Revista Brasileira de Enfermagem
REBEn

THEMATIC EDITION
ADVANCED NURSING PRACTICES

ORIGINAL ARTICLE

Network professional interaction in the care of patients with stroke

Interação profissional em rede no atendimento ao paciente com acidente vascular cerebral

Interacción de redes profesionales en el cuidado de pacientes con accidente cerebrovascular

Paloma de Castro Brandão[I]
ORCID: 0000-0002-8659-6292

Gabriela Marcellino de Melo Lanzoni[II]
ORCID: 0000-0001-5935-8849

Isabela Cardoso de Matos Pinto[I]
ORCID: 0000-0002-1636-2909

[I] *Universidade Federal da Bahia. Salvador, Bahia, Brazil.*
[II] *Universidade Federal de Santa Catarina. Florianópolis, Santa Catarina, Brazil.*

How to cite this article:
Brandão PC, Lanzoni GMM, Pinto ICM. Network professional interaction in the care of patients with stroke. Rev Bras Enferm. 2022;75(5):e20210533. https://doi.org/10.1590/0034-7167-2021-0533

Corresponding author:
Paloma de Castro Brandão
E-mail: paloma.brandao@ufba.br

Submission: 08-30-2021 **Approval:** 04-12-2022

ABSTRACT

Objective: to understand the professional interaction in the Emergency Care Network in the care of patients with acute ischemic stroke in the city of Salvador/Bahia. **Methods:** the Grounded Theory methodological framework, Straussian strand, and the health networks theoretical framework were used. An in-depth interview was used, between October 2019 and October 2020, with 75 professionals from the Mobile Emergency Care Service, Emergency Care Units and reference hospital. **Results:** 5 categories and 24 subcategories point to shared goals among professionals, but they show elements of fragmentation of connections between services, such as the absence of a single language and conduct, obstacles to professional relationships and lack of knowledge of the other's role. **Conclusions:** to improve network relationships and care of patients with stroke, there is a need for well-established connecting elements, such as flows and protocols, supported by continuing education actions.
Descriptors: Stroke; Emergency Medical Services; Interpersonal Relations; Cooperative Behavior; Health Management.

RESUMO

Objetivo: compreender a interação profissional na Rede de Atenção às Urgências e Emergências no atendimento ao paciente com acidente vascular cerebral isquêmico agudo na cidade de Salvador/Bahia. **Métodos**: foram utilizados o referencial metodológico da Teoria Fundamentada nos Dados, vertente straussiana, e o referencial teórico sobre redes em saúde. Foi empregada entrevista em profundidade, entre outubro de 2019 e outubro de 2020, com 75 profissionais do Serviço de Atendimento Móvel de Urgência, Unidades de Pronto Atendimento e hospital referência. **Resultados**: 5 categorias e 24 subcategorias apontam compartilhamento de objetivos entre profissionais, mas evidenciam elementos de fragmentação das conexões entre os serviços, como a ausência de linguagem e conduta única, entraves das relações profissionais e desconhecimento da função do outro. **Conclusões**: para aprimorar relações em rede e o atendimento ao paciente com acidente vascular cerebral, há necessidade de elementos conectores bem estabelecidos, como fluxos e protocolos, fundamentados por ações de educação permanente.
Descritores: Acidente Vascular Cerebral; Serviços Médicos de Emergência; Relações Interpessoais; Comportamento Cooperativo; Gestão em Saúde.

RESUMEN

Objetivo: comprender la interacción profesional de la Red de Atención de Urgencias y Emergencias en la atención de pacientes con accidente cerebrovascular isquémico agudo en la ciudad de Salvador/Bahia. **Métodos:** se utilizó el referencial metodológico de la Teoría Fundamentada en Datos, vertiente straussiana, y el referencial teórico sobre redes en salud. Se utilizó una entrevista en profundidad, entre octubre de 2019 y octubre de 2020, a 75 profesionales del Servicio de Atención Móvil de Urgencias, Unidades de Atención de Urgencias y hospital de referencia. **Resultados:** 5 categorías y 24 subcategorías apuntan a metas compartidas entre los profesionales, pero muestran elementos de fragmentación de las conexiones entre los servicios, como la ausencia de un único lenguaje y conducta, obstáculos a las relaciones profesionales y desconocimiento del papel del otro. **Conclusiones:** para mejorar las relaciones en red y la atención a los pacientes con ictus, se necesitan elementos de conexión bien establecidos, como flujos y protocolos, apoyados en acciones de educación permanente.
Descriptores: Accidente Cerebrovascular; Servicios Médicos de Urgencia; Relaciones Interpersonales; Conducta Cooperativa; Gestión en Salud.

ONLINE VERSION ISSN: 1984-0446

INTRODUCTION

Stroke is the fifth leading cause of death in the United States and the third leading cause of disability-adjusted life years lost in the world[1], affecting more than 750,000 people per year, being catastrophic for patients and families due to its sequels[2]. In Brazil, despite a downward trend in stroke mortality[3], it still represents the fourth leading cause of death[4].

Characterized as a neurological deficit, of sudden onset or with rapid evolution that can lead to death, it is generally divided into ischemic and hemorrhagic. Ischemic stroke is more frequent, accounting for 87% of cases[1] and for 61.8% of deaths from stroke, affecting mainly men, in the group of individuals over 70 years of age[5].

For an adequate care of these patients, the coordinated action of health professionals, and, therefore, among nurses from different services, is essential, since ischemic stroke is a disease whose treatment is window-dependent, and can only be performed until 4.5 hours from onset of symptoms. In this short period of time, patients need to be promptly treated, diagnosed and submitted to an intravenous medication that can only be done in a qualified tertiary health unit[1].

Still, despite scientific advances in the treatment of stroke with expansion of therapy[6] and with the implementation of treatment-oriented stroke units[7], only a small portion of the population still has access to quality care.

The importance of studying the topic is based on the high health expenses[8] related to acute care, such as medication, treatment, diagnostic investigations, rehabilitation, medical consultations, orthopedic devices, being greater according to hospitalization time and complications[9], also relating to those who lost their working capacity[10].

International studies indicate that it is difficult to meet patients with stroke in time, but reveal initiatives that try to solve the problem, involving health system services, through protocols, codes, care flows[11], or bringing distances and professionals closer, providing specialists and directing conducts through telemedicine[12].

Thus, in Brazil, for adequate care, patients who have a stroke must be assisted in the structure of networks, considering the Line of Care directed to this disease. The Health Care Networks (RAS) composition in the Unified Health System (SUS – *Sistema Único de Saúde*) has the intention of collaborating to improve the care provided, with overcoming care gaps and cost reduction through the integration of services and systems, having been proposed for several areas of health according to the epidemiological profile[13].

One of the RAS is the Emergency Care Network (EN), which is based on several services, from Primary Health Care units to tertiary units, such as hospitals, divided according to levels of complexity, all of which are doors critical patient entry[14].

Thus, considering the urgency of care, as assistance to patients with suspected stroke needs articulation from the pre-hospital service to the emergency hospital service[15], the question is: how do professional interactions occur in the care of patients with stroke, considering the different services that make up the EN?

OBJECTIVE

To understand the professional interaction in the ECU in the care of patients with acute ischemic stroke in the city of Salvador/Bahia.

METHODS

Ethical aspects

The research complied with Resolutions 466/2012[16] and 510/2016[17] of the Brazilian National Health Council, being submitted to the Research Ethics Committee of the *Instituto de Saúde Coletiva*, *Universidade Federal da Bahia*, being part of the final results of thesis entitled "*Rede de Atenção às Urgências e Emergências: atendimento ao paciente com Acidente Vascular Cerebral isquêmico agudo*".

Theoretical-methodological framework and study design

In this study, the Grounded Theory, Straussian strand, was used as a methodological framework, and Mário Rovere's health network theory, as a theoretical tool for reading the data. According to the theoretical framework, the degree of depth of a network ranges from recognition, through the phase of knowledge, collaboration, cooperation, until reaching the association. In this network analysis, the focus is on social relationships[18], obtaining a close relationship with the methodological framework that points out that the meanings of social relationships emerge from the meanings of subjects[19], considering the emergence of a substantive theory that can be used to explain the researched phenomena[20]. Still, for Strauss and Corbin[20] (2008), this theory is derived from data, systematically gathered and analyzed through research processes.

Methodological procedures, study setting and data source

The study was carried out in the city of Salvador/Bahia, in the Mobile Emergency Care Service (SAMU), in two Emergency Care Units (ECU) and in a reference hospital unit in the care of patients with stroke. Participants were included according to theoretical sampling, i.e., after analyzing the findings of the first sample group (previously defined), it was established which participants would compose the following groups, unveiled throughout the research process, according to the direction of the hypotheses that emerged from the data.

Therefore, professionals with availability, health professionals from the services that make up the EN and who assist acute stroke (SAMU, ECU, hospital) at the entrance door, working for at least one year in the position were included. A professional from the ECU and a professional from the hospital who, after contact informing the research objectives, reported not feeling comfortable in participating were excluded from the study.

A total of 75 health professionals who performed assistance or immediate management functions were interviewed, and the first sample group was composed of 31 professionals from SAMU (17 nurses and 14 physicians). The second sample group

was composed of 24 professionals from the UPA (18 nurses and six physicians), and the third sample group was composed of 20 professionals from the hospital (12 nurses and eight physicians). Participant identification, according to the institution of origin, was represented by the letter "I", for interview, followed by "S", for SAMU, or "UPA" or "H", for hospital, followed by the ordinal number according to the interview sequence, such as "IS15", "IUPA8", "IH20".

Data collection, organization, and analysis

The interviews took place between October 2019 and October 2020, and each interviewee was asked the guiding question "Tell me about the care of patients with suspected stroke", allowing the data to emerge from participants' responses who were able to express themselves freely on the topic. Additionally, other questions were applied, according to participants' responses, in order to clarify points raised and to obtain an in-depth interview. The interviews were carried out for the 1st sample group during the shift in a reserved room. For the other sample groups, the interview was conducted by telephone, at a convenient time for the interviewee, due to the pandemic period. All interviews were recorded and transcribed in full.

Based on the hypotheses raised in each sample group (Chart 1), other questions were elaborated and added to the collection instrument for the other participants. The interviews were carried out until theoretical data saturation, i.e., when there was repetition of information or when the new information did not change the configuration of the phenomenon already found[19]. In this way, the consolidation and articulation of the categories that make up the substantive theory was obtained.

Data collection and analysis occurred concomitantly, and memoranda were prepared after each interview, which helped in data analysis. In the data analysis system, division was performed in three stages: open coding, axial coding and integration[19]. From the transcription, open coding was performed by reading the interviews line by line, with attribution of substantive codes with characteristics of participants' speeches. Later, in the axial coding, concepts were elaborated, and the phenomenon was delimited. The concepts of the 75 interviews were grouped, based on the constant comparison of data in the development of categories and subcategories. Finally, the central category "Revealing the fragmentation in the Emergency Care Network in the care of patients with acute stroke" was set, evidenced by factors related to the fragile professional interaction in the referred network.

To assist the data organization process, NVIVO® 12 was used, a facilitating instrument in the data categorization phase, allowing a better visualization of the information obtained.

The theoretical framework on health networks was used in data analysis, based on the five levels of relationship to constitute a network: recognizing, knowing, collaborating, cooperating and associating[21].

Bearing in mind that the relationships between health professionals from the different EN services elucidate how its organization and functioning takes place, allowing the analysis of care flows and communication mechanisms, the study presents in detail the interactions between the participants of the different network services that care for patients with acute ischemic stroke, with the results being organized into five categories and 25 subcategories, grouped according to data analysis and abstraction.

The theoretical model validity, composed of central categories, occurred through an email exchange with two health professionals from each of the types of institutions that participated in the research (SAMU, ECU and reference hospital) and with two specialists in the method.

RESULTS

The results point to five categories related to the interaction between professionals working in the EN according to Chart 2.

Chart 1 – Theoretical sampling description, Salvador, Bahia, Brazil, 2021

Sample group	Hypotheses	Research question
Sample group 1	The organization of care of patients with stroke in the network is poor.	Sample group 1: tell me about the care of patients with suspected stroke.
Sample group 1 to Sample group 2	There is difficulty in the initial assessment of patients with suspected stroke in the ECU. Fluctuations in quality of interpersonal relationship between SAMU and ECU interfere with the quality of network service. The counter-referral from hospital to ECU goes against the Line of Care of Stroke.	Sample group 2: how do you perceive the professional interaction in the care of patients with stroke? How do you perceive the continuity of patient care in the counter-referral from the hospital to the ECU?
Sample group 1 to Sample group 3	The lack of acceptance of SAMU teams in the hospital, evidenced by the difficulties encountered in the interpersonal relationship, exposes the fragility of network care. The difficulty in seeing roles in the network reflects in conflict between the teams of different services. The variation of hospital conduct, according to the team on duty, makes the service "person-dependent" and suggests the absence of protocols.	Sample group 3: how do you view the hospital's ability to care for patients with stroke? How do you see the professional interaction in the care of patients with stroke?
Sample group 2 to Sample group 3	Insufficient hospital capacity to absorb high demand from patients with stroke results in counter-referral to ECU, due to non-establishment of roles in the network and ignorance of the other service's role.	

Chart 2 – Categories and subcategories of interaction between professionals, Salvador, Bahia, Brazil, 2021

Category (action-interaction)	Development of categories and subcategories	Excerpts of interviews
Perceiving lack of language and unique conduct in the network	It points to the absence of well-established protocols or flows that guide, in an articulated and equitable way, patient care, considering that there is no language and conducts defined collectively in the network, there is no cohesion in established practices and no well-defined flow. The subcategories point to the need to improve the quality of communication, variation in care, according to the team on duty and according to the physician who treats patients in the ECU. There is a loss of care due to conduct inhomogeneity, with the possibility of patients with similar clinical conditions being treated in different ways or that adequate treatment is possible for some, while not for others, depending on who assists.	[...] *there is no homogeneity of approach to certain situations within the units, there is no single speech, even though there is a protocol* [...]. (IS3) [...] *counter-referral is sometimes a little tumultuous* [...] *I, in particular, do not discuss much with the physician who is there, because SAMU is to assist the patient wherever he is and even the destination, so when he arrives at the destination, he goes be counter-referred, they keep thinking it's not their job, so I call SAMU's regulation, tell them what the problem is, so we can try to make a counter-referral. We have an obligation to say that there is no bed, the bosses on duty are in a difficult situation, because then you have to leave the stretcher where the patient is, to pull over there at the reception* [...]. (IH10)
Perceiving barriers in professional relationships	It is supported by six subcategories, which list relational difficulties between services and in the services, indicating difficulties in SAMU-ECU, SAMU-HOSP relationship and with the hospital's Chief of Duty, an element of the network responsible for accepting to receive patients or denying vacancy in the tertiary unit. Moreover, there is an impaired relationship in the reference unit, evidenced by the excessive workload, because it is a reference unit for various pathologies and overcrowding, in addition to obstacles in internal relations to the ECU, which tend to impair care.	[...] *I observe that there is a greater resistance to receive SAMU patient in the reference hospital, despite the prior communication from the Regulation Center informing the state in which the patient is* [...] *and despite this unit being the reference for this type of service, barriers are created to make it difficult and prevent the team from entering the service* [...] *prolonging the occurrence for an unnecessary time,* [...] *creating a certain enmity by reference unit professionals with SAMU professionals.* (IS25) [...] *we do not have medical team support, because if I evaluate this patient* [in the RWRS] *and if I understand that there is a suspicion there and if he doesn't listen to me, doesn't value it, I write and sometimes he doesn't even read* [...]. (IECU24)
Not knowing the role of the other in the network	It brings elements, such as non-recognition of the other and their role in the network, distortion of the other service, not seeing their needs, which seem to distance the concept of network from the reality experienced. Furthermore, isolation of services is noted when professionals refer that patients are from the service of origin (SAMU, ECU, hospital), not understanding that patients belong to the network as a whole. SAMU, a pre-hospital service, when entering the hospital environment with patients, he remains responsible for them, referring them to tomography, looking for hospital professionals, pushing a stretcher and transferring patients from bed in the place of stretcher workers, who usually do not help, remaining a long time in the institution environment without being released until medical conduct is defined or until a stretcher or bed appears or until they decide to counter-refer patients.	[...] *the patient is from the network, the network is mine, the network is yours, the network is everyone's. Sometimes they forget that our goal is the patient. The hospital is not my fiefdom. SAMU is not my fiefdom. My goal is the patient. So, I will help you, you will help me so that together we can treat the patient well, treat the patient well.* [...] *each one looking at their own navel forgetting that our goal is to assist the patient* [...]. (IS10) [...] *today, it is not a reality of us, but we have already worked in a situation of being without a stretcher in the emergency room. It's over for all the stretchers, being with 7 or 8 in the red room that is small and that should fit only half. But the vast majority of them cannot see our other side, the side that we also have these difficulties, that they are in a hurry to release the ambulance and leave the patient with us, but that we do not always get this release immediately* [...]. (IH5)
Finding it difficult to regulate patients in the network	It refers to one of the activities of integration between services, which is regulation. It brings in its subcategories the difficulties linked to the restrictions of hospitals in receiving this patient, the fact that there is authorization for hospital referral only for neurological evaluation and not for admission, the difficulty of contacting the Chief of Duty and the greater difficulty in regulating patients that are out of window or that are counter-referred to other units and need new regulation.	[...] *when patients are outside the window for thrombolysis, beyond 4.5 hours, the care becomes more difficult in the reception in tertiary units* [...]. (IS5) [...] *we have difficulty regulating properly. The medical regulator has difficulty speaking with the chief on duty, or with the on-call physician of the hospital unit* [...]. (IS23)
Sharing goals on the network	They are related to the association between professionals of services in favor of patients. The subcategories bring that, since SAMU is a connector element, it has its collaboration in the network, noting that hospital pre-notification, for instance, is a factor of improvement in hospital care. Sharing objectives between the stroke unit and SAMU results in better care. The cohesion of professionals in the ECU, mainly due to the long time working together, becomes the foundation for running the unit. To overcome the bad weather, strategies are developed to better relate and to overcome the problems.	[...] *when SAMU arrives, I confirm the patient's name and I already call them [stroke unit physicians]. Usually, when the Chief of Duty communicates that a patient will come, he already leaves the tomography request with name and suspicion, so that no time is wasted in filling out, we gain time like this* [...]. (IH3) [...] *in my working days, my team is very cohesive, nurses, technicians and the medical team. Teams are warriors and they are the ones who save the service in the ECU. We already do the minimum, because we have no resources, without my team, I could not do anything* [...]. (IECU18)

DISCUSSION

Considering that networks are initially formed by connections between people, according to the results, it is noted that EN, in the care of patients with stroke, passes through the different levels of network construction, with important elements that suggest predominance of initial levels.

For the establishment of these levels, there is always an action and a related value. For the first level, called "Recognizing", it is necessary to act of "recognizing that the other exists", through the acceptance of the other[21]. In the study, the results make it possible to identify relationships between professionals from different services, either adequate or inadequate, according to the different relationships established within and between institutions.

According to the theory, the problems arising from conflicts between health services, which emerge in this study, are of an intermediate nature, not being so important due to their size, but being subjectively important from the place they look at them[21]. From this point of view, intermediate problems may overshadow the concern with patients' health problems, which sometimes seem to be placed in the background, given the structural problems found in EN services. As when, in the study, the lack of vacancy, directs the look to the scarcity of resources and patients' refusal and not to the need of this. Thus, the intermediate problems in favor of patients must be solved, which is the main objective of care and interaction[22].

Intermediate problems may be related to issues raised in the research that tend to impair care, such as precarious ties, related to disqualification and lack of training[23], professional turnover, as a characteristic that hinders the homogeneity of care[24-25] and the numerous demands of professionals in the emergency sector[26], including the high demand of nursing professionals in the hospitals indicated in this study, as causes of delays and as factors of difficulty in communication between the emergency and the stroke unit.

Another study conducted in the same reference hospital also points to overcrowding as a factor that hinders adequate communication, in addition to work overload, professional inexperience and the lack of standardization of conduct[27].

In addition, in this study, nurses and physicians point out that deficiencies in communication between professionals make relationships fragile, as well as in a research carried out in a hospital emergency in Paraíba, which found the lack and/or failures in communication as one of the main problems in the sector[28].

The relationship is impaired, for instance, when ECU or hospital professionals see SAMU as a "weight in the Network", in a relationship of "opponents", there is, therefore, a complicating factor of flows. Thus, according to the theoretical framework, the relationship of animosity is contrary to the levels of network construction, thus there is no "acceptance" of the other[21]. In the health area, in order to have teamwork, it is necessary to have sharing in the division of tasks and in the planning of activities, integrating practices, knowledge, needs and interests[29]. These conditions are even more critical when it comes to a patient with a suspected diagnosis of stroke, which depends on the response time to receive treatment or not.

Weaknesses in the relationships were also reported in the network within the services, when ECU nurses pointed out the non-recognition of the work carried out in the Reception with Risk Stratification (RWRS) by some physicians. Considering the network relations between the multidisciplinary team, the work of all those involved should be recognized, considered and valued. The nurse, being the first to have contact with patients in the RWRS, plays an essential role in the speed of care and there should be continuity of care from this classification.

The second level, called "Knowing", occurs through the action "knowledge of what the other is and does", revealed by the value of "interest" by the other in the network. Participants' answers point to fragile relationships in the network, often related to the accumulation and/or overlapping of service functions, in addition to the assignment of functions that are not within their competence.

In the relationship between the services, knowing the role and capacity of the other in the network is of paramount importance for its operation. This also concerns the need to work in a network, mobilizing in tangles that better respond to the population's health problems[21]. It is important to emphasize that networks are not homogeneous, but take over organized heterogeneity[21], i.e., there is a need to integrate elements of different complexities so that there is integrality in care and optimization of resources, in addition to expanding the hospital back-up capacity[30].

The level of association of the network will be higher if each component knows its role, competence and attribution, with ease of communication. Also, according to Line of Care in Stroke, the service to users with acute charts must be provided by all input ports, allowing full resolution of demand or responsible transfer to services of greater complexity[31]. However, in the thematic networks, there is low interaction between the Network services and failures in referring patients to specialized services[32].

This is also seen in the present study, when the lack of definition of flow and roles is noted. Patients are seen as the service of origin, and not as patients of the network or SUS. Thinking that "patients belong to the network" and addressing the need for a service and seeing the other with their limits and capabilities is an important vision for the feeling of belonging and the need for the existence of networks[21]. It is essential to belong to something greater and not only to the health institution in which it works and for which it nourishes an institutional narcissism[21]. To this end, professional training is necessary, oriented to networking, with motivation to work, aiming at quality and improvement of networks[32].

When one service takes over the duties of another, as a consequence of poorly established flows or lack of dialogue, there are imbalances within the network and interference with the availability of services. This is a point of the study where it is evident the (lack of) knowledge "of what the other is and does". Examples of overlapping functions are evident when the ECU takes over the role of hospitalization of patients while it should function as a stabilization site[33] and when SAMU spends hours with a patient inside a fixed health unit or at the door of a hospital unit, leaving a shortage of units available to the population[34].

With so many evident points of fragmentation in the network in the care of patients with stroke, SAMU regulation, a connecting element between services, has a critical aspect[25]. Difficulties are noted in the network when it is only allowed to refer patients with suspected stroke to the reference hospital for assessment by a neurologist without being effectively regulated. According to

professionals' reports, it is easy to accept patients in a therapeutic window, but for patients outside the window, non-acceptance in the reference unit is allowed. This information contradicts the Line of Care in Stroke, in which SAMU, the main flow driver (regulator), must immediately refer patients with stroke to hospitals qualified for care. Because it is a medical emergency, all patients with stroke must be treated at the hospital, even if the symptoms are transient[31].

In addition to this, still inherent to the activity of regulation, some SAMU medical regulators report that the difficulty of contact with the hospital emergency team is a limiting factor of communication[35]. The difficulty in talking to the hospital's Chief of Duty is a factor that deserves immediate attention and resolution, as it cannot be a factor of delay in care, since patients with suspected stroke must be received by the reference hospital.

On the other hand, sometimes, when professionals understand the network functioning and the services' roles, the care of patients with stroke flows as it should. For instance, there is a better relationship in the network when professionals recognize that the other team may be tired or stressed, according to their routine. Thus, recognizing the other as a partner, as a valid interlocutor, it is possible to know the other, and express interest in how he/she sees the world[21], with positive consequences for teams and for patients.

The third level (Collaborating) points to the action of "providing sporadic help". At this level, there is neither systematic nor organized, but spontaneous help, often establishing bonds of reciprocity[21]. Therefore, good interaction with the health team is essential in providing care in a conformation of a network[26]. In the study, this level is revealed when the quality of care provided by professionals from the other service is satisfactory, resulting in more harmonious network relationships, observed when SAMU supports the ECU, finding patients ready for removal, both teams collaborating to preserve the therapeutic window time.

The fourth level (Cooperating) concerns solidarity in "sharing activities or resources". The results of this research allow us to affirm that the lack of a protocol that unites network components and that articulates professional conduct reflects on the functioning of services and on the effectiveness of care, making the level of cooperation "person-dependent". It is important to remember again that networks are not just about the connection between institutions, but mainly about the connection between people, in a relationship that aims to deconstruct the idea of a pyramidal structure and propose multicentric forms of articulation in a horizontal format[21].

In this way, it becomes increasingly important that the Line of Care of stroke is followed, with establishment of flows, organization of sectors and improvement in quality of care[36-37]. Factors such as standardization of conducts and elaboration of care protocols can also contribute to team motivation and interpersonal relationships[24], facilitating cooperation, with the sharing of activities and resources.

In the studied scenario, the absence of a conduct guide defined by consensus also reflects in little established flows in the services. The variation of medical conduct in the ECU, due to outsourcing, rotation of professionals, newly graduated on-duty workers or lack of training, violates the principles of ECU effective functioning in guaranteeing comprehensive patient care in SUS. This fact contradicts the guidelines of Ordinance 10/2017, which point out that, in order to consider this unit in effective operation, clinical protocols must be used in order to provide resolute and qualified care to patients affected by acute pictures[33].

Finally, the fifth level (Associating) goes beyond the others, occurring through the "sharing of objectives and projects", according to the value of trust[21]. This is the highest level of network construction, when elements of trust emerge in the sharing of objectives and projects[21]. This is related to quality of care, which can only be achieved through collective effort in patient care[38].

The hospital pre-notification carried out by the Emergency Regulation Center, for instance, was a strategy reported by nurses and physicians that aims to mobilize resources before patients' arrival, preparing the hospital staff for care and optimizing the response time[39]. This is also an essential communicative action for the operation of Line of Care of Stroke in SUS, in addition to being a recommendation of international guidelines[40].

In the study, hospital pre-notification is perceived by professionals as a facilitator of care, positively interfering in the preparation to receive patients referred by the pre-hospital, different from the longer care usually offered to patients who arrive by spontaneous demand[41]. However, hospital pre-notification would be more effective if the information transmitted by the Emergency Regulation Center advanced the preparation of a form and the request for a skull computed tomography, speeding up the entry and care of patients with suspected stroke.

Furthermore, association was revealed in a network, within the institution, mainly when observing the cohesion between nurses and physicians in the ECU, when they have been working together for years and seem to have the same language, cooperating with each other and for patients. Among the institutions, an association is seen in the similarity of purposes between the stroke unit team and SAMU team, which make the flow to patients with suspected stroke work, as they use the same line of reasoning in favor of patients in the window time preservation.

Contributions to nursing, health, and public policies

This study brings important contributions to nursing, to the multidisciplinary area and to public health, from the moment that reveals how professional interaction occurs for the EN functioning. Patients with manifestation of acute stroke needs a network ready to assist them and, therefore, trained and interconnected emergency services professionals, making it work. Nurses, professionals who often provide the first care, whether in the RWRS or in emergency rooms, need to develop a directed look and understand the network functioning as a whole, in addition to the disease itself. When discussing this theme, of national importance, the study allows understanding the reality, allowing visualization of possible solutions for the care of patients with stroke, as a public health concern.

Study limitations

The study limitations refer to the fact that it is a local reality, but that can be attributed to other realities of Brazilian capitals, allowing replication of the method.

FINAL CONSIDERATIONS

In this study, communication mechanisms and interaction between professionals from different EN services in the care of patients with stroke were addressed.

According to the health network theory, it is important to emphasize that there is only one "network for themselves", i.e., a network aimed at solving health problems, when nothing that happens in one place is strange to another place. Thus, when situations occur in which professionals from a service do not see the other, or one service does not complement the other, or patients are not seen as belonging to the network, it can be said that the connections between services are flawed, and it is worth questioning whether, in the context studied, the service actually takes place in a network.

It is observed that, in different situations, different levels of relationship are established in which EN is found in the care of patients with stroke in Salvador, Bahia. Depending on the type of interaction, between services or within services, there is greater or lesser construction of action and reflection culminating in binding relationships, legitimacy, discovery of the other or articulation of heterogeneities.

It is noteworthy that connecting elements are necessary, such as flows and protocols, so that there is a greater degree of networking, considering that, when there is knowledge of the role of each one, there is better interaction between people and less conflict relations.

Furthermore, in order for flows and protocols to be known to all, considering professional turnover in emergency contexts, there is an urgent need for permanent health education actions that consequently improve the care of patients with acute stroke.

FUNDING

Financial support (CAPES/PROEX).

REFERENCES

1. Martins HS, Brandão Neto RA, Velasco IT. Abordagem do paciente com acidente vascular cerebral isquêmico agudo. In: Emergências Clínicas: abordagem prática. 14. ed. Barueri: Manole; 2020, p. 824-850.
2. Holmes DR, Hopkins N. O avanço da cardiologia intervencionista e do cuidado do acidente vascular cerebral agudo. J Am Coll Cardiol. 2019;73(12):47-54. https://doi.org/10.1016/j.jacc.2019.01.033
3. Paiva LS, Schoueri JHM, Sousa LVA, Raimundo RD, Maciel ES, Correa JÁ, et al. Diferenças regionais na evolução temporal do AVC: um estudo de base populacional no Brasil de acordo com o sexo em indivíduos de 15 a 49 anos entre 1997 e 2012. BMC Res Notes. 2018;11(1):326. https://doi.org/10.1186 / s13104-018-3439-x
4. Marinho F, Passos VMA, Malta DC, França EB, Abreu DMX, Araújo VEM, et al. Burden of disease in Brazil, 1990–2016: a systematic subnational analysis for the Global Burden of Disease Study. Lancet. 2016;392(10149):760-75. https://doi.org/10.1016/s0140-6736(18)31221-2
5. Santana NM, Figueiredo FWS, Lucena DMM, Soares FM. The burden of stroke in Brazil in 2016: an analysis of the Global Burden of Disease study findings. BMC Res Notes. 2018;11(735):2-5. https://doi.org/10.1186/s13104-018-3842-3
6. Faria AR, Baccin CRA, Masiero AV. Estratégias para o enfrentamento do acidente vascular cerebral: reflexões e perspectivas. Revista Atlante: Cuadernos de Educación y Desarrollo [Internet]. 2019 [cited 2021 Dec 07];(104). Available from: https://www.eumed.net/rev/atlante/2019/02/acidente-cerebral.html
7. Langhorne P, Ramachandra S. Organised inpatient (stroke unit) care for stroke: network meta-analysis. Cochrane Database System Rev. 2020;4(4):CD000197. https://doi.org/10.1002/14651858.cd000197.pub4
8. Vieira LGDR, Cabral NL. O custo do AVC em hospitais privados no Brasil: um estudo prospectivo. Arqui Neuro-Psiquiatr. 2019;77(6):393-403. https://doi.org/10.1590/0004-282x20190056
9. Içagasioglu A, Baklacioglu HS, Mesci E, Yumusakhuylu Y, Murat S, Mesci N. Economic burden of stroke. Turk J Phys Med Rehab. 2017;63(2):155-59. https://doi.org/10.5606/tftrd.2017.183
10. Fonseca ARR, Saron R, Murari W, Fonseca AJ, Buenafuentes MF. Impacto socioeconômico do Acidente Vascular Cerebral no estado de Roraima: um estudo de coorte de base hospitalar. Rev Bras Neur Psiquiatr [Internet] 2018 [cited 2021 Feb 03];22(2):124-41. Available from: https://www.revneuropsiq.com.br/rbnp/article/view/215/153
11. Lije R, Chao L, Weiping L, Yixuan Z, Shisheng Y, Zhichao L, et al. Fast-tracking acute stroke care in China: Shenzhen Stroke Emergency Map. Postgrad Med J. 2019; 95(1119):46-7. https://doi.org/10.1136/postgradmedj-2018-136192
12. Rodriguez-Castro E, López-Dequit I, Santamaría-Cadavid M, Arias-Rivas S, Rodríguez-Yanez M, Pumar JM, et al. Trends in stroke outcomes in the last ten years in a European tertiary hospital. BMC Neurol. 2018;18:164. https://doi.org/10.1186/s12883-018-1164-7
13. Damasceno AN, Lima MADS, Pucci VR, Weiller TH. Health care networks: a strategy for health systems integration. Rev Enferm UFSM. 2020;10(14):1-14. https://doi.org/10.5902/2179769236832
14. Pacheco MAB (Org). Redes de atenção à saúde: rede de urgência e emergência. São Luís: Universidade Federal do Maranhão; 2015.
15. Cunha VP, Erdmann AL, Santos JLG, Menegon FHA, Nascimento KC. Atendimento a pacientes em situação de urgência: do serviço pré-hospitalar móvel ao serviço hospitalar de emergência. Enferm Actual (Costa Rica). 2019;(37):1-15. https://doi.org/10.15517/revenf.v0ino.37.34744

16. Ministério da Saúde (BR). Resolução nº 466, de 12 de dezembro de 2012 [Internet]. 2012 [cited 2021 Mar 02]. Available from: https://bvsms.saude.gov.br/bvs/saudelegis/cns/2013/res0466_12_12_2012.html

17. Ministério da Saúde (BR). CNS. Resolução nº 510, de 07 de abril de 2016 [Internet]. 2016 [cited 2021 Mar 02]. Available from: http://bvsms.saude.gov.br/bvs/saudelegis/cns/2016/res0510_07_04_2016.html

18. Fleury SMT. Gestão de redes: a estratégia de regionalização da política de saúde. Rio de Janeiro: Editora FGV; 2007.

19. Corbin J, Strauss A. Basics of Qualitative research: Techniques and procedures for developing Ground Theory. 4. ed. Los Angeles: Artmed; 2015.

20. Strauss A, Corbin J. Pesquisa qualitativa: técnicas e procedimentos para o desenvolvimento de teoria fundamentada. 2. ed. Porto Alegre: Artmed; 2008.

21. Rovere M. Redes En Salud: Un Nuevo Paradigma para el abordaje de las organizaciones y la comunidad. Rosario: Ed. Secretaría de Salud Pública/AMR, Instituto Lazarte; 1999.

22. Alves M, Melo CL. Handoff of care in the perspective of the nursing professionals of an emergency unit. Rev. Min. Enferm. 2019;23:e-1194. https://doi.org/10.5935/1415-2762.20190042

23. Druck G. The outsourcing in public health: various forms of precarization of labor. Trab Educ Saúde. 2016;14(1):15-43. https://doi.org/10.1590/1981-7746-sol00023

24. Souza HS, Mendes AN. Outsourcing and "dismantling" of steady jobs at hospitals. Rev Esc Enferm USP. 2016;50(2):284-91. https://doi.org/10.1590/ S0080-623420160000200015

25. O'Dwyer G, Konder MT, Reciputti LP, Macedo C, Lopes MGM. Implementation of the Mobile Emergency Medical Service in Brazil: action strategies and structural dimension. Cad Saúde Pública. 2017;33(7):e00043716. https://doi.org/10.1590/0102-311x00043716

26. Duarte MLC, Glanzner CH, Pereira LP. Work in hospital emergency: suffering and defensive nursing care strategies. Rev Gaúcha Enferm. 2018;39:e2017-0255. https://doi.org/10.1590/1983-1447.2018.2017-0255

27. Coifman AHM, Pedreira LC, Jesus APS, Batista REA. Interprofessional communication in an emergency care unit: a case study. Rev Esc Enferm USP. 2021;55(e03781). https://doi.org/10.1590/S1980-220X2020047303781

28. Penaforte WC, Sousa MG, Nóbrega ASFA, Andrade AN, Freires MAL, Medeiros RLSFM. Interpersonal relationships: Perception of health professionals at a hospital emergency. Rev Bras Educ Saúde. 2020;10(1):136-42. https://10.0.71.202/rebes.v10i1.8022

29. Brandão MGSA, Lúcio KDL, Aguiar DV, Silva LA, Caetano JÁ, Barros LM. Factores de motivación en el desempeño de personal de enfermería. Cult Cuid. 2019;(54):255-6. https://doi.org/10.14198/cuid.2019.54.22

30. Konder M, O'dwyer M. As Unidades de Pronto Atendimento como unidades de internação: fenômenos do fluxo assistencial na rede de urgências. Physis. 2019;29(2):e290203. https://doi.org/10.1590/s0103-73312019290203

31. Ministério da Saúde (BR). Secretaria de Atenção Especializada. Departamento de Atenção Especializada. Linha de Cuidado do Acidente Vascular Cerebral: AVC na Rede de Atenção às Urgências [Internet]. 2012[cited 2021 Mar 02]. Available from: http://conitec.gov.br/images/Protocolos/pcdt-cuidados-AVC.pdf

32. Peiter CC, Santos JLG, Lanzoni GMM, Mello ALSF, Costa MFBNA, Andrade SR. Healthcare networks: trends of knowledge development in Brazil. Esc Anna Nery. 2019;23(1):e20180214. https://doi.org/10.1590/2177-9465-ean-2018-0214

33. Ministério da Saúde (BR). Portaria nº 10 de 3 de janeiro de 2017. Redefine as diretrizes de modelo assistencial e financiamento de UPA 24h de Pronto Atendimento como Componente da Rede de Atenção às Urgências, no âmbito do Sistema Único de Saúde [Internet]. Brasília; 2017 [cited 2021 Mar 02]. Available from: http://bvsms.saude.gov.br/bvs/saudelegis/gm/2017/prt0010_03_01_2017.html

34. Mueller LR, Donnelly JP, Jacobson KE, Carlson JN, Mann CN, Wang HE. National characteristics of emergency medical services in frontier and remote areas. Prehosp Emerg Care 2016;20(2):191-9. https://doi.org/10.3109/10903127.2015.1086846

35. Li T, Munder SP, Chaudrhry A, Madan R, Gribko M, Arora R. Emergency Medical Services Providers' Knowledge, Practices, And Barriers To Stroke Management. Open Access Emerg Med. 2019;15(11):297-03. https://doi.org/10.2147/OAEM.S228240

36. Mourão AM, Vicente LCC, Chaves TS, Sant`Anna RV, Meira FC, Xavier RMB, et al. Profile of patients with a diagnosis of stroke attended at a hospital in minas gerais accredited in the care line. Rev Bras Neurol. 2017;53(4):12-16. https://doi.org/10.46979/rbn.v53i4.14634

37. Janssen PM, Venema E, Dippel DWJ. Effect of workflow improvements in endovascular stroke treatment: A systematic review and meta-analysis. Stroke. 2019;50(3):665-74. https://doi.org/10.1161/STROKEAHA.118.021633

38. Xyrichis A, Reeves S, Zwarenstein M. Examining the nature of interprofessional practice: an initial framework validation and creation of the Interprofessional Activity Classification Tool (InterPACT). J Interprof Care. 2017;32(4):416–25. https://doi.org/10.1080/13561820.2017.1408576

39. Zhang S, Zhang J, Zhang M, Zhong G, Chen Z, Lin L, et al. Prehospital Notification Procedure Improves Stroke Outcome by Shortening Onset to Needle Time in Chinese Urban Area. Aging Dis. 2018;9(3):426–34. https://doi.org/10.14336/AD.2017.0601

40. Opeolu Adeoye, Nyström KV, Yavagal DR, Luciano J, Nogueira RG, Zorowitz RD, et al. Recommendations for the Establishment of Stroke Systems of Care: a 2019 Update. Stroke. 2019; 50(7):e187–e210. https://doi.org/10.1161/STR.0000000000000173

41. Hsieh MJ, Tang SC, Chiang WC, Tsai LK, Jeng JS, Ma MHM. Effect of prehospital notification on acute stroke care: a multicenter study. Scand J Trauma Resusc Emerg Med. 2016;24(1). https://doi.org/10.1186/s13049-016-0251-2