduced family caregiver burden and stress.
Day *et al*. (2021)[19]/Brazil/ 1.c	Assess the effect of a home nursing intervention on the burden of family caregivers of older adults who are stroke survivors[†].	Caregiver burden and QoL[‡]	RCT[§]/48 family caregivers	Positive effect on burden in the “Isolation” domain.
Gok Ugur e Erci (2019)[6]/ Turkey/ 2.c	Determine the effect of home care and education provided to post-stroke patients[†] and their caregivers on caregiver burden and QoL[‡].	Caregiver burden and QoL[‡]	Quasi-experimental/86 dyads	Reduced caregiver burden and increased their QoL[‡].
Zhang, Zhang e Sun (2019)[5]/China/ 1.c	Assess the effect of an intensive caregiver education program in reducing cognitive impairment, anxiety, and depression in post-stroke patients[†].	Cognitive impairment, anxiety and depression in stroke survivors[†]	RCT[§]/196 stroke survivors†	Effectively reduced cognitive impairment, anxiety and depression.
Araújo (2018)[12]/Portugal/2.c	Assess whether training in practical skills in caregiving reduces burden and improves the general health status of informal caregivers of older adults who have survived stroke[†.]	Caregiver empowerment and burden	Quasi-experimental/174 informal caregivers	Better outcomes in caregiving skills and lower levels of burden.

Chart 2 – Cont.

Study/country/ level of evidence*	**Objectives**	**Conclusions**	**Study design/ participants**	**Findings**
Bakas *et al*. (2015)[21]/USA/ 1.c	Assess the effectiveness of the Telephone Assessment and Skill-Building Kit (TASK II), a nurse-led intervention that enables caregivers to build skills based on their own needs assessment.	Depressive symptoms, life changes, and unhealthy caregiver days	RCT[§]/254 caregivers	Reduced depressive symptoms and improved life changes for caregivers with severe depressive symptoms.
Pfeiffer *et al*. (2014)[14]/ Germany/ 1.c	Examine the effectiveness of a Problem-Solving Intervention (PSI) for caregivers of stroke survivors† who have been providing care for at least six months and are experiencing burden.	Depressive symptoms and caregiver empowerment	RCT[§]/122 family caregivers	The PSI group showed lower levels of depressive symptoms, but not better perceived competence for caregiving.
Foster *et al*. (2013)[18]/ England/1.c	Investigate the physical and psychological outcomes and cost-effectiveness of the London Stroke Carers Training Course (LSCTC) for caregivers for stroke patients[†] and caregivers.	Caregiver burden and stroke survivor functioning[†]	RCT[§]/928 dyads	No differences were evident between IG[‖] and control group (CG)[¶].
Kim *et al*. (2012)[15]/South Korea/ 2.c	Develop and assess the effectiveness of a hospital-based group intervention program and individual home-based telecare to reduce burden for family caregivers of stroke patients[†].	Caregiver burden	Quasi-experimental/73 family caregivers	The intervention was cost-effective and reduced family caregiver burden.
Perrin *et al*. (2010)[16]/USA/ 1.c	Develop and implement the Transition Assistance Program (TAP) for caregivers of people with stroke[†].	Caregiver burden and depression	RCT[§]/61 dyads	It reduced caregiver burden and depression and improved stroke survivors' functional capacity[†].
Shyu *et al*. (2010)[22]/Taiwan/ 1.c	Explore the long-term effects of a discharge preparation program for family caregivers of older stroke patients[†].	Caregiver empowerment	Experimental/158 dyads	The intervention improved the quality of care provided by caregivers and decreased the likelihood of survivors' institutionalization.

Chart 2 – Cont.

Study/country/ level of evidence*	Objectives	Conclusions	Study design/ participants	Findings
Mou, Lam, Chian (2023)[23]/ China/ 1.c	Examine the effects of family-focused dyadic psychoeducational intervention (FDPEI).	Stroke survivor functioning; caregiver burden and competence	RCT[§]/162 dyads	Significant reduction in burden and improvement in competence to care. Non-significant effects on stroke survivor functioning[†].
Bierhals *et al*. (2023)[24]/ Brazil/ 1.c	Assess the effect of home-based nursing educational intervention on the QoL[‡] of family caregivers of older adults who survived[†].	Caregivers' and survivors' QoL[‡]	RCT[§]/48 family caregivers	Statistically significant effect on family caregivers' QoL[‡] in social relationships and autonomy, but not on overall QoL[‡].
Eames (2013)[25]/Australia/ 1.c	Assess the effects of an educational package stroke patients'[†] and caregivers' knowledge, health, and psychosocial outcomes.	Knowledge, self-efficacy, anxiety, depression, satisfaction with information and caregiver burden; patient QoL[‡]	RCT[§]/138 participants (stroke survivors[†] and caregivers)	IG[‖] had greater self-efficacy to access information about stroke[†] and satisfaction with the information.
Lelaurin (2021)[26]/USA/ 1.c	Assess the feasibility and acceptability of internet-based and telephone-based support and problem-solving intervention – The Resources and Education for Stroke Caregivers' Understanding and Empowerment (RESCUE) – for caregivers of stroke survivors[†].	Recruitment, retention, acceptability, depressive symptoms and caregiver burden	RCT[§]/pilot study/53 caregivers	The results indicated that the intervention is feasible and acceptable to caregivers.
Mclennon (2016)[27]/USA/ 1.c	Compare treatment fidelity between the TASK II and Information, Support, and Referral (ISR) intervention arms.	Adherence to the protocol, intervention dosage, interventionist nurse perspectives	RCT[§]/254 caregivers of people with stroke[†]	The findings support treatment fidelity in both arms of the study.
Pitthayapong (2017)[28]/ Thailand/ 2.c	Assess the effectiveness of a post-stroke care program[†] within the community setting.	Caregiver care skills, functional capacity and health complications of stroke survivors[†]	Quasi-experimental/62 dyads	Improved family caregivers' caregiving skills, improved functional status, and decreased complications among post-stroke patients[†].

Chart 2 – Cont.

Study/country/ level of evidence*	Objectives	Conclusions	Study design/ participants	Findings
Azizi (2020)[29]/Iran/ 2.c	Assess the effectiveness of an informational support intervention on the level of anxiety of family caregivers of hemiplegic stroke patients[†].	Caregiver anxiety status and traits	Quasi-experimental/78 family caregivers	Reduced state anxiety in family caregivers of stroke patients[†].
Sánchez (2021)[17]/Peru/ 2.d	Assess the effect of educational videos to improve the practical skills and knowledge of informal caregivers of stroke patients[†].	Caregiver skills, knowledge and satisfaction	Pre- and post-test/10 caregivers	Improved caregivers' practical skills and knowledge.
Cheng (2018)[30]/Hong Kong/ 1.c	Assess the effectiveness of a caregiver-oriented psychoeducational program.	Caregiving competence, problem-solving ability, depressive symptoms, burden on family functioning, social support and physical health of caregivers	RCT[§]/128 dyads	Incorporating a psychoeducational program can promote a healthy care transition between family members and stroke survivors[†].

*According to the JBI[7] framework; [†]stroke; [‡]quality of life; [§]randomized clinical trial; [||]intervention group; [¶]control group.

Chart 3 – Summary of studies identified in the review according to the intervention, duration and period of application of the intervention. Porto Alegre, RS, Brazil, 2024.

Study	Control	Intervention	Duration/period
Lin *et al*. (2022)[13]	Usual discharge plan (health education before discharge and 2 follow-up phone calls after discharge).	Nurse-led coaching program with 2 stages: 1st pre-discharge coaching sessions with 6 components: 1) goal setting for care transition; 2) enhancing and improving self-care skills; 3) home environment modification; 4) functionality improvement; 5) medication management; (6) management and prevention of adverse events resulting from stroke; 2nd stage was a 12-week follow-up, with weekly calls and biweekly in-person meetings.	12 weeks/ pre and post-discharge
Elsheikh *et al*. (2022)[20]	Simple educational instructions in a single home visit.	Nurse-led intervention that considered caregivers' perceived needs in 3 evidence-based dimensions: psychoeducation; skill development; and peer support. The IG received 3 home visits, 6 phone calls, and 1 peer support session so that caregivers could exchange experiences.	6 months/post-discharge
Silva e Boery (2021)[11]	Routine care at health facilities. They did not receive care from any professional who participated in the intervention.	Intervention carried out by a multidisciplinary team in 2 components: individual, with psychotherapy for caregivers; and group, through thematic discussion circles, with the aim of offering guidance and training on care to be performed at home, with monthly 2-hour sessions for 8 months.	8 months/post-discharge
Day *et al*. (2021)[19]	The CG was instructed to maintain their usual health monitoring in public and/or private healthcare services and did not receive any intervention.	Educational intervention for family caregivers of older adults after stroke through nursing monitoring, through 3 home visits within a month after hospital discharge. The intervention consisted of preparing caregivers to perform older adults' daily activities, providing emotional support and guidance on the use of healthcare services.	1 month/post-discharge
Gok Ugur e Erci (2019)[6]	No nursing intervention was performed in the CG. However, they used home care services when needed.	Home care provided by nurses and caregiver education. Each patient in the intervention group received 5 home visits, every 15 days, for approximately 40 minutes, during which nursing care was offered, based on activities of daily living, while caregivers received training. At the end of each session, an additional 30 minutes was dedicated to caregivers for conversation and support.	10 weeks/post-discharge

Chart 3 – Cont.

Study	Control	Intervention	Duration/period
Zhang, Zhang e Sun (2019)[5]	Caregivers received educational materials and guidance in 2 instruction sessions during hospitalization, provided by a nurse. After discharge, they were followed up by telephone calls every 3 months, and when a nurse asked about a patient's condition, they provided guidance.	The intervention consisted of 2 phases: in-hospital phase, when nurses delivered educational sessions in person once a week for 1 hour; and phase beginning 7 days after discharge, when caregivers were invited to the hospital every 2 weeks to receive individualized educational sessions lasting 90 minutes, also delivered by nurses. After each session, both in the hospitalization phase and in the post-hospital phase, an additional 30 minutes were allocated for emotional support as well as to help build confidence and solve problems and difficulties.	12 months/ pre- and post-discharge
Araújo (2018)[11]	Routine activities of community health units that included home visits according to caregivers' and patients' neeeds.	The intervention consisted of training caregivers in mobilization, bathing, transfer, positioning, and feeding techniques, provided at the patients' home by a multidisciplinary team from community health units during 3 home visits: one week, one month, and three months after hospital discharge. They also received support from these professionals via telephone contact at 3,6,8, and 10 weeks after discharge. The study was nurse-led.	3 months/post-discharge
Bakas *et al.* (2015)[21]	The ISR CG received a pamphlet from the American Heart Association and 8 weekly calls from a nurse, and a reinforcement call in the 12th week to provide support through active listening.	In the TASK II intervention, initiated 8 weeks after discharge, in addition to the American Heart Association pamphlet, a guide was provided that included the main caregivers' needs (information about stroke, providing physical and instrumental care, identifying depressive symptoms, and managing stress). This group also received 8 weekly calls from a nurse with a reinforcement call at week 12. The calls focused on training them to identify and prioritize their needs, locate the corresponding tip in the guide provided, and use skill-building strategies.	12 weeks/post-discharge
Pfeiffer *et al.* (2014)[14]	The CG received monthly informational letters in addition to usual care.	The intervention was developed by psychologists and consisted of 2 home visits of a maximum of 150 minutes and 18 telephone calls limited to 60 minutes each, over a 3-month intensive intervention and a 9-month maintenance period. The intervention was based on a problem-solving model. The intervention group also received monthly information letters.	9 months/post-discharge
Foster *et al.* (2013)[18]	The CG received usual care according to national stroke protocols.	The intervention was carried out by multidisciplinary teams, and consisted of teaching care techniques and skills to prevent disease worsening, positioning, mobility, transfer, and care for elimination and feeding. The sessions lasted 30 to 45 minutes, and took place between 3 and 5 times in the hospital, and were complemented by a follow-up session after discharge.	Not informed/ pre- and post-discharge

Chart 3 – Cont.

Study	Control	Intervention	Duration/period
Kim *et al.* (2012)[15]	Before hospital discharge, caregivers received group educational lectures given by nurses, who used PowerPoint® for the presentation prepared by the researchers.	Before hospital discharge, caregivers in the intervention group received group educational lectures delivered by nurses using PowerPoint®. After discharge, individual telecare intervention was offered for 3 months (twice a week during the first month after discharge, once during the second month, and twice a week during the third month). The approach consisted of identifying the family's needs, providing information or re-education, and emotional and social support.	3 months/ pre- and post-discharge
Perrin *et al.* (2010)[16]	The CG received usual care (no description).	The intervention, consisting of 3 components (skills development, education and problem-solving support), was developed by a multidisciplinary team and started shortly before hospital discharge, including an in-person meeting with caregivers before discharge, in addition to 4 video calls in the 1st, 2nd, 4th and 6th week after discharge.	6 weeks/pre- and post-discharge
Shyu *et al.* (2010)[22]	Inconsistently, the CG had their discharge needs met within 48 hours of hospital admission, and there was no description of other care.	The intervention, consisting of 3 components (skills development, education and problem-solving support), was developed by a multidisciplinary team and started shortly before hospital discharge, including an in-person meeting with caregivers before discharge, in addition to 4 video calls in the 1st, 2nd, 4th and 6th week after discharge.	Admission up to one month after discharge/ pre- and post-discharge
Mou, Lam, Chian (2023)[23]	Usual care focused on treatments and care provided by physicians, nurses, and rehabilitation services. This group received 1 or 2 health education sessions on lifestyle management provided by nurses or other healthcare professionals.	The program was delivered by a nurse with experience in stroke. Part I aimed to prepare for transition from hospital to home. It included 3 sessions: session 1 – "understanding stroke"; session 2 – "adaptation to care and self-care in daily life"; session 3 – "psychological care". The sessions took place within 1 week prior to hospital discharge, and lasted 60 minutes each. Part II focused on encouraging dyads to identify distress or difficulties post-stroke and motivate them to deal with these difficulties, providing post-discharge counseling, with 4 weekly phone calls, each lasting 30 minutes. An informational booklet, including the educational content of part I, was used as reference material for the dyads.	3 months/ pre- and post-discharge

Chart 3 – Cont.

Study	**Control**	**Intervention**	**Duration/period**
Bierhals *et al.* (2023)[24]	They received usual care from the multidisciplinary team and were monitored by the healthcare service network, which normally includes general information about the disease and aspects inherent to care, such as medication administration and nutrition.	The intervention group received usual care and the intervention, which included 3 home visits by two trained nurses, approximately 14,21, and 30 days after discharge. Nurses engaged in a dialogic process with caregivers, encouraging reflective thinking. Caregivers were asked about their feelings, concerns, and available resources to provide care. Nurses adapted their explanations about how care could best be provided at home.	1 month/post-discharge
Eames (2013)[25]	Standard stroke unit care (medical, nursing assessment) which includes verbal education and counselling.	Occupational therapist-delivered intervention consisting of: (1) a personalized, computer-generated information booklet, with participants choosing topics from a list of 34 items and the desired level of detail in the information; (2) verbal reinforcement of information up to three times before discharge in in-person sessions; (3) monthly telephone contact for 3 months. The calls aimed to assess knowledge, explore barriers and ways to overcome them, and correct misinformation. A telephone number was provided so that participants could call if they had questions.	3 months/ pre- and post-discharge
Lelaurin (2021)[26]	Participants in the “standard” CG received no intervention but had access to existing resources.	Two-arm intervention delivered by nurses. The intervention is based on the RESCUE website, which includes the following sections: (1) information sheets for caregivers; (2) list of additional resources; (3) self-management; (4) glossary of stroke-related terms; (5) statements; (6) training module; and (7) problem-solving diary. The intervention was delivered by telephone in 4 or 8 weekly sessions lasting 30–60 minutes each, tailored to the specific problems of each caregiver. In the “care” group, nurses encouraged caregivers to discuss caregiving experiences. Sessions lasted 20–30 minutes.	8 weeks/post-discharge
Mclennon (2016)[27]	Received the standard American Heart Association handout with activity and skill development guidelines for family caregivers.	TASK II was the resource guide. After discharge, caregivers received 1 phone call per week for 8 weeks from nurses. A follow-up call was made at week 12. The calls were recorded for self-assessment and comparison. Moreover, caregivers received a pamphlet from the American Heart Association. During the calls, patients’ care needs were assessed and caregiver training was provided.	12 weeks/post-discharge

Chart 3 – Cont.

Study	Control	Intervention	Duration/period
Pitthayapong (2017)[28]	Routine care provided by health centers. A nurse visited patients at least once in the first month after discharge and assessed their health status and provided suggestions for improvement.	The intervention, carried out by nurses, consisted of sessions aimed at increasing caregivers' behavioral skills based on information and motivation. It was divided as follows: week 1 – post-stroke information (duration of 5 days, 2 hours per day); weeks 2 and 3 – review of all previous topics and feedback from family members on the skills learned (2 hours); week 4 – home visit to assess the intervention; week 8 – home visit to encourage and guide.	8 weeks/post-discharge
Azizi (2020)[29]	The CG received routine care and support (no description).	The intervention was carried out by a nurse. Caregivers received 2-hour training sessions using an expository method and a group question-and-answer session on alternate days until the 9th day of hospitalization. They also had two bedside patient support sessions lasting up to 1 hour.	10 days/pre-discharge
Sánchez (2021)[17]	There is no CG.	The intervention was carried out through 8 educational videos on topics such as positioning, mobilization and transfers, implemented in 3 stages. On the 1st and 2nd days, caregivers were asked to watch 3 videos, and on the 3rd day, 2 videos. Professionals were physiotherapists, geriatricians, neurologists and communicators.	3 days/post-discharge
Cheng (2018)[30]	Routine care provided by rehabilitation services and information leaflets about stroke provided by nurses.	The intervention carried out by a multidisciplinary team offered an educational program for 26 weeks (2 pre-discharge in-person sessions of 45 minutes and 6 biweekly sessions of 30 minutes by telephone after discharge). A book was provided to caregivers.	26 weeks/ pre- and post-discharge

DISCUSSION

Different content was identified for the education of caregivers of stroke survivors. The interventions involved: a) caregiver education, with training for daily care and physical rehabilitation; b) identification of priorities and problem-solving; c) emotional support, through group support activities, active listening or psychotherapy; d) social support, such as identifying health and community services and how to access them, strategies for obtaining help and support from family and friends. Family caregivers are primarily responsible for caring for patients after hospital discharge, involving numerous tasks, such as practical, emotional, financial and social support. Educational interventions that address these different topics are necessary and are in line with what is recommended in the literature[4,31–32].

The interventions assessed took place in different modalities, such as HV, bedside visits, telephone calls, video calls, educational videos, provision of written materials, through group or individual activities. The use of internet-based technologies is incipient[27,30], and studies that used these technologies were published after 2021. During this period, due to the COVID-19 pandemic, many care and research strategies in virtual environments were intensified[33].

Regarding the setting of interventions, studies with pre- and post-discharge monitoring stood out. It is known that for home care to be carried out in a way that meets the needs of an older adult with stroke and reduces the impacts on caregivers, it must begin to be prepared and planned before hospital discharge[23,28].

As for the outcomes identified in the studies assessed, a systematic review published in 2018 indicated a scarcity of Brazilian studies on the development and application of interventions aimed at caregivers of stroke survivors, mainly focusing on reducing the burden of care[34]. In this review, it was found that in the last three years this topic has been the target of research at the national level, in line with a concern already existing in the international scenariol[2].

In relation to caregiver training, the data from this review suggest that the effectiveness of implementing educational intervention programs should last at least three months and involve caregiver skills training[12,22].

The emphasis on the role of nurses in conducting the assessed interventions is supported by the literature[35–36]. The heterogeneity in the approach and in the ways in which interventions were applied, analyzing different outcomes, reinforces the importance of assessing the effectiveness of educational actions beyond how well the intervention works, but in which scenarios and under which circumstances the results are achieved[2,37].

As limitations of this review, it is worth noting that the studies presented a variety of types and characteristics of interventions that may affect the reliability of reported results. Furthermore, in some studies, the description of the interventions does not allow a complete understanding of what was actually accomplished: even in cases where the intervention is well characterized, the means used for its implementation varied considerably. There was also the limitation of not including some databases. Combining studies in a meta-analysis can provide robust evidence on the best educational interventions aimed at this population.

In addition to research, this study has practical application, since it lists information that can support nurses and other professionals in assisting older adults and their family caregivers as well as supporting the construction of curricula in undergraduate and graduate courses aimed at training to care for this population.

The findings also demonstrate the need for further studies on the subject so that the gaps identified, such as the lack of robust research in the national scenario, can be filled. Identifying the best educational strategies can help managers and professionals in formulating programs and public policies that benefit users and their families.

CONCLUSION

This review demonstrated the existence of four main topics addressed in educational interventions aimed at training family caregivers of stroke survivors. The data suggest that the effectiveness of implementing educational intervention programs should include mixed approaches and encompass the pre- and post-hospital discharge periods. Regarding the duration of the interventions, those lasting less than three months did not obtain positive results in relation to the caregiver burden outcome. Nurses' leadership in conducting the interventions was highlighted as well as the incipience of research strategies in virtual environments.

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