


INEQUALITIES IN STROKE TREATMENT: AN INTEGRATIVE REVIEW OF THE SOCIAL DETERMINANTS OF HEALTH

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ABSTRACT

Cerebrovascular accident (CVA) disproportionately affects developing countries and is among the leading causes of death in Brazil. Social determinants of health reflect not only stroke risk but also post-treatment health outcomes. In order to identify which social determinants of health influence post-stroke treatment, an integrative literature review was conducted. Articles indexed in the Scopus, Scielo and Pubmed databases were consulted, using controlled descriptors in English, from the last five years, with 33 articles analyzed by title, author, year, objective, methodology, social determinants analyzed and related to stroke treatment and main outcomes. Income was the social determinant with the highest relationship to stroke treatment, leading to higher health costs, mortality, and morbidity. Analyzing and recognizing the relationships between stroke and its social determinants enables a better definition of public and health policies, adjusted to the real needs of patients in recovery.

Keywords: Social Determinants of Health. Stroke. Evaluation of Outcomes in Health Care.

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INTRODUCTION

The challenges of health inequalities, which comprise the differences in health observable between subgroups within a population (MOONEY, 2009), are a central theme in the field of public policies in several countries (WHO, 2008). The discussion of how to address them has been gaining even greater space in the spheres of public health, health services, and research (WALSH-BAILEY et al., 2023), enhanced by the coronavirus pandemic, which quickly made it evident that its direct and indirect effects were not shared equally by the population around the world (MCGRAIL; MORGAN; SIDDIQI, 2022)element.

The different social, economic, environmental, housing and cultural conditions, which comprise the Social Determinants of Health (SDH), have a direct impact on people's health, in addition to the issue of access to medical care (WHITEHEAD; DAHLGREN, 1991; MOONEY, 2009), and generate different possibilities of exposure to risk factors, treatment, illness and death (BARRETO, 2017; WHO, 2023), establishing a direct relationship with health inequalities.

To minimize their effects, such determinants need to be considered in the definition of public policies (THOMSON et al., 2018) and there is, therefore, a need for public recognition that inequalities are systemic, structural and require urgent solutions⁴, especially in Brazil, a country where equity is considered a doctrinal principle of its universal health system (CF/1988).

Cerebrovascular Accident (CVA) is the second leading cause of death and third cause of death and disability combined in the world, according to recent studies assessing the global burden of disease (GBD 2019 STROKE colls., 2021; FEIGIN et al., 2022). With a cost of 1.12% of the world's gross domestic product (OWOLABI et al., 2022), it is a public health challenge at a global level, especially with regard to the rehabilitation of individuals in society for the recovery of independence in daily activities and reintegration into society (HAKKENNES; BROCK; HILL, 2011).

Considering that the incidence of stroke, among other factors, is related to age, an increase in the absolute number of events in the world population is expected with aging, with higher rates in low- and middle-income countries (GBD 2019 STROKE colls., 2021), such as Brazil. This scenario will bring even greater challenges to health systems, which will require adjustments in the services offered, due to the overload, and will affect, above all, the most vulnerable populations, more exposed to risks and with less access to health promotion, disease prevention and rehabilitation actions (MALTA et al., 2017), increasing

the differences in stroke outcomes (RESHETNYAK et al., 2020). Stroke is, therefore, a disease of disparities, with enormous racial, ethnic, and economic inequalities in incidence, prevalence, treatment, and outcomes (MORGENSTERN; KISSELA, 2015).

As for other pathologies, the Ministry of Health established the Adult Stroke Care Line, with the objective of improving the quality and safety of care at the various levels of health care, from prevention to rehabilitation, through pre-established care flows (Ordinance 665/2012). Such flows, which are also normative and regulatory in nature for the health system, seek to meet the principles of the Unified Health System (SUS) of comprehensiveness, universality and equity. However, they are far from the needs of their users (FREIRE et al., 2020). Studies reveal inequalities in access to rehabilitation services (SOUTO; ANDERLE; GOULART, 2022), as well as a fragmentation of the line of care that, among other reasons, has low education as a cause (MOITA et al., 2021).

For this reason, it is necessary to create care flows that consider SDH, with the objective of identifying characteristics that can be addressed and worked on to mitigate inequalities. An increasing number of clinical guidelines and clinical decision support materials are available for health professionals to address SDH in their clinical practices (ANDERMANN; CLEAR coll., 2016; WHO, 2023), but the literature still does not specifically show how to incorporate them into the lines of care. Still, there is no clarity on which SDH are related to the treatment of post-stroke patients. Considering the health, social and economic impacts, a better understanding of the SDH related to stroke treatment will allow the creation of protocols adjusted to the reality of the assisted population and equity policies, aiming to reduce the barriers to access to treatment and create strategies that meet the needs of the population. This integrative review aims to identify which SDH influence stroke treatment.

MATERIALS AND METHODS

This is an integrative literature review, which proposed to answer the following guiding question: "What are the social determinants of health that influence the treatment of post-stroke patients?".

Document collection was carried out in October 2023, in the following databases: Scopus, Scielo and Pubmed, based on the following descriptors: ("Stroke" OR "Post-stroke Rehabilitation" OR "Post-stroke recovery" OR "Post-stroke treatment" AND ("patient engagement" OR "Patient involvement" OR "Treatment adherence") AND ("social

determinants of health" OR "Health inequalities" OR "Population health determinants" OR "Social environment and health" OR "Socioeconomic factors"). The search aimed to search for complete, peer-reviewed articles, available in a web environment, published in the last 5 (five) years, excluding integrative and systematic literature reviews, as well as dissertations, theses and editorials. Articles in Portuguese, English and Spanish were evaluated.

To organize the data on the study selection process, the structure of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses – PRISMA methodology was adopted (PAGE et al., 2021; HADDAWAY et al., 2022).

The first stage of selection was carried out by two independent researchers, based on the reading of the titles, in search of terms related to stroke and the social determinants of health. In the second stage, the abstracts of the texts were read, aiming to narrow the selection, with the aim of identifying studies that related the treatment of stroke and the social determinants of health, excluding those studies that relate the social determinants as risk factors for the development of stroke. In cases of disagreement in the steps carried out by the researchers, a third researcher was called to break the tie.

The third stage aimed at the full reading of the texts, with a table being constructed (Chart 1) listing the following results: title, authors, country, year, objective, which social determinants were analyzed, analysis interval, main results and final considerations. To analyze the SDH, a table was prepared (Table 1), and the SDH analyzed by the researchers was listed, as well as those with statistical significance, related to stroke treatment.

RESULTS

The search in the database included the recovery of 1,920 titles, which after the removal of duplicates resulted in 1,275. After stages 1 and 2, 33 articles were selected that composed the corpus of this research.

The studies included and their main characteristics are shown in Chart 1.

Table 1: Studies included in the review and their main characteristics

Authors	Country/ Year	Objective	Social Determinants	intervalo de tempo	age group
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MJM Ramos-Lima, IC Brasileiro, TL de Lima, P Braganetto.	Brazil/2018	To analyze the impact of ischemic stroke on quality of life and associate this event with clinical aspects and sociodemographic characteristics	age, gender, marital status, race/color, occupation, social support, income, education	12 months	>= 18 years old
F. Lin, D. N. Yih, F. M. Shih, C. M. Chu.	China/2019	To explore the effect of social support on depression in patients with chronic stroke and the relationship between demographic and disease characteristics	gender, age, education, income, living conditions, caregivers and leisure time	88 months	>= 18 years old
M Giljam-Enright, et al.	South Africa/2020	Clarify the social determinants of health experienced by Xhosa women with stroke and how they affected their perception of treatment performance	education and skills to find employment, occupation, income, relationship with friends, family and community, housing, food, transportation and productivity/daily activity	120 months	>= 18 years old
D Park, SY Lee, E Jeong, D Hong, MC Kim, JH Choi, et al.	South Korea/2022	To assess the effect of socioeconomic status and geographic factors related to chronic phase of stroke survivors	gender, age, income, contribution to the health system, region of residence	24 to 120 months	>= 40 years
S Man, D Bruckman, AS Tang, K Uchino, JD Schold.	United States/2021	To explore the association between socioeconomic status and discharge destination with 30-day readmission after ischemic stroke.	Type of medical care, region of residence, type of post-discharge care	30 days	>= 18 years old
KM Keptner, K Smyth, S Koroukian, M Schluchter, A Furlan.	United States/2019	Describe Medicare fee-for-service beneficiaries who used post-stroke rehabilitation services and identify the strongest predictors of utilization after the initial episode of stroke treatment	gender, age, education, income, race, neighborhood socioeconomic status, access to outpatient care, employment, physical activity, social support	144 months	>= 50 years
M Park, JS Lee, YH Kim.	South Korea/2023	To investigate the sociodemographic and health-related factors associated with participation in health screenings in community-dwelling stroke survivors.	age, gender, education, income, caregivers, type of health care, occupation,	48 months	>= 50 years

			physical activity, perceived health		
V Olmedo-Vega, MJ Aguilar-Idáñez, JF Arenillas-Lara.	Spain/2021	To identify the social and environmental factors that condition access to comprehensive post-stroke rehabilitation, and to assess the long-term effects of comprehensive rehabilitation on patient functionality	sex, age, social support, occupation, income, place of residence, accessibility, housing ownership, social risk and comorbidities	54 months	>= 18 years old
A Morilovics, M Bokor, B Dobi, J Zsuga, D Bereczki.	Hungary/2020	To evaluate predictors of depressive symptoms with a focus on socioeconomic factors	type of residence, marital status, education, occupation, income, number of children	14 months	>= 18 years old
Sy Yoon, YW Kim, JM Park, SN Yang.	South Korea/2023	To investigate accessibility to rehabilitation therapy according to socioeconomic status (SES) after stroke using population-based cohort data across the country	Age, income, housing	132 months	>= 60 years
VO Vega, JE Idáñez, JFA Lara.	Spain/2019	Identify the factors that hinder access to different treatments and care that allow the functional recovery of stroke patients	region, gender, age, marital status, family support	15 months	>= 30 years
MV Springer, LE Skolarus, C Feng, JF Burke.	United States/2023	Quantify the prevalence and predictors of stroke survivors who do not maintain regular medical follow-up over time	gender, age, education, race, marital status, transportation, income, family support, and social life	84 months	>= 65 years
KK Andersen, TS Olsen.	Denmark/2019	To investigate the relationship between socioeconomic position expressed by income and risk of death after stroke in Denmark	Gender, age and income	120 months	>= 65 years
Y Béjot, A Bourredjem, E Mimeau, J Joux, A Lannuzel, C Misslinitrich,	France/2020	To assess the impact of social deprivation on 1-year survival of stroke patients	gender, age, race, occupation, housing, marital status, type of medical care, income, family support, leisure	12 months	>= 18 years old

et al.					
SD Shani, RP Verma, PS Sara, PN Silaja, VR Kutty.	India/2021	Identify the lifestyle and behavioral factors associated with stroke recurrence after the first episode	Physical activity, income and post-discharge recommendations	11 months	>= 18 years old
MM Donneyong, MA Fischer, MA Langston, JJ Joseph, PD Juarez, P Zhang, et al.	United States/2021	(1) To assess the role of health determinants in disparities between blacks/African Americans and non-Hispanic whites nonadherence to antihypertensive medication; (2) To quantify the associations between nonadherence to antihypertensive drugs and mortality due to heart disease and stroke, and to assess whether health determinants modify this association between blacks and non-Hispanic whites	race, housing, food, social support, crime	36 months	>= 65 years
MV Springer, LE Skolarus, M Patel.	United States/2023	To determine whether food insecurity and perceived financial stress contribute to cost-related medication (CRN) non-adherence in stroke	Income and food	60 months	>= 18 years old
EL Stulberg, E Twardzik, S Kim, CW Hsu, Y Xu, P Clarke, et al.	United States/2021	To examine the associations between neighborhood socioeconomic status (nSES) and 90-day post-stroke outcomes	Socioeconomic status of the neighborhood	84 months	>= 45 years
E Twardzik, P Clarke, MR Elliott, WE Haley, S Judd, N Colabianchi.	United States/2019	Evaluate the long-term trajectories of PH-QOL and determine whether socio-environmental characteristics shape PH-QOL trajectories	gender, age, socioeconomic status of the neighborhood, education, income, race	26 months	>= 45 years

I Matos, A Fernandes, I Maso, J Oliveira-Filho, PA de Jesus, H Fraga-Maia, et al.	Brazil/2020	To identify possible predictors of community integration in individuals who have experienced stroke using a residential setting-based strategy	Gender, Age, Education, Race, Marital Status, Income, Habits, Housing	20 months	>= 18 years old
MZ Khan, S Zahid, A Kichloo, S Jamal, AMK Minhas, MU Khan, et al.	United States/2021	To study sex, racial, regional, and socioeconomic disparities in palliative care encounters in patients with ischemic stroke	Gender, race, region and income	180 months	>= 18 years old
S Pournajaf, M Goffredo, M Agosti, M Massucci, S Ferro, M Franceschini.	Italy/2019	To investigate how the sociodemographic and subacute clinical characteristics of stroke survivors at admission and discharge can predict good participation in community walking activity at 6 months after stroke	Gender and age	10 months	>= 18 years old
M Jacobs, E Evans, C Ellis.	United States/2023	Examine the correlation between appointment performance with post-stroke aphasia and underlying factors: underlying social, economic, and environmental factors that shape how they live, work, and age, also known as the social determinants of health	Gender, Age, Income, Housing, Marital Status, Region	36 months	>= 18 years old
LE Skolarus, C Feng, JF Burke.	United States/2021	To explore mortality, nursing home placement, and disability in longitudinal analyses of older stroke survivors who survived at least 90 days after stroke	gender, age, marital status, education, income, type of medical care, social support	96 months	>= 18 years old
Y Liu, H Guo.	China/2021	To investigate the status quo of primary caregivers' empowerment capacity in patients with post-stroke disability and its influencing factors	relationship with caregivers and income	9 months	>= 69 years old

M Darmon.	France/2020	Explain that the extent of recovery after stroke is based on class and that patients from working classes and lower socioeconomic groups are more vulnerable to functional disabilities after stroke than those from the stroke of the highest socioeconomic groups	social class	9 months	>= 60 years
LP Larsen, SP Johnsen, G Anderse n, NH Hjøllund.	Denmark /2020	To describe the course and analyze the course determinants of physical and mental health status after stroke with repeated measurements in a large population-based cohort of Danish patients who experienced stroke for the first time	Gender, age and education	51 months	>= 18 years old
In Zhu, Y Jiang.	China/2019	Identify the factors that contribute to HRQoL and examine their interrelationships	age, income, daily activities, mental health, marital status, and type of health care	20 months	>= 18 years old
VB Hyldgård , SP Johnsen, H Stovring, R Sogaard.	Denmark /2019	To investigate the association between socioeconomic status and guideline-recommended intensive care in Denmark during the last decade	Gender, age, occupation, education and income	120 months	>= 65 years
MA Kim-Tenser, B Ovbiagel e, D Markovic , A Towfighi.	United States/2022	To analyze the prevalence of food insecurity in stroke survivors	age, race, income, food, education, marital status and habits	192 months	>= 20 years
AYX Yu, EE Smith, M Krahn, PC Austin, M Raschid, J Fang, et al.	Canada/2021	To determine the association between neighbourhood-level material deprivation and direct healthcare costs as well as clinical outcomes after stroke in the context of Canada's healthcare system	schooling, housing, income and food	120 months	>= 65 years
EK Kjörk, C Gunnel, A Lundgre n- Nilsson,	Sweden/2019	Explore the experiences, needs, and preferences regarding perceived follow-up by people with stroke and healthcare professionals	Gender, age, dependence on daily life	9 months	>= 18 years old

KS Sunnerhagen.					
L Braadt, C Meisinger, J Linseisen, I Kirchberger, P Zickler, M Naumann, et al.	Germany /2022	To explore factors that influence health-related quality of life after stroke, especially in relation to social aspects such as education level and the presence of a migratory background	education and migratory status	12 months	>= 18 years old

Regarding the origin of the publications, there are: United States, with 11 articles, followed by China, South Korea and Denmark, with 3 articles each. Only two studies have been conducted in Brazil. The years 2019 and 2021 had the most articles published, totaling 9 in each year.

Most of the studies analyzed used the age criterion for eligibility of the population being adults, over 18 years of age, and only six articles made a cut of the elderly population, over 65 years of age.

The time intervals to analyze the correlation between social determinants and stroke outcomes varied, with the shortest being 30 days and the longest being 192 months after the occurrence of the stroke.

Among the types of studies, 52% (n:17) are cross-sectional observational studies, 36% (n:12) are observational cohort studies, 6% (n:2) are observational case-control studies, and 6% (n:2) are experimental.

In addition, 30% (n:10) studies used questionnaires. Three studies analyzed quality of life with a specific instrument for assessing the quality of life of stroke patients, the SSQoL - *Stroke Specific Quality of Life* (RAMOS-LIMA et al., 2018; ZHU; JIANG, 2019). Others used the SF-12, *Short Form Health Survey*, to assess physical and mental health (TWARDZIK et al., 2019; LARSEN et al, 2020), the *Community Integration Questionnaire* (CIQ), to assess integration into the community (MATOS et al, 2020), the CES-D scale to assess depression (LIN et al., 2019), the *Stroke Impact Scale* (SIS), which assesses disability and quality of life after stroke (BRAADT et al., 2022), questionnaires to assess social support (LIU; GUO, 2021) and social deprivation (BÉJOT et al., 2021), as well as

questionnaires developed by the researchers (MIROLOVICS et al., 2020; GILJAM-ENRIGHT et al., 2020). The other studies carried out analyses of databases of payment of health services, censuses, electronic health records and interviews.

The SDH most analyzed by the researchers were: income, age, gender, education and housing, and those that were most related to stroke treatment, with statistical significance, were: income, age, education and housing, as shown in Table 1.

Table 1: social determinants analyzed in the selected studies (quantity and frequency)

Evaluated	n	%	Related	n	%
Income	24	14,81%	Income	16	21,33%
Age	21	12,96%	Age	10	13,33%
Sex	19	11,73%	Sex	3	4,00%
Housing	16	9,88%	Housing	9	12,00%
Education	13	8,02%	Education	8	10,67%
Marital status	10	6,17%	Marital status	1	1,33%
Race/color	9	5,56%	Race/color	4	5,33%
Employment	9	5,56%	Employment	3	4,00%
Social/family support	8	4,94%	Social/family support	2	2,67%
Lifestyle	7	4,32%	Lifestyle	4	5,33%
Type of Healthcare	7	4,32%	Type of Healthcare	4	5,33%
Feeding	4	2,47%	Feeding	2	2,67%
Transport	2	1,23%	Transport	2	2,67%
Post-discharge recommendation	2	1,23%	Post-discharge recommendation	2	2,67%
Socioeconomic Status of the Neighborhood	2	1,23%	Socioeconomic Status of the Neighborhood	2	2,67%
Number of children	2	0,62%	Number of children	0	0,00%
Crime	1	0,62%	Crime	0	0,00%
Social class	1	0,62%	Social class	1	1,33%

Access to Outpatient Care	1	0,62%	Access to Outpatient Care	0	0,00%
Dependence on daily living	1	0,62%	Dependence on daily living	1	1,33%
Migratory Status	1	0,62%	Migratory Status	1	1,33%

Source: the authors, 2024

DISCUSSION

This review identified the SDH that influence the treatment of stroke in different scenarios, different health systems and populations, and could, therefore, discuss numerous aspects and impacts of these linkages. Considering the need to incorporate SDH as mandatory information for defining lines of care and improving patient care, we propose to make some excerpts for this discussion, which involve the suggestions made by the authors, the importance of social support and mental health, often neglected, and the studies carried out in Brazil, aiming at a greater understanding of how the SDH have been related to the health system, in the line of care of the population in question.

It was found that the social determinant with the greatest impact was income, confirming that populations with low socioeconomic status experience "double suffering", since they are more susceptible not only to the development of the disease but are also more vulnerable to post-event functional deficiencies (VAN DEN BOS et al., 2002).

Despite the direct relationship between social determinants and outcomes in stroke treatment found by the authors, few addressed solutions and strategies to address them. Among the solutions are: focusing attention on emotional and informational support, in addition to clinical rehabilitation, have been shown to have positive effects on the mental health of socioeconomically disadvantaged Chinese patients and, consequently, on the general health status (LIN et al., 2019). In South Korea, efforts have been made to avoid inefficient concentration of patients in tertiary care. The authors suggest expanding stroke patient management centers in several regions, training small and medium-sized hospitals far from large cities, performing periodic evaluation, *check-ups*, according to the severity of each case (PARK; LEE; KIM, 2023), in addition to increasing the awareness of doctors and health professionals about the difficulties in accessing rehabilitation for patients with low socioeconomic status and inhabitants of rural regions (YOON et al., 2023). Equipping health professionals to better understand SDH and its impacts on the health of their

patients and the community is seen as a fundamental step for the workforce to adjust clinical practice and assist in the definition of appropriate health programs. There are even guidelines from the World Health Organization to support health services in this direction (WHO, 2023).

Likewise, guiding and training the patient on the risks of recurrence, medication adherence, and control of risk factors was proposed in a study that related the lack of post-discharge recommendations to low-income patients in India (SHANI et al., 2021). The literature reports that patients with lower income and education are at risk of worse outcomes during the post-hospital transition, increasing the risk of recurrence and death (VAN DEN BOS et al., 2002). Considering the need for caregivers in the rehabilitation of stroke patients, efforts to improve communication with patients should also be directed to their caregivers, as found in the study by Liu and Guo (2021), reiterating the need for training of professionals previously listed. The fragmentation of communication is considered the main barrier to continuity of care in primary care for patients who have suffered a stroke (SANTOS et al., 2022).

More broadly, improving the survivors' line of care for those who have the double suffering of experiencing a stroke, with greater sequelae and living in a socioeconomically poorer neighborhood, was suggested by the authors who evaluated patients in palliative care and identified that white patients, with higher incomes, in urban areas and with private insurance were more likely to have consultations (KHAN et al., 2022).

Specialized care and regular post-discharge follow-up was indicated for those patients with social deprivation, as a way to reduce stroke complications. Conducted in France, the study revealed the need to collect data on marital status, number of inhabitants in the household, and social support to define post-discharge follow-up³³. These points are directly related to mental health. The association between low income and mental disorders has been reported globally (GUTIERREZ; WILLIAMS, 2014).

Lima et al. (2020) clarify that this public becomes functionally dependent, experiencing low self-esteem, social isolation, anxiety, and depression, which negatively corroborates their recovery, as well as quality of life. The adversities that are posed by stroke cause suffering, but it is perceived that some people can deal with these events as a form of personal growth, thus being linked to resilience. Social support, whether from family members, caregivers or health professionals, becomes essential for the rehabilitation of the person who has suffered a stroke, since it helps to reduce psychopathological symptoms

and acts to promote autonomy, independence, in the scope of coping and adaptation to the limitations imposed by the stroke. It is then evident that the individual's resilience is directly influenced by a support network to overcome adversity (LIMA et al., 2020), which reinforces the need to understand social support and current mental health status in directing treatment, especially in those elderly patients, who have demonstrated a worsening in mental health over time and post-stroke treatment (LARSEN et al., 2020).

The analysis of health inequalities and their determinants still lacks problems of measurement and explanatory power, with social factors exerting various types of influence on the lives of individuals (WHO, 2008) and requiring data from population bases. Some initiatives have been carried out in the United States (KEPTNER et al., 2019; DONNEYONG et al., 2021; KHAN et al., 2022; SPRINGER et al., 2023; SPRINGER; SKOLARUS; PATEL, 2023) and South Korea (PARK et al., 2022; PARK; LEE; KIM, 2023). In Brazil, no specific population studies have been identified for a better understanding of the social factors related to stroke treatment.

Only two studies were conducted in Brazil and both used questionnaire data for data collection. With 131 patients, the first study identified that low education impairs adherence to treatment and the maintenance of a healthy lifestyle, as well as low family income. Residents in rural areas had greater difficulties in accessing rehabilitation (RAMOS-LIMA et al., 2018). These findings corroborate other studies that bring educational interventions as essential for the care of stroke patients. Low knowledge about signs, symptoms, and complications, due to low educational and income levels, means that patients do not seek care or do so in an inappropriate therapeutic window, impairing treatment (DUMAY et al., 2019; MOITA et al., 2021).

In this study, the race/color variable was not related to low quality of life, although other studies have suggested a worse standard of health and higher mortality of black people due to cerebrovascular diseases in Brazil (SILVA et al., 2019).

The second study (MATOS et al., 2020) showed that age is a predictor of worse social reintegration of patients, as well as the habit of smoking and having diabetes. The study does not relate income and education with poorer post-stroke social integration, contrary to the findings of this review and the literature (SONG et al., 2017; FOLEY et al., 2019). However, the authors point out that this result may have occurred due to the homogeneity of the sample, composed of patients treated in a stroke unit in a public hospital that usually treats economically disadvantaged people. The findings of the studies

carried out in Brazil reinforce the need for analysis and incorporation of solutions that consider SDH in the stroke care line (Ordinance 665/2012), as a way to comply with the principle of equity of the SUS.

Other factors unexplored by the articles that composed this review were the digital determinants of health. Over the decades, the specifications defined by Whitehead and Dahlgren (1991) have become subject to change due to the advances, tools, and digital devices that have reshaped and influence various aspects of life in today's society (JAHNEL et al., 2022) and, therefore, a new field in which health is created (KICKBUSCH; HOLLY, 2023). Digital determinants comprise aspects related to access to connectivity, interaction capacity, digital literacy, and information asymmetry, among others (CHIDAMBARAM et al., 2024) and are considered "super" social determinants, since they are directly related to other SDH, such as access to education, health care, employment, and housing through technology (SIECK et al., 2021). Understanding how technology interferes in the care of post-stroke patients should be considered by researchers, in order to assist and propose solutions to further minimize this barrier to access, which is even greater for low-income people, as seen in the pandemic4.

FINAL CONSIDERATIONS

The findings underscore the challenges faced by health systems around the world in understanding and acting to reduce inequalities in stroke care. Low income is associated with higher health costs, mortality, and morbidity after stroke, as well as other stroke-related factors, such as schooling and housing, and should be recognized as a risk factor for worse health outcomes. There is, therefore, no way to disentangle health and social policies.

Understanding how other health systems conduct their analyses and propose ways to minimize inequalities in stroke treatment is of great relevance for a system that has equity as its pillar, for a better direction of efforts for changes in public policies and improvement in the quality of care, aiming at better outcomes at the level of the population and individuals.

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