Elderly knowledge about brain vascular accident in the emergency context: Integrative review

RESUMO | Objetivo:identificar o conhecimento de idosos sobre acidente vascular cerebral relacionado à busca pelo atendimento emergencial. Método:revisão integrativa realizada em maio e junho de 2021,na Biblioteca Virtual em Saúde, National Library of Medicine and National Institutes of Health, Scientific Eletronic Library Online, Cumulative Index to Nursing and Allied Health Literature, SCOPUS e Web of Science, empregados Descritores de Ciências da Saúde, Medical Subject Headings e termos alternativos, publicados em 2016 a 2021.Resultados:compuseram 33 artigos o corpus da revisão, categorizados em duas vertentes: os conhecimentos sobre fatores de risco, prevenção e identificação do AVC; e a busca pelo atendimento precoce no serviço de urgência e emergência. Conclusão:idosos geralmente desconhecema doença e a necessidade de busca precoce doatendimento, o que ressalta a importância de ações de promoção à saúde e orientações relacionadas ao AVC, sejam elas por meio das mídias ou de pessoas que compõem a rede de apoio.
Descritores: Acidente vascular cerebral; Idoso; Conhecimento; Emergência.

ABSTRACT | Objective: to identify the knowledge of the elderly about stroke related to the search for emergency care. Method: integrative review carried out in May and June 2021 at the Virtual Health Library, National Library of Medicine and National Institutes of Health, Scientific Electronic Library Online, Cumulative Index to Nursing and Allied Health Literature, SCOPUS and Web of Science, employees Health Sciences, Medical Subject Headings and alternative terms, published in the years 2016 to 2021. Results: the review corpus comprised 33 articles, categorized into two aspects: knowledge about risk factors, prevention and identification of stroke; and the search for early care in the urgency and emergency service. Conclusion: the elderly are generally unaware of the disease and the need to seek care early, which highlights the importance of health promotion actions and guidelines related to stroke, whether through the media or people who make up the support network.
Keywords: Stroke; Elderly; Knowledge; Emergency.

RESUMEN | Objetivo: identificar el conocimiento de los ancianos sobre el accidente cerebrovascular relacionado con la búsqueda de atención de emergencia. Método: revisión integradora realizada en mayo y junio de 2021 en la Biblioteca Virtual en Salud, Biblioteca Nacional de Medicina e Institutos Nacionales de Salud, Scientific Electronic Library Online, Cumulative Index to Nursing and Allied Health Literature, SCOPUS y Web of Science, empleados Ciencias de la Salud , Medical Subject Headings y términos alternativos, publicados en los años 2016 a 2021. Resultados:
el corpus de revisión comprendió 33 artículos, categorizados en dos aspectos: conocimiento sobre factores de riesgo, prevención e identificación del ictus; y la búsqueda de atención temprana en el servicio de urgencias y emergencias. Conclusión: los ancianos generalmente desconocen la enfermedad y la necesidad de buscar atención temprana, lo que destaca la importancia de las acciones y directrices de promoción de la salud relacionadas con el accidente cerebrovascular, ya sea a través de los medios de comunicación o de las personas que componen la red de apoyo.
Palabras claves: Accidente cerebrovascular; Anciano; Conocimiento; Emergencia.

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INTRODUCTION

Cerebrovascular Accident (CVA) is one of the main causes of disability and mortality, it is estimated that each year 6.5 million people in the world evolve to death due to the disease.

[1] The incidence increases with age, and the elderly have a higher risk of death and poor functional outcomes. [2]

The disease is characterized as a focal neurological deficit, of sudden onset, lasting more than 24 hours, it may be ischemic, caused by obstruction of blood flow; or hemorrhagic caused by vascular disruption. It presents severity and rapid evolution, causing changes in sensory, motor and cognitive planes, according to the area of extension of the lesion. [2]

It is essential to recognize preventive measures, clinical manifestations and early diagnosis of stroke. The sequelae can be significant, in most cases the elderly are bedridden, dependent, which modifies the routine of families to adapt to the new needs. [3] Limitations are often exacerbated and significantly contribute to the reduction of autonomy and independence, with functional restriction or intellectual, cognitive, motor or communication impairment, which makes it difficult to perform activities of daily living, as well as access to health services. [4]

Obtaining knowledge and processing health information is necessary for the community to make appropriate decisions related to stroke, as well as understanding risk factors, prevention, recognizing symptoms and signs to have an immediate response during the development of the disease. [5]

In this context, the elderly population stands out, which is often exposed to a situation in which knowledge related to stroke prevention is generally scarce. [6] In terms of functional literacy, it is common for the elderly to have difficulties in understanding basic health information to make decisions, interfering with preventive behaviors and management of acute and chronic diseases. [7]

Thus, the study was guided by the guiding question: what is the knowledge of the elderly about prevention, identification and risk factors of CVA, and the care of the urgency and emergency service? With the objective of identifying the knowledge of the elderly about stroke related to the search for emergency care.

METHOD

This is an integrative literature review, which was outlined by the identification of the theme and selection of the guiding question of the research; definition of inclusion and exclusion criteria for articles, as well as by searching the literature; categorization of data extracted from articles; evaluation of studies included in the review; interpretation of results; and the synthesis of knowledge on the defined topic.8

The knowledge of the elderly about stroke was selected as the research topic and the guiding question was established according to the PICo:P strategy - Population (elderly); I – Interest (knowledge about stroke); Co - Context (emergency service).

In the review stage, the Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) were used, as well as the alternative terms, combined by Boolean operators OR and AND, in Portuguese and English. The search strategy used is described below:

The strategy was applied in May and June 2021, in the Virtual Health Library (BVS) portal and in the following databases: National Library of Medicine and National Institutes of Health (PUBMED); Scientific Electronic Li-

Table 1 – Search strategy applied in the integrative review, Curitiba, Paraná, Brazil, 2021.

("Diagnóstico Precoce" OR "Early Diagnosis" OR "Diagnosis, Early" OR "Disease Early Detection" OR "Prevenção de Doenças" OR "Disease Prevention" OR "AçõesPreventivas contra Doenças" OR "Ações Preventivas contra Incapacidades" OR "Prevenção" OR "Profilaxia" OR "Prevention" OR "Preventive Health Services" OR "Care, Preventive Health" OR "Health Care, Preventive" OR "Health Program, Preventive" OR "Health Service, Preventive" OR "Preventive Health" OR "Programs, Preventive" OR "Risk Factors") AND ("Acidente Vascular Cerebral" OR "Stroke" OR "AVC" OR "Acidente Cerebral Vascular" OR "Acidente Vascular Encefálico" OR "Acidente Cerebrovascular" OR "Acute Cerebrovascular Accidents" OR "Acute Stroke" OR "Apoplexy, Cerebrovascular" OR "Brain Vascular Accident" OR "Cerebral Stroke" "Cerebrovascular Accident" OR "Stroke, Cerebral" OR "Stroke, Cerebrovascular" OR "Strokes, Acute" OR "Strokes, Cerebral" OR "Vascular Accident, Brain" OR "Brain Stroke") AND ("Idoso" OR "Aged" OR "Idosos" OR "Pessoa Idosa" OR "Pessoa de Idade" OR "Pessoas Idosas" OR "Pessoas de Idade" OR "População Idosa" OR "Elderly" OR "Idoso de 80 Anos ou mais" OR "Aged, 80 and over" OR "Oldest Old" OR "Frail Elderly" OR "Adult, Frail Older" OR "Adults, Frail Older" OR "Elderly, Frail" OR "Elderly, Functionally-Impaired" OR "Frail Older Adult" OR "Functionally Impaired Elderly" OR "Older Adult, Frail" OR "Health Services for the Aged" OR "Atenção à Saúde do Idoso" OR "Health of the Elderly") AND ("Emergências" OR "Urgência" OR "Emergencies" OR "TratamentodeEmergência"OR "Emergency Treatment" OR "Pronto-Socorro" OR "Serviços de Atendimento de Emergência" OR "Atendimento de Emergência" OR "Emergency Service, Hospital")

Source: The authors (2021)

brary Online (SciELo); Cumulative Index to Nursing, and Allied Health Literature (CINAHL); SCOPUS and Web of Science (WoS).

Inclusion criteria were full articles, available in full, in Portuguese, English or Spanish and published in the years 2016 to 2021, which answered the research question, and with samples preferably consisting of elderly people or including them. For the exclusion of articles, the following criteria were used: duplicate articles; editorial texts, books, letters to the editor, abstracts in congresses, reviews, dissertations and/or theses; and studies focusing on post-CVA conditions or specific imaging exams, for the verification of the disease and treatment.

The EndNote® manager was used in order to organize the bibliographies imported from the Web. For data extraction, the support of the Excel® computer program was used. The following information was extracted: title, year of publication, authors, journal, country, objective, research method, study design, time frame, research location, population/sample, main results and conclusions. Subsequently, the data were analyzed and categorized, which were briefly organized for the critical analysis of the included studies. The analysis of the level of evidence of the included studies was based on the classification proposed by the Oxford Center for Evidence-Based Medicine, composed of five hierarchical levels of evidence by type of study. [9]

RESULTS

The use of the search strategy in the portal and databases chosen for investigation identified 716 articles in the initial search, of which 40 were duplicates. For the remaining 676, the titles were read by applying the inclusion criteria, and 110 articles were selected for reading the abstracts. Subsequently, 60 articles remained for full text analysis, of which 27 were excluded, as they involved post-stroke care, diagnostic tests, medications, in-hospital assessments, associations of other cardiovascular diseases and traumas, not answering the research question. Thus, 33 articles composed the corpus of the integrative review.

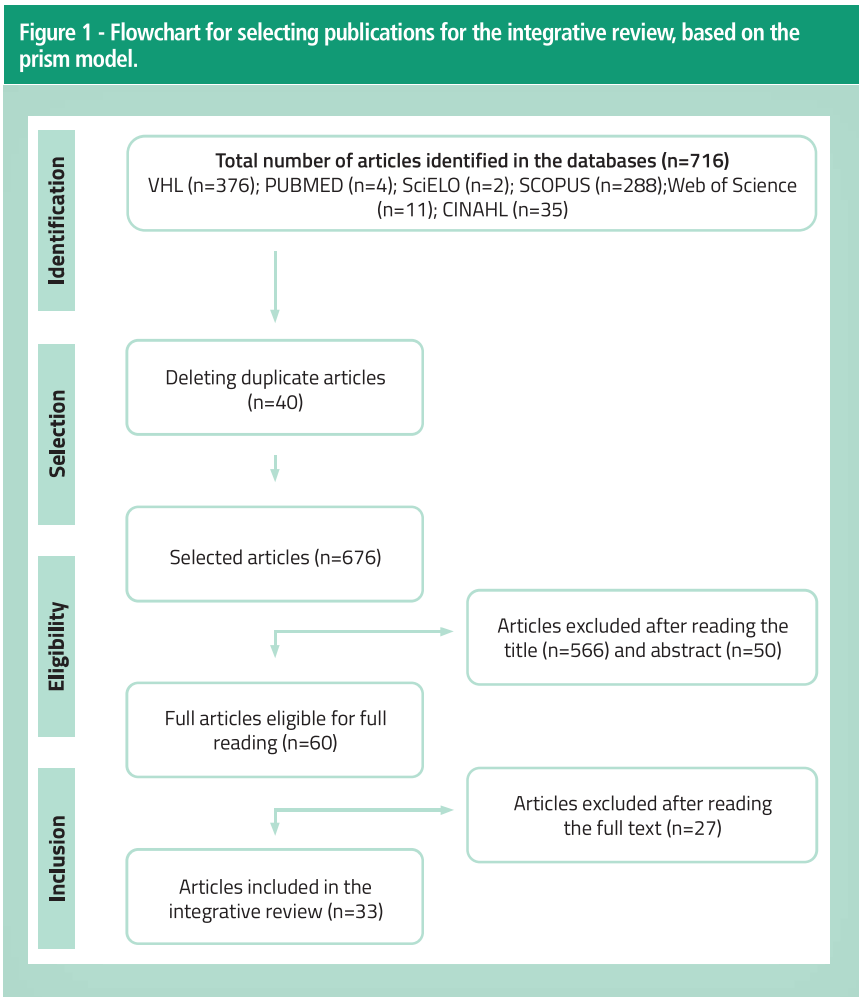
Figure 1 shows the flowchart of the integrative review, using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). [10]

Regarding the articles included in the integrative review, all were published in English, thirty (90.90%) with a quantitative approach, one (3.03%) qualitative and two (6.07%) used mixed methods. The study development locations were diverse, involving 20 countries, with the United States of America standing out with five (15.15%) publications, followed by China with three (9.09%).

Regarding the year of publication, four were released in 2016 (12.12%), three in 2017 (9.09%), five in 2018 (15.15%), thirteen in 2019 (39.40%) , six in 2020 (18.18%) and two (6.06%) in 2021 (until the period in which the search strategy was applied). There was a significant discontinuity of publications on the subject, with substantial emphasis from the year 2019.

Both the samples exclusively of

Figure 1 - Flowchart for selecting publications for the integrative review, based on the prism model.



Source: The authors (2021)

elderly people and those made up of adults and elderly people included people assisted in the community, primary care and in hospital institutions and/or urgency and emergency services. The sample sizes ranged from 25 to 187,723 participants.

As for the level of evidence of the analyzed studies, 28 (84.84%) observational studies were found with evidence 2c, followed by four cohort studies (12.12%) with level of evidence 2b and one clinical trial (3.04%) with level of evidence 1b.

Regarding the contents covered in the articles, the data were categorized into two aspects for better visualization and analysis: knowledge about risk factors, prevention and identification of CVA; and the search for early care in the urgency and emergency service.

Commonly, the most cited risk factors were arterial hypertension, dyslipidemia, obesity and diabetes. [5,19] The preventive measures described were physical activity and balanced diet. [14,17] Among the signs and symptoms for stroke recognition were facial and limb weakness, as well as slurred speech. [5,20] Knowledge in most cases was unsatisfactory, [16,19] but they improved from the participation of users of educational lectures, [13,18,21] with the fact of having previously known a person with a stroke and with a high educational level. [15]

Table 2 shows the twenty studies that made up the second category: "the search for early care in the urgency and emergency service"

The most reported results were that patients arrive at the referral service af-

Table 1- Studies that made up the category "knowledge about risk factors, prevention and identification of stroke". Curitiba, Paraná, Brazil, 2021

Author / Year of publication	Objective(s)	Level of evidence
Arisegiet al. (2018)[6]	To determine knowledge and practices related to stroke prevention among hypertensive and diabetic patients.	2c
Chan et al.(2016)[5]	To investigate whether the 2012 stroke campaign organized in Taiwan met the needs of the target population and improved stroke literacy among participants.	2c
Chakroun-Walha et al. (2021)[11]	Assess the level of stroke knowledge, risk factors, symptoms, and treatment among emergency center visitors.	2c
Faiz et al.(2018)[12]	Explore knowledge about CVA risk factors, symptoms, and treatment options among patients with acute CVA and transient ischemic attack.	2c
Gandolfoet al. (2019)[13]	Raise awareness of CVA among Rotarians in the Italian Rotary district.	2b
Gomes et al. (2016)[14]	To identify the knowledge of the lay population regarding the recognition, treatment and prevention of CVA.	2c
Khalil et al.(2020)[15]	Assess knowledge of CVA, i.e. symptoms, risk factors and intended behavior in case of suspected stroke.	2c
Krzystaneket al. (2020)[16]	Determine awareness and knowledge (risk factors, symptoms and actions) of the CVA; and identify the most impacting factors for adequate knowledge to shape education strategies.	2c
Meira et al.(2018)[17]	To assess the knowledge of an urban population in Belo Horizonte, Brazil, about CVA.	2c
Omelchenko et al. (2018)[18]	Implement a nurse-led, community-based program designed to involve community volunteers in educating the public to identify stroke symptoms and act accordingly in seeking medical care.	2c
Sadeghi-Hokmabadiet al. (2019)[19]	Assess public awareness of CVA risk factors, warning symptoms and treatments.	2c
Yıldızet al.(2020)[20]	To determine CVA awareness through a questionnaire in a population of a university hospital.	2c
Zhong et al. (2020)[21]	Investigate CVA-related knowledge among community residents of Jinjiang District, Chengdu, and raise public awareness of CVA through an intensive educational program.	2c

Source: The authors (2021)

Caption: CVA – Cerebral Vascular Accident

Table 2 – Studies that made up the category "the search for early care in the urgency and emergency service". Curitiba, Paraná, Brazil, 2021

Author / Year of publication	Objective	Level of evidence
Alegianiet al. (2019)[22]	Better understand the reasons for late admissions after CVA and set improvement goals.	2c
Alsholmet al. (2019)[1]	To describe patients with a final diagnosis of CVA / TIA whose transport to the hospital was interrupted due to lack of suspicion of the disease by the emergency medical service team or because of refusal by the patient or a relative/friend.	2c
Beltrán et al. (2020)[23]	To know the situation of the basic vertebral CVA care chain in the reference area of a hospital, evaluating the factors related to the activation of the CVA code and the action times.	2c
Bonniecet al. (2016)[24]	Identify stroke representations in the general population and determine barriers and facilitators for rapid contact with EMS	2c
Dhandet al. (2019)[25]	Understanding the arrival at the hospital as a collective process through network methods	2c
Dimitriouet al. (2019)[26]	Evaluate the time of presentation in the emergency room (ER) and the factors that interfere in this time	2c
Faiz, Kashifzet al. (2019)[27]	To assess whether knowledge of CVA symptoms and risk factors was associated with early hospital admission	2c
Gonzales et al. (2019)[28]	Identify factors associated with delay in time from onset to alarm and assess their contribution to patients with ischemic CVA.	2b
Hsieh et al. (2017)[29]	Understand the details of the communication between the caller and the dispatcher between calls to CVA patients, identify factors associated with CVA recognition by dispatchers, and assess the association between CVA recognition by dispatchers and CVA management.	2c
Fladt et al.(2019)[30]	Identify risk factors capable of pre-hospital delay.	2b
Li et al.(2019)[31]	To determine the risk factors associated with avoiding an immediate ambulance call when identifying stroke onset, and whether these factors differed between the 40-74 and 75-99 age groups.	2c
Madsen et al.(2017)[32]	To investigate the effect of gender on the association between social media and CVA readiness, as measured by emergency department arrival within 3 hours of symptom onset..	1b
Mattilaet al. (2018)[33]	Identify targets to improve dispatcher CVA identification in EMS.	2b
Melaikaet al. (2021)[34]	Compare CVA standards of care before and during a statewide COVID-19 lockdown.	2c
Ruiz et al.(2017)[35]	Provide a more comprehensive view, addressing different delays and decisions in stroke patients	2c
Trent et al.(2019)[36]	To identify the environmental and patient factors associated with late ER presentations after the onset of CVA symptoms.	2c
Meurer et al. (2016)[37]	To assess whether neighborhood factors are associated with EMS use for acute CVA and to determine whether neighborhood factors were associated with arrival within 3 hours of CVA initiation.	2c
Wilhelm et al. (2019)[38]	Examine whether there is a gap between recognizing the CVA and responding correctly by calling EMS using a scenario-based measure	2c
Teo et al. (2020)[39]	Determining whether COVID-19 resulted in delays in CVA submission and affected service delivery at a comprehensive acute CVA center in Hong Kong.	2c
Xirasagar et al. (2019)[40]	Examine why ischemic CVA patients use or do not use EMS	2c

Caption: CVA: Cerebral Vascular Accident - TIA: Transient Ischemic Attack - EMS:Emergency Medical Service

Source: The authors (2021)

ter the 4.5-hour threshold. [26,30,36] Among the main factors cited for late admission were shame and uncertainty about the development of the disease, [22] small personal networks, [25] failures to report the patient's real situation during the communication between the user and the emergency medical service (EMS), [24] and because they wait for symptoms to improve and wait for family members to refer them to the hospital. [31]

DISCUSSION

Knowledge about stroke among the elderly proved to be incipient in the studies included in the integrative review. In a study carried out in Nigeria, researchers observed an increase in risk factors, low adherence to pharmacological treatments, missed appointments and failure to modify lifestyle. These aspects significantly contribute to the increased risk of developing the disease. [6]

In the stroke awareness campaign held in Taiwan, researchers included several topics, including the mnemonic sequence "Face, Arms, Speech, Time". The data showed that the target participants were elderly at high risk of developing stroke and with a lower level of education, compared to young participants. This demonstrates the need for this population to process, understand health information and make appropriate decisions related to the disease. [5]

In a study carried out in Poland with 1,134 participants, it was found that knowing the definition of stroke does not suggest that individuals are aware of symptoms and risk factors. Most indicated that the disease is an emergency (92.8%) and that medical assistance is needed (97.5%). However, 42.4% did not know any specific symptoms and only 38.6% were able to list two or more risk factors, which resulted in only 36.3% of participants having adequate knowledge about CVA.[16]

In Norway, a study developed with 173 patients with acute stroke and transient ischemic attack stands out, in which the participants had a mean age of 68 years. Most stated that they consider the disease to be serious, that time is an important criterion, however, they were unable to mention treatment options. [12] In a similar way, a research developed in Iran with 2,712 participants stands out, in which a lack of knowledge regarding the signs of stroke was identified, the participants were unable to cite risk factors and were unaware of thrombolytic therapy. [19] Although specific knowledge about treatment options, such as thrombolytic therapy, is not something to be expected from the knowledge of the general population, especially for the elderly population, guidelines should be aimed at recognizing symptoms and seeking care early.

> "It is important to advise on the prevention of CVA, as well as to raise awareness about the symptoms, either through a family member or through the use of the media."

It is important to advise on the prevention of CVA, as well as to raise awareness about the symptoms, either through a family member or through the use of the media. [11,20] Nessa perspectiva, enfatizando "não perca um derrame", pesquisadores abordaram por meio de palestras o reconhecimento de sinais de aviso e ações a serem tomadas, obtendo melhoras significativas após a abordagem educacional.[18]

In the research carried out in Lebanon with 390 elderly people, 68% of the participants recalled at least one symptom of CVA, 85.4% of at least one risk factor and 57.69% reported that they would call an ambulance. It was found that knowing a patient with the disease and having a higher educational level contributed to the memory of more symptoms and risk factors. [15]

Fundamentally, treatments for CVA are time sensitive, so speed is of the essence. Every minute of delay decreases the effectiveness of reperfusion therapies and worsens patient outcomes. [32,33] A study suggests that patients usually arrive at the emergency room after the ideal threshold for treatment, which corresponds to 4.5 hours. [26]

It was observed that patients with small and close personal networks of highly familiar contacts, regardless of demographic, clinical and socioeconomic factors, were related to delay, restricted information, elected to watch and wait, making them targets in the strategy to improve response time. [25] Identifying the possible barriers between the onset of symptoms and care contributes to improving the forms of guidance for the elderly population. [36]

In the early search for specialized care, communication between the patient and the emergency service is essential, because at that moment initial symptoms are detected, as well as the presence of predictive variables for activation of the CVA code. Faster transport to the hospital has been shown to

be associated with greater detail and less delay in first contact. [1,23] The significant factors that influence the use of the emergency service were previous familiarity with CVA and the perception of symptoms that indicate possible neurological alteration. [40]

However, the rapid referral to the specialized service can suffer interference, such as the lack of suspicion of the health team, the report of vague or unspecific symptoms and psychological aspects, such as shame and denial by the patient. [22] It is also pointed out the choice of personal visit to the family doctor before hospital admission, so that patients do not seek emergency services.[14,30]

Currently, the context experienced by the COVID-19 pandemic stands out, in which there was a decrease in alerts, admissions and in the quality of pre-hospital stroke screening, increasing delays in arrival at the hospital. [34,39] This becomes even more worrying when considering that stroke is unpredictable and inevitable. [24]

Access barriers may even vary with increasing age, as these users generally opt for self-observation and wait for the family. Although there is recognition of the symptoms of the disease, this does not necessarily imply appropriate action, translating into a gap in the patient's know-how. [27,31]

Educational campaigns should be strongly encouraged, as there is a need for adequate communication between user and service for recognition and prompt service. [29,35] The strengthening of publicity and information is reinforced as a key factor for the elderly, knowing and contributing to the prevention strategy, timely recognition and rapid presentation to the urgency and emergency service. [13,21]

CONCLUSION

The national and international scientific production investigated revealed that the majority of the investigated population, with emphasis on the elderly, is unaware of the CVA in the emergency context. It is recommended to encourage health promotion actions and systematized guidelines related to CVA, whether through the media or people who make up the support network, such as family members, caregivers and friends/neighbors. In addition, the approach to understanding, interpreting and applying health information received by the elderly is emphasized, with a view to adequate functional literacy, given that these aspects can positively interfere with the clinical outcomes of the disease.

References

1. Alsholm L, Axelsson C, Andersson Hagiwara M, Niva M, Claesson L, Herlitz J, Magnusson C, Rosengren L, Jood K. Interrupted transport by the emergency medical service in stroke/transitory ischemic attack: a consequence of changed treatment routines in prehospital emergency care. Brain and behavior[Internet]. 2019 Mai [citado em 3 mai. 2021] (5): 01266.Disponível em: https://onlinelibrary.wiley.com/doi/full/10.1002/brb3.1266

2. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Ações Programáticas Estratégicas. Diretrizes de atenção à reabilitação da pessoa com acidente vascular cerebral– Brasília: Ministério da Saúde, [Internet] 2016Mai [citado em 12 mai. 2021]; Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/diretrizes_reabilitacao_acidente_vascular_cerebral.pdf

3. Schwanck TH, Filgueiras LPC, da Silva EE, Rodrigues JVC, Kollet JMS. Qualidade de vida dos cuidadores de idosos acometidos por acidente vascular encefálico. UNILUS Ensino e Pesquisa.[Internet] 2020Mai [citado em 9 mai. 2021]; 17(48): 115-125 Disponível em: http://revista.unilus.edu.br/index.php/ruep/article/view/1297

4. Pauli E, Leite MT, Bornholdt L, Hildebrandt LM, da Silva KS, Beuter M. O viver de idosos após o acidente vascular cerebral. Revista de Enfermagem da UFSM[Internet]. 2020Mai [citado em 15 mai. 2021]; (10); 29. Disponível em: https://periodicos.ufsm.br/reufsm/article/view/39070/html_1

5. Chan L, Lin YD, Liu CH. World stroke day in Taiwan: raising public awareness of stroke. International Journal of Gerontology[Internet]. 2016 Mai [citado em 1 mai. 2021]; 10(3): 175-179.Disponível em: https://www.sciencedirect.com/science/article/pii/S1873959816300722

6. Arisegi SA, Awosan KJ, Oche MO, Sabir AA, Ibrahim MT.Knowledge and practices related to stroke prevention among hypertensive and diabetic patients attending Specialist Hospital, Sokoto, Nigeria. Pan African Medical Journal[Internet]. 2018Mai [citado em 1 mai. 2021]; 1 (29): 1-17. Disponível em: https://www.ajol.info/index.php/pamj/article/view/177109

7. Lima JP, Abreu DPG, de Oliveira BE, Brum AN, de Mello M.CVA, dos Santos VV, Martins NFF. Letramento funcional em saúde e fatores associados em pessoas idosas. Cogitare Enfermagem[Internet]. 2019Mai [citado em 5 jul. 2021]; 24.Disponível em: file:///D:/Arquivos%20do%20Usuario/Downloads/63964-277375-1-PB.pdf

8. Mendes KDS, Silveira RCDCP, Galvão CM. Revisão integrativa: método de pesquisa para a incorporação de evidências na saúde e na enfermagem. Texto & contexto-enfermagem[Internet]. 2008Mai [citado em 5 mai. 2021]; 17(4); 758-764. Disponível em: https://www.scielo.br/j/tce/a/XzFkq6tjWs4wHNqNjKJLkXQ/?lang=pt&format=html

9. Oxford Centre for Evidence-based Medicine. Levels of evidence [Internet] Oxford; 2009Mai [citado em 3 mai. 2021]. Disponível em:http://www.cebm.net/oxford-centre-evidence-based-medicine-levels-evidence-march-2009/

10. Moher D, Liberati A, Tetzlaff J, Altman DG. Prisma Group. Reprint—preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. Physical therapy[Internet]. 2009 Mai [citado em 10 mai. 2021]; 89(9): 873-880.Disponível em: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2707599/pdf/pmed.1000097.pdf

11. Chakroun-Walha O, Samet A, Abdallah MB, Benmansour S, Issaoui F, Rebai M, Rekik N. Stroke knowledge among emergency centre visitors: A cross-sectional multicenter survey. African Journal of Emergency Medicine[Internet]. 2021 Mai [citado em 2 mai. 2021]; 11(1): 10-14.Disponível em: https://www.sciencedirect.com/science/article/pii/S2211419X20301282

12. Faiz KW, Sundseth A, Thommessen B, Rønning O. M. Patient knowledge on stroke risk factors, symptoms and treatment options. Vascular health and risk management[Internet]. 2018 Mai [citado em 1 mai. 2021]; (14): 37.Disponível em: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5808699/

13. Gandolfo C, Alberti F, Del Sette M, Gagliano A, Reale N. Results of an educational campaign on stroke awareness in the 2032 Rotary District in Northern-Western Italy. Neurological Sciences[Internet], 2020 Mai [citado em 7 mai. 2021]; 41(2): 411-416. Disponível em:https://link.springer.com/article/10.1007/s10072-019-04126-5

14. Gomes ABAGR, Henrique Jr M, Schoeps VA, Santos MMSA, Pellegrinelli A, de Matos, BP, Gagliardi RJ. Popular stroke knowledge in Brazil: A multicenter survey during "World Stroke Day". E neurologicalsci[Internet]. 2016 Mai [citado em 4 mai. 2021]; (6): 63-67. Disponível em:https://www.sciencedirect.com/science/article/pii/S2405650216300466

15. Khalil HM, LahoudN. Knowledge of stroke warning signs, risk factors, and response to stroke among Lebanese older adults in Beirut. Journal of Stroke and Cerebrovascular Diseases[Internet]. 2020 Mai [citado em 2 mai. 2021]; 29(5): 104716.Disponível em: https://www.sciencedirect.com/science/article/abs/pii/S1052305720300926

16. Krzystanek E, Krzak-Kubica A, ⊠wiat M, Galus W, Gawryluk J. Adequate Knowledge of Stroke Symptoms, Risk Factors, and Necessary Actions in the General Population of Southern Poland. Brain Sciences[Internet]. 2020 Mai [citado em 1 mai. 2021]; 10(12): 1009.Disponível em: https://www.mdpi.com/2076-3425/10/12/1009

17. Meira F, Magalhães D. da Silva, LS, e Silva ACM, Silva GS. Knowledge about stroke in Belo Horizonte, Brazil: a community-based study using an innovative video approach. Cerebrovascular diseases extra[Internet]. 2018Mai [citado em 4 mai. 2021]; 8(2), 60-69. Disponível em:https://www.karger.com/Article/Abstract/488400

18. Omelchenko N, Saban KL, Andresen P, Klopp A, Lau J. Empowered to serve: implementing community stroke outreach using peer educators to improve readiness to act among local community members. Journal of Neuro Science Nursing [Internet]. 2018Mai [citado em 6 mai. 2021]; 50(2): 111-115. Disponível em: https://journals.lww.com/jnnonline/Abstract/2018/04000/Empowered_to_Serve__Implementing_Community_Stroke.14.aspx

19. Sadeghi-Hokmabadi E, Vahdati SS, Rikhtegar R, Ghasempour K, Rezabakhsh A. Public knowledge of people visiting Imam Reza hospital regarding stroke symptoms and risk factors. BMC emergency medicine[Internet]. 2019Mai [citado em 2 mai. 2021]; 19(1): 1-5. Disponível em: https://bmcemergmed.biomedcentral.com/articles/10.1186/s12873-019-0250-5

20. Yıldız B. T., Gökçe M., ⊠ahin H. Awareness of Stroke in the Population Presenting to Outpatient Clinics at a Tertiary Health Institution. Turk J Neurol [Internet]. 2020 Mai [citado em 7 mai. 2021]; (26): 149-152.Disponível em: https://jag.journalagent.com/tjn/pdfs/TJN_26_2_149_152%5BA%5D.pdf

21. ZhongX, Wang J, He L, Xu R. Recognition of stroke-related knowledge among community residents and the improvement after intensive health education: a cross-sectional study. BMC neurology[Internet]. 2020Mai [citado em 1 mai. 2021]; 20(1): 1-7. Disponível em: https://bmcneurol.biomedcentral.com/articles/10.1186/s12883-020-01951-6

22. Alegiani AC, Albrecht S, Rahn AC, Köpke S, Thomalla G, Heesen C. Reasons for delayed admission after stroke: results of a qualitative and quantitative survey. Patient preference and adherence[Internet]. 2019 Mai [citado em 1 mai. 2021] (13): 739. Disponível em: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6514254/

23. Beltrán-Rodríguez I, Tejada-García J, Durán-Borrella Ó, Rodrigo-Stevens G, García-Vieitez JJ. Ictus vertebrobasilar: registro de tiempos de asistencia y factores relacionados com La atención precoz. Rev. Neurol[Internet].2020Mai [citado em 1 mai. 2021]; 326-334. Disponível em:https://europepmc.org/article/med/33085077

24. Bonniec AL, Haesebaert J, Derex L, Porthault S, Préau M., Schott AM. Why patients delay their first contact with health services after stroke? A qualitative focus group-based study. PLoSOne[Internet]. 2016 Mai [citado em 5 mai. 2021] 11(6): 1-10.Disponível em: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0156933

25. Dhand A, Luke D, Lang C, Tsiaklides M, Feske S, Lee JM. Social networks and risk of delayed hospital arrival after acute stroke. Nature communications[Internet].2019 Mai [citado em 1 mai. 2021]; 10(1): 1-8.Disponível em: https://www.nature.com/articles/s41467-019-09073-5

26. Dimitriou P, Tziomalos K, Christou K, Kostaki S, Angelopoulou SM, Papagianni M, Hatzitolios AI. Factors associated with delayed presentation at the emergency department in patients with acute ischemic stroke. Brain injury[Internet]. 2019 Mai [citado em 3 mai. 2021]; 33(9): 1257-1261. Disponível em: https://www.tandfonline.com/doi/abs/10.1080/02699052.2019.1641226

27. Faiz KW, Sundseth A, Thommessen B, Rønning OM. The knowing-doing gap in acute stroke- Does stroke knowledge translate into action? Brain and behavior[Internet]. 2019 Mai [citado em 7 mai. 2021]; 9(3).Disponível em: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6422823/

28. Gonzalez-Aquines A, Cordero-Pérez AC, Cristobal-Niño M, Pérez-Vázquez G, Góngora-Rivera F, GECEN Investigators. Contribution of onset-to-alarm time to pre hospital delay in patients with ischemic stroke. Journal of Stroke and Cerebrovascular Diseases. [Internet]. 2019Abr [citado em 28 abr. 2021]; 28(11), 104331.Disponível em: https://www.sciencedirect.com/science/article/abs/pii/S1052305719303384

29. Hsieh MJ, Chien KL, Sun JT, Tang SC, Tsai LK, Chiang WC, Ma MHM. The effect and associated factors of dispatcher recognition of stroke: A retrospective observational study. Journal of the Formosan Medical Association[Internet]. 2018Abr [citado em 25 abr. 2021]; 117(10): 902-908.Disponível em: https://www.sciencedirect.com/science/article/pii/S0929664617306502

30. Fladt J, Meier N, Thilemann S, Polymeris A, Traenka C, Seiffge DJ, De Marchis GM. Reasons for prehospital delay in acute ischemic stroke. Journal of the American Heart Association[Internet]. 2019 Mai [citado em 1 mai. 2021]; 8(20): e013101.Disponível em: https://www.ahajournals.org/doi/full/10.1161/JAHA.119.013101

31. Li S, Cui, LY, Anderson C, Gao C, Yu C, Shan G, Peng B. Barriers from calling ambulance after recognizing stroke differed in adults younger or older than 75 years old in China. BMC neurology[Internet]. 2019 Mai [citado em 2 mai. 2021]; 19(1): 1-8.Disponível em: https://bmcneurol.biomedcentral.com/articles/10.1186/s12883-019-1480-6

32. Madsen TE, Roberts ET, Kuczynski H, Goldmann E, Parikh NS, Boden-Albala B. Gender, social networks, and stroke preparedness in the stroke warning information and faster treatment Study. Journal of Stroke and Cerebrovascular Diseases [Internet]. 2017 Mai [citado em 6 mai. 2021]; 26(12): 2734-2741.Disponível em: https://www.sciencedirect.com/science/article/abs/pii/S1052305717303427

33. Mattila OS, Puolakka T, Ritvonen J, Pihlasviita S, Harve H, Alanen A, Lindsberg PJ. Targets for improving dispatcher identification of acute stroke. International Journal of Stroke[Internet]. 2019 Mai [citado em 9 mai. 2021]; 14(4): 409-416.Disponível em: https://journals.sagepub.com/doi/abs/10.1177/1747493019830315

34. Melaika K, Sveikata L, Wi⊠niewski A, Jaxybayeva A, Ekkert A, Jatužis D, Masili⊠nas R. Changes in Pre hospital Stroke Care and Stroke Mimic Patterns during the COVID-19 Lockdown. International Journal of Environmental ResearchandPublic Health[Internet], 2021Mai [citado em 10 mai. 2021]; 18(4): 2150. Disponível em: https://www.mdpi.com/1660-4601/18/4/2150

35. Ruiz RG, Fernández JS, Ruiz RMG, Bermejo MR, Arias ÁA, Del Saz Saucedo P, Alemán J. A. Response to symptomsand pre hospital delay in stroke patients. Is it time to reconsider stroke awareness campaigns? Journal of Stroke and Cerebrovascular Diseases[Internet]. 2018Mai [citado em 15 mai. 2021]; 27(3): 625-632. Disponível em: https://www.sciencedirect.com/science/article/abs/pii/S1052305717305207

36. Trent SA, Morse EA, Ginde AA, Havranek EP, Haukoos JS. Barriers to prompt presentation to emergency departments in Colorado after onset of stroke symptoms. Western Journal of Emergency Medicine[Internet]. 2019 Mai [citado em 9 mai. 2021]; 20(2): 237.Disponível em: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6404721/

37. Meurer WJ, Levine, DA, Kerber KA, Zahuranec DB, Burke J, Baek J,Lisabeth LD. Neighborhood influences on emergency medical services use for acute stroke: a population-basedcross-sectional study. Annals of emergency medicine[Internet]. 2016Abr [citado em 26 abr. 2021]; 67(3), 341-348. Disponível em: https://www.sciencedirect.com/science/article/abs/pii/S0196064415011142

38. Wilhelm LO, Gellert P, White M, Araujo-Soares V, Ford GA, Mackintosh JE, Dombrowski SU. The Recognition-response gap in acute stroke: examining the relationshipbetween stroke recognition and response in a general population survey. Journal of Strokeand Cerebrovascular Diseases[Internet]. 2020Abr [citado em 28 abr. 2021]; 29(2), 104499. Disponível em: https://www.sciencedirect.com/science/article/abs/pii/S105230571930583X

39. Teo KC, Leung WC, Wong YK, Liu RK, Chan AH, Choi OM, Lau KK.Delays in stroke onset to hospital arrival time during COVID-19. Stroke [Internet]. 2020 Mai [citado em 4 mai. 2021]; 51(7): 2228-2231. Disponível em: https://www.ahajournals.org/doi/full/10.1161/STROKEAHA.120.030105

40. Xirasagar S, Tsai M, Heidari K, Hardin JW, Wu Y, Wronski R, Sem S. Why acute ischemic stroke patients in the United States use or do not use emergency medical services transport? Findings of an inpatient survey. BMC health services research[Internet]. 2019 Mai [citado em 12 mai. 2021]; 19(1): 1-11.Disponível em: https://link.springer.com/article/10.1186/s12913-019-4741-6.