Effectiveness of psychoeducational intervention in people after stroke. Systematic review protocol

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Abstract

Background: Stroke is a public health problem, and the care of post-stroke people is a concern for families and their care. In this sense, psychoeducational intervention plays an important role in promoting health by empowering and guiding people with strokes and their carers.

Objective: to evaluate the effectiveness of psychoeducational interventions in people after stroke and to synthesise the best evidence on the subject.

Methods: systematic review with meta-analysis. The studies will be evaluated considering the descriptors and keywords (People after stroke, effectiveness studies, psychoeducational intervention, and improvement of quality of life) based on the following starting question: What is the effectiveness of psychoeducational interventions for the promotion of self-care of the person after stroke? The search strategy will use controlled terms MesH (Medical Subject Headings) and uncontrolled (Natural Language) and the selection of studies will be made talking into account the inclusion and exclusion criteria using the Cochrane methodology and the time limit the years 2017 to 2023 in the following databases: Medline, PubMed, Scopus, CINAHL Complete.

Results: Some psychoeducational interventions in post-stroke people in the intervention group have been shown to be effective and significant compared to the control group. Many studies support the inclusion of training programmes. The expected results are the identification and evaluation of psychoeducational interventions with effectiveness in training the person after stroke.

Conclusions: It is expected that studies of effectiveness with psychoeducational interventions, show results that can contribute to improve functional, motor, and cognitive performance as well as quality of life in people after stroke. Clinical Trial: CDR42023483087

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Title: Effectiveness of psychoeducational intervention in people after stroke. Systematic review protocol

Título: Efetividade de intervenção psicoeducativa em pessoas Pós-Acidente Vascular Cerebral. Protocolo de revisão sistemática

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Abstract:

Aim: Stroke is a public health problem, and the care of post-stroke people is a concern for families and their care. In this sense, psychoeducational intervention plays an important role in promoting health by empowering and guiding people with strokes and their carers.

Objectives: to evaluate the effectiveness of psychoeducational interventions in people after stroke and to synthesise the best evidence on the subject.

Methodology: systematic review with meta-analysis. The studies will be evaluated considering the descriptors and keywords (People after stroke, effectiveness studies, psychoeducational intervention, and improvement of quality of life) based on the following starting question: What is the effectiveness of psychoeducational interventions for the promotion of self-care of the person after stroke? The search strategy will use controlled terms MesH (Medical Subject Headings) and uncontrolled (Natural Language) and the selection of studies will be made talking into account the inclusion and exclusion criteria using the Cochrane methodology and the time limit the years 2017 to 2023 in the following databases: Medline, PubMed, Scopus, CINAHL Complete.

Expected Results: Some psychoeducational interventions in post-stroke people in the intervention group have been shown to be effective and significant compared to the control group. Many studies support the inclusion of training programmes. The expected results are the identification and evaluation of psychoeducational interventions with effectiveness in training the person after stroke.

Conclusions: It is expected that studies of effectiveness with psychoeducational interventions, show results that can contribute to improve functional, motor, and cognitive performance as well as quality of life in people after stroke.

Study protocol registration: CDR42023483087

Key words: People after stroke, effectiveness studies, psychoeducational intervention.

Introduction

Psychoeducational intervention plays an important role in disease prevention and health promotion, providing psychotherapeutic skills to people and families after stroke, thus producing immediate and long-term repercussions in the lives of patients[1].The empowerment of the patient and the family is fundamental for the realisation of self-care and this task is inherent to nursing[2].The person with stroke has a high risk of death and sequelae as well as disabilities 85% of strokes that occur are

ischaemic, constituting a public health problem given the enormous cost in treatment mainly in developing countries due to exposure to lifestyle factors[3,4]. Stroke remains the most devastating neurological disorder, killing an estimated 5.7 million people. Some population-based studies have revealed crude prevalence rates for stroke survivors ranging from 15/100 000 in Ethiopia to 963/100 000 in Egypt and 1 460/100 000 in the Niger Delta region of Nigeria. A study carried out in Angola revealed a prevalence of stroke of 0.4. According to data from the Global Burden of Disease 1990 to 2019, stroke is an important factor in morbidity and mortality and one of the main causes of years of life lost and disability in the country. Another study revealed a high prevalence of strokes in relatively young individuals (< 50 years) and hypertension was the most frequent risk factor [5]. The Psychoeducational model in health began in 1979, involving the paradigm of the complexity of the human being, this requires interdisciplinarity and theories that can interrelate to understand the phenomena of the care of the individual[6]. Psychoeducational intervention is a therapeutic intervention with systematic, structured and purely didactic knowledge about a particular condition in which people seek health and can be used to teach and educate patients and family members in every context, given the disability and complications resulting from stroke[7]. Given that it increasingly affects young people, there is an urgent need for interventions to help minimise the suffering of individuals and their families[8]. Studies with 1769 stroke survivors and 1,578 family carers using the PICO methodology have shown that guided psychoeducational interventions can be effective in improving the condition and functional independence of stroke survivors for a short period and in the long term[9,10]. Nursing care calls for the need for continuous psychoeducational interventions in post-stroke people and advocates the administration of programmes aimed at alleviating psychological distress and improving coping patterns; stroke sufferers exposed to a psychoeducational intervention programme showed a reduction in psychological distress when compared to those with no intervention[11]. Intervention models should be developed to provide social support to post-stroke patients and psychological interventions should be developed to increase empowerment in the rehabilitation phase[12]. A study conducted in Florida with 550 post-stroke participants recommended the need for interventions[13]. Thus, in our view, there is a need to carry out psychoeducational intervention studies if we consider the number of people affected by stroke in the global context and even worse in Africa and Angola in particular. This RSL protocol we intend to evaluate the effectiveness of psychoeducational interventions in people after stroke carried out in the years 2017 to 2023 and to synthesise the best evidence on the effectiveness of psychoeducational interventions.

2. Materials and Methods

2.1 Type of Study

The study will be carried out using the Cochrane methodology to guarantee methodological rigour as a tool for RSL with meta-analysis. The meta-analysis aims to use statistical actions and methods to estimate the effect of interventions talking into account the PICO strategy, on which the eligibility of the study to be carried out[14] on psychoeducational interventions in people after stroke is based. To answer the research question: What is the effectiveness of psychoeducational interventions for the promotion of self-care of the person after stroke? A systematic review follows the Cochrane protocol[15].Taking as assumptions the title, objectives, inclusion and exclusion criteria, methodology and results/outcome obtained. It is expected that strong evidence will be found in the literature to formulate recommendations and develop programmes or guidelines that contribute to the improvement of care for people after stroke, both in the clinical context and in the community. PRISMA-P was used for structures do protocol.

2.2 Criteria for Eligibility

Inclusion Criteria

This systematic review will include articles published on the subject in English and Portuguese from 2017 to 2023 in databases such as PubMed, Scopus, CINAHL Complete EBSCOhost WEB and whose search will be done through the PICO strategy (Population, Intervention/interest or control exposure, or comparator and results/outcome) by means of Cochrane Collaboration reviews[15].These articles should include in their methodology variables such as: age (individuals aged 18-65 years and older people), sex (male and .female), profession, clinical variables such as type of stroke, we can select ischaemic with clinical and imaging diagnosis, duration of the event. Studies that include psycho-educational interventions focused on promoting self-care, recovery and prevention of further complications after stroke, taking into account the following interventions: education about stroke and its complications, training for self-care, cognitive skills, psychological counselling, training to develop communication skills, education of family and/or caregivers, resumption of activities of daily living, adoption of a healthy lifestyle, promotion of a safe environment to share life experiences and provision of support for as long as necessary. Studies that do not present these characteristics may be excluded see table 1 below:

Table 1. Eligibility Criteria, Lisbon, 2023

	Inclusion criteria	Exclusion criteria
P	psychoeducational intervention in post-stroke patients aged 18-65 years and elderly diagnosed with ischaemic stroke conducted in the period 2017-	Children, adolescents, and older people.

	2023.	
I	Psychoeducational Intervention in Post-Stroke Patients.	Lack/absence of issues related to Psychoeducational intervention in Post Stroke Patients.
C	Studies/articles that have involved participants with intervention and control groups in their research. We may favour those with psychoeducational interventions to a group of post-stroke people and controls those who received usual care.	Studies that do not involve control group participants in their research.
O	Studies that have shown that psychoeducational intervention after short and long periods improved cognitive and functional ability in post-stroke people in the intervention group compared to controls. It is inserted, onset and time of occurrence of the event, start of the intervention, cognitive and functional capacity, results, and scales applied such as the Barthel Index.	Studies that have not included intervention and control groups in psychoeducational sessions in people after stroke.
Type of studies	1-Systematic reviews of the effectiveness literature, using Cochrane methodology and should include only Non-Randomised Studies of Interventions (NRSI) or Quasi-Experimental studies.	Systematic literature reviews that have not used Cochrane methodology. For exemple JBI.

Typology of studies

Systematic review with meta-analysis will be used to obtain information on the effectiveness of psychoeducational programme intervention in post-stroke patients, its operation, outcomes, and

limitations of these studies in populations and may include randomised controlled trials and observational surveys.

2.3 Search strategy

The search strategy will be done in the databases using descriptors and Boolean operators such as AND, NOT and OR using English keywords such as: intervention, psychoeducation, and post-stroke, through natural language and through controlled and uncontrolled terms DeCS (Health Sciences Descriptors) and MeSH (Medical Subject Headings) as quality assurance in the databases Scopus, PubMed, EBSCOhost, CINAHL Complete and bEBSCOhost WEB. Registration will be done in PROSPERO (Preferred, Reporting Items for Systematic Reviews and Meta-analyses-www.crd.york.ac) and by 2 independent reviewers. The search strategy was adopted according to the respective databases limited to the last seven years and in English and Portuguese (Table 2).

Table 2. Research strategy Lisbon, 2023

	Research strategy	Number of articles	Database
#1	Stroke AND effectiveness OR psychoeducational AND stroke AND intervention AND (LIMIT-TO (PUBYEAR , 2023) OR LIMIT-TO (PUBYEAR , 2022) OR LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017)) AND (LIMIT-TO (SUBJAREA , "NURS")) AND (LIMIT-TO (EXACTKEYWORD , "Female") OR LIMIT-TO (EXACTKEYWORD , "Male") OR LIMIT-TO (EXACTKEYWORD , "Adult") OR LIMIT-TO (EXACTKEYWORD , "Controlled Study")) AND (LIMIT-TO (LANGUAGE ,	2,425	Scopus

	"English") OR LIMIT-TO (LANGUAGE , "Portuguese"))		
#2	Search: Stroke AND Effectiveness OR psychoeducational AND Stroke intervention Filters: Abstract, Free full text, Full text, Clinical Trial, Randomized Controlled Trial, in the last 5 years	2.405	PUBMED
# 3	Stroke AND Effectiveness OR Stroke AND psychoeducational intervention Search modes - Boolean/PhraseS10 Stroke AND Effectiveness OR Stroke AND psychoeducational intervention Search modes - Boolean/Phrase	460	CINAHL Complete
#1 #2 #3		5.290	

2.4. Selective process

Two selected reviewers will be able to independently extract and select and code the data. To ensure greater reliability of the data, a third reviewer may mediate any conflicts and discrepancies in data selection[16,17]. The results of the study will be entered into the Rayyan® Platform, thus allowing ease and collaboration between the three reviewers in the study selection process. All titles and abstracts obtained in the search will be analysed considering the inclusion criteria defined to assess the eligibility of the studies. Studies considered relevant will be selected for reading and subsequently included in the review. Reasons for exclusion of studies will be justified and documented, studies that meet the inclusion criteria will be extracted and coded by two reviewers independently using a previously developed and agreed peer-reviewed form. The data extraction form will include the following variables:

- ✓ Study design, title authors name date of publication, parents, sample size, source of funding.
- ✓ Population characteristics (number of participants, mean age and sex).

- ✓ Sampling method, instruments, and randomization methods.
- ✓ Intervention characteristics (type and period of intervention).
- ✓ Outcome.

Assessment of the methodological quality of studies

In non-randomised studies, researchers control the allocation of participants without adopting randomisation with or without comparison[18]. This can be done using ROBINS-I (Risk of Bias in Non-Randomised Studies of Interventions)[19]. A critical appraisal tool on effectiveness will be developed using the Cochrane methodology for evidence synthesis, considering the established items/Standards (Yes, No and Unclear) to ensure a higher degree of reliability.

2.5. Assessment of Methodological Quality and Risk of Bias

Two reviewers may perform the quality assessment of the studies included in this protocol. A third reviewer will be able to dispel any discrepancies/ and or doubts that may arise. To ensure the principle of integrity, if reviewers are co-authors of some of the studies, they will not be able to assess the risk of bias of this research. The assessment of risk of bias may consider the possible sources of bias and can only be considered low risk of bias if all criteria are met. A moderate risk of bias can only be observed if one or more criteria are partially met, high risk of bias when one or more criteria are not met. If there is not enough information to assess the study for risk of bias, it may be considered unclear, the assessment can be done by applying the Risk of Bias Assessment Cochrane tool[17]

2.6. Data extraction

The review should be focused on articles that reflect the risk factors of the disease, age, gender, socio-economic status of the users, educational level, the cultural and geographical context in which it is inserted, onset and time of occurrence of the event, start of the intervention, cognitive and functional capacity, results and scales applied such as the Barthel Index, for example, before and after the Intervention, MOCA, WHO Quality of Life Assessment Scale, duration of the intervention and statistical results of the intervention in different groups (Intervention and Controls), the data may be extracted independently by two individuals and will then be verified by two supervisors who are members of the study taking into account the consistency of the data, type of intervention and its results obtained.

2.7. Data synthesis

The synthesis of the information of this study protocol will consider the characteristics and results selected and included and will be presented in a table and completed in a descriptive and narrative summary thus evaluating the study method and its results. If there are enough RCTs, we can perform

a meta-analysis, data synthesis can be performed using Review Manager® software version 5.3. If it is not possible to perform a meta-analysis, the results can be presented in descriptive form. The GRADE framework will be used to assess the strength of the body of evidence. The results of the systematic review may be presented according to the Prisma-P flowchart[16].will be made taking into account the difference in mean scores of the intervention and controls, the 95% confidence interval, the statistical significance between the groups, the variations of the findings in the subgroups (Control and Intervention) e.g. assessment of anxiety, depression and post-traumatic stress levels, that have used reliable scales and measurement instruments, as well as the psychoeducational programme used and the results obtained after the application in the short and long term, thus giving greater quality assurance in the study.

Expected Results

The expected results are the identification and evaluation of psychoeducational interventions that are effective in training people after stroke. Psychoeducational interventions can promote post-stroke adaptation mechanisms after a traumatic and impacting event such as stroke.

Discussion

Stroke is one of the leading causes of death in the last decade, with an estimated one in six people worldwide suffering a stroke every second. It affects 16 million people worldwide and of these, six million die[20]. The incidence of stroke in Egypt was estimated at 137/100,000, and the prevalence in Nigeria ranged from 114/100,000 inhabitants, in Europe the prevalence rate for stroke including transient ischemic stroke was 3,370/100,000 and no cases of stroke were recorded in individuals under 20 years of age, the highest prevalence was recorded in individuals over 70 years of age and male[21]. In Africa is a public health problem and requires urgent intervention to minimize this problem[22]In Angola the prevalence of stroke prior to transient ischemic attack was 0.4%. Some population-based studies show crude prevalence rates for stroke survivors ranging from 15/100,000 in Ethiopia and 963/100,000 in Egypt to 1460/100,000 in the Niger Delta region[23]Results of systematic review and meta-analysis of RCTs investigating the effects of psychoeducational interventions on stroke survivors and their families showed inconsistent effects in most cases, yet psychoeducational intervention programs were feasible and acceptable and the results support larger scale controlled trials to further examine the effects of these interventions[10]These interventions provide information and psychological support to post-stroke patients and their families, allowing them to manage the stressors resulting from this pathological condition[24]. This systematic review could strengthen the database on psycho-educational interventions for people after strokes, exploring results on the effectiveness of psycho-educational interventions in improving the cognitive, motor, and psychological performance of these patients and thus contributing to the fulfilment of daily

activities and reducing their dependency. It will bring advantages to clinical practice, enabling the design and implementation of interventions to improve the provision of health care in post-stroke people, as well as providing information aimed at defining better policies and strategies for psychoeducational intervention in health. This systematic review has limitations because only studies published in English and Portuguese were included during the search strategy.

Conclusions

This systematic review protocol will identify the available evidence on the effectiveness of psychoeducational interventions in post-stroke people and their families, thus contributing to the reduction of motor and functional dependence of post-stroke people in daily activities and improving the quality of life. The systematizations of these interventions could be translated as a contribution to the training of health professionals especially for nurses in the management of post-stroke people mainly in the context of developing countries where there are few studies on psychoeducational interventions and the best evidence for practice in post-stroke patients has not been documented.

Author contributions

VNN will be involved in drafting the manuscript, searching for and interpreting the data and CB will be involved in analysing and interpreting the data. MG will be involved in the analysis and interpretation of the data MH will be involved in the analysis, assessment of methodological quality, interpretation, and validation of the article. Authors may approve the final version to be submitted for publication whenever they agree and are responsible and co-responsible for the accuracy and completeness of the manuscript.

Sources of support.

Considering that this study is being funded by the Science and Technology Development Project-Ministry of Higher Education, Science, Technology, and Innovation of the Republic of Angola, in this subtheme we can refer to the source of funding described above.

Research ethics committee statement

This study was carried out in accordance with the guidelines of the Declaration of Helsinki and did not require the approval of an ethics committee as it was a systematic review protocol.

Term of Free and Informed Consent

Not applicable.

Statement of data availability

Data will be available on request from the authors of this study.

Conflict of interest and acknowledgements

This sub-theme can be used to assess whether there are any articles with conflicts of interest, whether there are any notes of thanks to organisations/subjects that were directly or indirectly involved in the study, and whether or not the authors had any sources of funding throughout the study that made it possible. The authors would like to thank CIDNUR.

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Bibliographical References

1. Mou H, Lam SKK, Chien WT. The effects of a family-focused dyadic psychoeducational intervention for stroke survivors and their family caregivers: A randomised controlled trial. *Int J Nurs Stud* 2023; 143: 104504.
2. de Souza PB, Mantovani MDF, da Silva ÂTM, et al. Perception of Post-stroke Patients on Case Management Conducted by Nurses. *Revista da Escola de Enfermagem* 2021; 55: 1–7.
3. Huang Y, Douiri A, Fahey M. A Dynamic Model for Predicting Survival up to 1 Year After Ischemic Stroke. *Journal of Stroke and Cerebrovascular Diseases*; 29. Epub ahead of print 1 October 2020. DOI: 10.1016/j.jstrokecerebrovasdis.2020.105133.
4. Juli C, Heryaman H, Arnengsih, et al. The number of risk factors increases the recurrence events in ischemic stroke. *Eur J Med Res*; 27. Epub ahead of print 1 December 2022. DOI: 10.1186/s40001-022-00768-y.
5. Nascimento BR, Brant LCC, de Oliveira GMM, et al. Cardiovascular disease epidemiology in Portuguese-speaking countries: Data from the global burden of disease, 1990 to 2016. *Arq Bras Cardiol* 2018; 110: 500–511.
6. Lemes CB, Neto JO. Aplicações da psicoeducação no contexto da saúde. *Temas em Psicologia* 2017; 25: 17–28.
7. Springer M V., Skolarus LE, Feng C, et al. Functional Impairment and Postacute Care Discharge Setting May Be Useful for Stroke Survival Prognostication. *J Am Heart Assoc*; 11. Epub ahead of print 15 March 2022. DOI: 10.1161/JAHA.121.024327.
8. Herrera SN, Sarac C, Phili A, et al. Psychoeducation for individuals at clinical high risk for psychosis: A scoping review. *Schizophrenia Research* 2023; 252: 148–158.
9. Mou H, Wong MS, Chien WT. Effectiveness of dyadic psychoeducational intervention for stroke survivors and family caregivers on functional and psychosocial health: A systematic review and meta-analysis. *International Journal of Nursing Studies*; 120. Epub ahead of print 1 August 2021. DOI: 10.1016/j.ijnurstu.2021.103969.
10. Mou H, Lam SKK, Chien WT. Effects of a family-focused dyadic psychoeducational intervention for stroke survivors and their family caregivers: a pilot study. *BMC Nurs*; 21. Epub ahead of print 1 December 2022. DOI: 10.1186/s12912-022-01145-0.
11. Barakat MM, Mostafa HA. Effect of Psycho-Educational Program on Psychological Distress and Post-Traumatic Stress Disorder among Stroke Survivors' Patients. *Evidence-Based Nursing Research* 2020; 2: 14.
12. Cheong MJ, Kang Y, Kang HW. Psychosocial factors related to stroke patients' rehabilitation

motivation: A scoping review and meta-analysis focused on south korea. *Healthcare (Switzerland)*; 9. Epub ahead of print 2021. DOI: 10.3390/healthcare9091211.
13. Dong C, Gardener H, Rundek T, et al. Factors and Behaviors Related to Successful Transition of Care after Hospitalization for Ischemic Stroke. *Stroke* 2023; 54: 468–475.
14. Mckenzie JE, Brennan SE, Ryan RE, et al. *Chapter 3: Defining the criteria for including studies and how they will be grouped for the synthesis*, www.training.cochrane.org/handbook. (2022).
15. Front Matter. In: *Cochrane Handbook for Systematic Reviews of Interventions*. Wiley, 2019. Epub ahead of print 23 September 2019. DOI: 10.1002/9781119536604.fmatter.
16. Page MJ, Moher D, Bossuyt PM, et al. PRISMA 2020 explanation and elaboration: Updated guidance and exemplars for reporting systematic reviews. *The BMJ*; 372. Epub ahead of print 29 March 2021. DOI: 10.1136/bmj.n160.
17. Cumpston M, Li T, Page MJ, et al. Updated guidance for trusted systematic reviews: a new edition of the Cochrane Handbook for Systematic Reviews of Interventions. *The Cochrane database of systematic reviews* 2019; 10: ED000142.
18. Ma LL, Wang YY, Yang ZH, et al. Methodological quality (risk of bias) assessment tools for primary and secondary medical studies: What are they and which is better? *Military Medical Research*; 7. Epub ahead of print 29 February 2020. DOI: 10.1186/s40779-020-00238-8.
19. Sterne JA, Hernán MA, Reeves BC, et al. ROBINS-I: A tool for assessing risk of bias in non-randomised studies of interventions. *BMJ (Online)*; 355. Epub ahead of print 2016. DOI: 10.1136/bmj.i4919.
20. Martin H, Manteufel S, Lucas ;, et al. *ASSISTÊNCIA DE ENFERMAGEM E HUMANIZAÇÃO EM PACIENTE NO PÓS AVC NURSING AND HUMANIZATION ASSISTANCE IN PATIENT AFTER AVC*. 2019.
21. Khedr EM, Fawi G, Abdela M, et al. Prevalence of ischemic and hemorrhagic strokes in Qena governorate, Egypt: Community-based study. *Journal of Stroke and Cerebrovascular Diseases* 2014; 23: 1843–1848.
22. Ezejimofor MC, Uthman OA, Maduka O, et al. Stroke survivors in Nigeria: A door-to-door prevalence survey from the Niger Delta region. *J Neurol Sci* 2017; 372: 262–269.
23. Brito M, Gonçalves M, Pedro JM, et al. Prevalence of atrial fibrillation in Bengo Province, Angola: Results from a population-based study. *RevSALUS - Revista Científica da Rede Académica das Ciências da Saúde da Lusofonia*; 3. Epub ahead of print 15 October 2021. DOI: 10.51126/revsalus.v3i2.146.
24. Putri TARK, Ramadita W, Supriatin E, et al. Psychoeducational Intervention for Family Caregiver Burden in Stroke Patients Care. *Risenologi* 2022; 7: 21–25.