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ORIGINAL ARTICLE

Recognition of Emergency Telephone Numbers (190,192 and 193) by the Brazilian Population

Aline Affonso Luna[1], Raphael Barbosa Bica[2], Carlos Henrique Avelino dos Santos[3]

Highlights

1. Participants have a high level of education.
2. Unfamiliarity with the duties of the fire department and Samu.
3. High recognition and assertiveness of the military police's 190 number.

ABSTRACT

Objective: Identify the percentage of people capable of recognizing the numbers and differentiating between emergency services. *Method*: A descriptive, cross-sectional study with a quantitative approach, carried out using the snowball methodology, with the participation of 438 individuals living in all regions of Brazil, from May 3 to June 9, 2022. The inclusion criteria were: an individual of legal age, Brazilian or foreign, living in Brazil and fluent in Portuguese. The project was approved by the Research Ethics Committee, opinion number 5.374.858. *Results*: The survey showed that there was more female participation (64.1%) and a predominance of young people aged between 21 and 30 (37.9%). The Midwest region stood out with the highest percentage of correct answers when it came to recognizing the three emergency numbers. There was a greater number of correct associations between the number/service of the military police(92.2%) and a high percentage of correct answers (96%) referring to the telephone number of the same institution associated with the situation/problem presented. *Conclusion*: The population's lack of clarity about the numbers and duties of the mobile emergency care service and the fire department was evident. It is believed that unifying the numbers is an alternative that seeks to eliminate doubts about the numbers and attributions of each of the services.

Keywords: hotlines; emergency medical dispatch; pre-hospital assistance; emergency nursing.

[1] Federal University of the State of Rio de Janeiro (Unirio). Rio de Janeiro/RJ, Brazil. https://orcid.org/0000-0002-7648-8634
[2] Federal University of the State of Rio de Janeiro (Unirio). Rio de Janeiro/RJ, Brazil. https://orcid.org/0009-0004-4029-6843
[3] Federal University of the State of Rio de Janeiro (Unirio). Rio de Janeiro/RJ, Brazil. https://orcid.org/0009-0007-4503-9127

INTRODUCTION

The emergency services, the Military Police (PM), the Mobile Emergency Care Service (Samu) and the Fire Department (CB), can be easily called, free of charge, via mobile and landline telephones in any region of the country, by simply dialing the specific code for each of the services.

Before the 1980s, telephone numbers were made up of several digits and calls were paid for. From then on, the United Nations (UN) demanded that Brazil have toll-free emergency numbers to contact the available services[1]. Therefore, to make it easier to remember and to make access to the services public, the numbers 190, 192 and 193 were designated to call the police, ambulance and fire department centers, respectively, throughout the country.

The military service, which includes police officers and firefighters, originated in the 19th century and has evolved in tandem with the changes that have taken place since its creation, including the revolution in means of transportation, lighting and communication[2-3]. The service to assist victims at the scene of an emergency in Brazil also originated in the 19th century, when in 1893 a law was passed establishing emergency medical assistance on public roads in the state of Rio de Janeiro. In 1899, the Fire Department in the same city put into practice the country's first ambulance[3].

For a long time, Pre-Hospital Care (PHC) coexisted with a lack of specific legislation. Firefighters were pioneers and predominant in the service throughout the country, until initiatives such as the "Rescue Project" in São Paulo and the "Fire Department Emergency Group" in Rio de Janeiro emerged in the 1980s, beginning the transition of APH from firefighters to the health sector, encompassing both nursing and medicine in the "service"[4].

At the same time as these initiatives, others also emerged in various states across the country, each with its own peculiarities, but always with the same goal in mind: to structure pre-hospital care. Then, on September 29, 2003, the Ministry of Health (MS), through Ordinance No. 1863/GM, instituted the National Emergency Care Policy, with one of its focuses being to organize pre-hospital care in the country[5].

On April 27, 2004, the Ministry of Health, through Decree No. 5,055, established the SAMU, which, like the Military Police and the Civil Guard, operates by calling a specific center. In this case, by dialing 192[6].

Therefore, the three emergency numbers are designed to make it easier for the population to memorize and access the services, since the speed with which the fire department or SAMU can provide help has a direct impact on the resolution of complications. "The need for prompt care is due to the fact that the first few hours after a traumatic event have been identified by several authors as the period with the highest mortality rate."[7]

As with medical assistance, the quality of CB and PM support is also influenced by how quickly the services are able to be mobilized to respond to the call for help. The response time is considered to be the interval between the expression of the call for help and the arrival of the team at the scene of the event. This is only one of the indicators used to assess the quality of the emergency services and is not sufficient for an overall assessment of the response to an event.[8]

Having said that, it is necessary to highlight the time that is lost even before contacting the call centers, since in Brazil, unlike the United States, with the 911 center, or the European Union with the unified 112 number, the speed dials for emergencies vary depending on which service is needed.

As simple as the numbers are, people tend to get confused or have no idea which phone code belongs to the PM, Samu or CB. This lack of knowledge , combined with the emergency scenario, where very intense emotional reactions are expected,[9] delays the activation of specialized assistance, which can then contribute to worsening the scenario.

This study is justified by the need to assess the proportion of the population capable of recognizing and differentiating between emergency telephone numbers, in order to find out how prepared the population is in the face of an emergency scenario, given the lack of scientific research that has a direct impact on the resolution of complications related to the call for specialized police, medical or fire departments. It is understood that the population needs to be clear about emergency numbers in order to guarantee the preservation of the subjects' autonomy, through educational processes.[10]

Knowing and recognizing the emergencies for which each corporation should be called upon is essential so that, in the emergency scenario, actions are coordinated, allowing quick and effective contact with specialized services, because, depending on the situation, there may be doubts about when to call the Samu, the CB or the PM.

The Military Police's 190 number is used for police emergencies, which include: situations in which a crime has just occurred or is in progress, when the physical integrity of a citizen or property is at risk, when there is a disturbance of the peace (Law No. 4.092 - Law of Silence), among others. The number 192, which refers to Samu, is responsible for attending to emergencies of a medical nature such as: sudden cardiac and respiratory problems, loss of consciousness, traumas with or without bleeding, hemorrhages, burns, fractures, falls and a series of situations ranging from traumatic emergencies to psychiatric emergencies.

The CB can be called on 193 and is responsible for emergencies such as: fires, water rescues and/or rescues in hostile environments, landslides and mudslides, gas leaks, emergencies involving dangerous products and fuels, animal attacks, among others. It should be noted that, depending on the situation, two or more services can and should be activated simultaneously, always seeking complete coverage of the infinite emergency scenarios.

The aim of this study was to identify the percentage of people able to recognize numbers and differentiate between emergency services.

MATERIALS AND METHODS

This is a descriptive, cross-sectional study with a quantitative approach.

The study was carried out in a virtual environment by applying an online form, using the "snowball" technique, which has proved to be a process of permanent gathering of information, taking advantage of social networks to provide the researcher with an ever-growing pool of potential contacts.[11]

The "snowball" methodology process involved recruiting individuals known as "seeds", which, in this case, were professors of undergraduate nursing courses in each Brazilian state plus the capital, chosen at random via the *Lattes Platform*. The teachers (seeds) were responsible for inviting new people to take part in the survey.

It is important to clarify that the choice of university teachers was a way of following a selection criterion to start collecting data. From then on, the invitation could be extended to anyone, regardless of whether they were part of the academic world. The survey aimed to collect common sense information. The responses were terminated when they reached a number of participants from all regions of Brazil.

The inclusion criteria were: an individual of legal age, Brazilian or foreign, living in Brazil and fluent in Portuguese.

The data was collected by applying a questionnaire summarily sent to the "seeds" on the "*Google Forms®*" platform. The questionnaire was divided into six sections: 1) invitation letter and Informed Consent Form (ICF); 2) acceptance as to whether or not take part in the survey; 3) questions about socio demographic aspects (gender, age, nationality, place of birth and level of education); 4) a section exclusively for foreigners (nationality and fluency in Portuguese); 5) three questions about emergencies; 6) questions about emergency service numbers.

The questionnaire was available for responses from May 3, 2022 to June 9, 2022. The data obtained was organized in *Excel®* spreadsheets, version 2011, and analyzed using descriptive statistics.

The project was approved by the Research Ethics Committee of the Federal University of the State of Rio de Janeiro (Unirio) under opinion No. 5.374.858, in compliance with the requirements established by Resolution No. 466/2012 and Resolution No. 510/2016, which approve the regulatory standards for research involving human beings.

RESULTS

The survey obtained a sample of 438 responses, of which 435 (99.3%) were Brazilian and the rest were of foreign nationality, represented by Chile, the Netherlands and Peru. All the answers were analyzed, however, by identifying the socio demographic profile of the sample (Table 1), nationality was not included due to the low number of respondents.

Table 1 – Socio-demographic profile of the sample (n = 438). Rio de Janeiro, RJ, Brazil (2022)

Variables	n	%
Sex		
Female	281	(64,1)
Male	148	(34,7)
Not informed	9	(2,0)
Age		
Up to 20 years	37	(8,4)
Between 21 and 30 years old	166	(37,9)
Between 31 and 40 years old	84	(19,1)
Between 41 and 50 years old	78	(17,8)
Between 51 and 60 years old	31	(7,0)
Over 60	39	(8,9)
Not informed	3	(<1)
Regions of residence		
Midwest	30	(6,8)
North East	37	(8,4)
North	14	(3,1)
South East	292	(66,6)
South	62	(14,1)
Not informed	3	(<1)
Level of education		
Incomplete primary education	2	(<1)
Complete primary education	1	(<1)
High school incomplete	3	(<1)
Completed high school	32	(7,3)
Higher education incomplete	129	(29,4)
Higher education completed	135	(30,8)
Postgraduate studies	29	(6,6)
Master's Degree	45	(10,2)
Doctorate	53	(12,1)
Post-doctorate	7	(1,5)
Not informed	2	(<1)

The survey showed that more women (64.1%) took part than men (34.7%). There were more responses from people aged between 21 and 30 (37.9%).

The participants' level of education shows a cross-section of the population with a longer period of study, with 91% of the participants having at least incomplete higher education.

In terms of geographical distribution, it can be seen that the snowball methodology made it possible to obtain data from all regions, and there was a concentration of data close to the source of the research. The southeast (66.6%) accounted for more than two-thirds of the responses, followed by the south, northeast, midwest and north.

We chose to present the percentages of hits and misses of the sample, based on recognition of the numbers 190, 192 and 193 (Table 2), separated by region, in order to map out a national profile. The responses of the 3 individuals in the sample who did not state their state of residence were not included in the analysis.

Table 2 – Hits and misses on emergency telephone numbers by Brazilian region (n=435). Rio de Janeiro, RJ, Brazil (2022)

Emergency number/regions		Hits	Errors	Not informed	Total
		n (%)	n (%)	n (%)	n (%)
190	Midwest	29 (97)	1 (3)	0 (0)	30 (100)
	North East	32 (86)	5 (14)	0 (0)	37 (100)
	North	13 (93)	0 (0)	1 (7)	14 (100)
	South East	268 (91)	23 (8)	1 (1)	292 (100)
	South	59 (95)	3 (5)	0 (0)	62 (100)
192	Midwest	24 (80)	6 (20)	0 (0)	30 (100)
	North East	22 (59)	13 (35)	2 (6)	37 (100)
	North	8 (57)	5 (36)	1 (7)	14 (100)
	South East	217 (74)	73 (25)	2 (1)	292 (100)
	South	45 (72)	17(28)	0 (0)	62 (100)
193	Midwest	23 (76)	7 (24)	0 (0)	30 (100)
	North East	21 (57)	14 (38)	2 (5)	37 (100)
	North	7 (50)	6 (43)	1 (7)	14 (100)
	South East	211 (72)	78 (27)	3 (1)	292 (100)
	South	46 (74)	15 (24)	1 (2)	62 (100)

The Central-West region stood out with the highest percentage of correct answers when it came to recognizing the three emergency numbers, compared to the other Brazilian regions. The northeast region obtained similar results, but underperformed when it came to not recognizing the number 190, represented by 14% of answers with errors. With regard to the numbers 192 and 193, the Northern region had the lowest percentage of correct answers, 36% and 43% respectively.

With a view to providing a general view of the national reality, it was decided to analyze all the answers from the sample together (Table 3), in relation to the association of telephone numbers with the emergency services provided.

Table 3 – Association between telephone numbers and emergency services provided (n=438). Rio de Janeiro, RJ, Brazil (2022)

Emergency numbers	Hits n (%)	Errors n (%)	Not informed n (%)
190 (PM*)	404 (92,2)	CB*:18 (4.1) SAMU*: 14 (3,1)	2 (<1)
192 (SAMU*)	318 (72,6)	CB*: 101 (23) PM*: 14 (3,1)	5 (1,1)
193 (CB*)	310 (70,8)	SAMU*: 106 (24,2) PM*: 15 (3,4)	7 (1,5)

*PM: Military Police; SAMU: Mobile Emergency Care Service; CB: Fire Department.

There was a greater correct association between the police number/service - 190 (92.2%). There was confusion in the sample regarding the SAMU - 192 services, with incorrect answers correlated to the CB (23%), as well as incorrect answers for the CB - 193 associating the number with the SAMU service (24%).

In order to check whether the Brazilian population can identify a situation/problem with the type of emergency service that should be called, some of them were listed to check the percentage of correct answers and errors (Table 4).

Table 4 – Recognizing situations/problems to call the correct emergency service (n = 438). Rio de Janeiro, RJ, Brazil (2022)

Situations/problems	Hits* n (%)	Errors n (%)	Not informed n (%)
An armed robbery with no victims.	PM: 419 (≅96)	Samu: 6 (1) CB: 10 (2)	3 (>1)
A traffic accident on an urban road with one victim hit by a car, with no people trapped in the wreckage.	Samu: 270 (≅ 62)	CB: 112 (25) PM: 52 (12)	4 (>1)
A fainted person next to a fallen pole with energized cables.	CB: 289 (≅ 66)	SAMU: 105 (24) PM: 40 (9)	4 (>1)

*The numbers 112 and 911 were considered correct in all situations.

There was a high percentage of correct answers (96%) to the PM's telephone number. The results found for Samu and CB were higher than 50% for both, but the high percentage of incorrect answers regarding the emergency number/service to be called is worrisome.

The European (112) and American (911) numbers combined appeared in 1% of the answers in the first situation and 2.5% in the second and third. These numbers serve as access to a single center responsible for managing the three emergency services (PM, Samu and CB). It is important to note that since 2013, the National Telecommunications Agency (Anatel) has approved their use to contact the police emergency service in Brazil. We therefore chose to consider them as a hit for all situations.

DISCUSSION

The survey showed a majority female profile (64.1%), which far exceeds the proportion seen in the Brazilian population according to the 2010 IBGE census, in which the percentage difference between men and women is 2%, but which is explained by the fact that the approach used focused primarily on nursing professors, who have a large majority of female graduates.[12] The most common age group is "young people between 21 and 30 years old" (37.9%) which, together with "up to 20 years old", reflects the environment in which this study took place, since 78.8% and 73.3% of those enrolled in public and private colleges, respectively, are between 19 and 29 years old.[13]

With regard to schooling, according to data from the Continuous National Household Sample Survey (PNAD),[14] the level of education of people aged 25 and over corresponds to 21.4% of the population with complete or incomplete higher education, in contrast to this survey, which includes 91% of participants over the age of 18 with at least incomplete higher education. Another factor, still associated with the level of education, is the significant percentage of participants with a doctorate, which can be explained by the methodology used, and by the criterion for selecting university professors as "seeds".

As for the distribution of responses, the Central-West region stands out with 6.8% of the responses and the South region with 14.1%. The number of participants in these regions differs from what is seen in the country, with the Northeast as the second most populous region and the Midwest as the least populous[15]

Emergency care differs in terms of its purpose. The police service, focused on combating crime and public disorder; Samu, for medical emergencies; and the Fire Department, which covers everything from fires to land/water rescues[5].

The survey sample, represented by the individuals, showed a high percentage of unfamiliarity as to the duties of the CB and Samu. This issue is not seen as a problem in metropolitan areas, considering the existence of Integrated Regional Command and Control Centers (CICCR) or the availability of other devices responsible for integrating emergency services.

Taking the state of Rio de Janeiro as an example, the Rio de Janeiro State Military Fire Department (CBMRJ) in its 2020 and 2021 yearbooks, was responsible for managing the since 2006, when, in 2020, it was transferred to the Rio de Janeiro State Health Department (SES-RJ). In this context, the change of management was aimed at allowing firefighters to dedicate themselves almost entirely to trauma and highly complex clinical events, since during the years of co-management, demands for less complex clinical care sometimes culminated in the unavailability of advanced vehicles and increased response times.[16-18]

Even with the division of management bodies, clinical events related to time-sensitive illnesses continue to be attended to by the CBMRJ, which has, within the structure of the General Directorate of Operational Command and Control (DGCCO), a team of medical regulators from the APH Operations Center (COAPH), responsible for screening and regulating dispatches via SAMU or CB.[16-17,19]

The reality seen in the large cities is that there is integration between the services, either through single management or a central regulatory body. The organization of the service in this model promotes improved care linked to the ability to properly manage requests for help. This way, after screening the situation/problem, it is possible to deploy the support teams that are needed[17]

This integration is not seen throughout the country and comes up against barriers related to the lack of structural and financial resources and the territorial dimension.[7] However, one aspect that has been little addressed and is the subject of this research is the impact of the lack of knowledge of emergency telephone numbers. Throughout the country, the numbers for contacting the services

discussed here are the same: 190, 192 and 193; integration and dispatch conditions vary according to each state/municipality. It is therefore up to the citizen to know how to differentiate between the duties of the MP, Samu and CB, and to interpret/classify the risk of the scene in order to then call the correct service.

These discussions, combined with a chaotic and stressful scenario, can make it difficult for people to know how to call the appropriate emergency service. Unification, followed by investment in efficient regulation, seems to be a promising way to ensure that, in emergency scenarios, those involved - victims and witnesses - are able to call on specialized teams.

The sample included in this survey had a considerable percentage of errors when it came to recognizing the SAMU and CB numbers associated with their functions. These services are closely related to pre-hospital care. In addition, there was a high percentage of correct answers and a high level of knowledge about the police's 190 number.

That said, there are currently four bills in force: PL 175/2011, authored by Antônio Carlos Mendes Thame - PSDB/SP; PL 8.033/2014, by Rogério Peninha Mendonça – PMDB/SC and PL 151/2020 by David Soares – DEM/SP, which aim to institute the single code number 190 for access to emergency services. These bills are attached to Senate Bill 6.236/2013, by Raimundo Colombo – DEM/SC, which, since September 11, 2013, has been listed as "Ready for Plenary" and has not yet been voted on.

The survey was limited by the snowball method, which was essential for obtaining responses in the various Brazilian regions and states, but which brought with it a cross-section of the population with a high level of schooling, and therefore did not portray those parts of the population without complete secondary education. In addition, it was not possible to obtain responses from all the states in the country, due to the short period that the survey was open and highlighting the weaknesses of the snowball methodology, related to the approach to "seeds".

CONCLUSION

The results of the survey showed a lack of clarity between the Samu and CB numbers and a high level of recognition and assertiveness regarding the PM.

This study has shown that, even in a highly specialized section of society, there is misinformation about the numbers and functions of each service. This research goes hand in hand with the above-mentioned bills, as it shows a greater awareness and use of the 190 number.

It is believed that the unification of numbers is an alternative that seeks to eliminate doubts about the numbers and attributions of each of the services, reducing to one number the activation of any of the services, depending on the emergency exposed by the individual.

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Aline Affonso Luna: conceptualization; methodology; project management; supervision; writing – proofreading and editing; data presentation design; obtaining funding.

Raphael Barbosa Bica: conceptualization; data curation; form analysis; research; methodology; writing the original manuscript.

Carlos Henrique Avelino dos Santos: methodology; formal analysis; writing – proofreading and editing.

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Corresponding author
Aline Affonso Luna
Federal University of the State of Rio de Janeiro (Unirio)
Rua Dr. Xavier Sigaud, 290 – Urca. Rio de Janeiro/RJ, Brazil. ZIP CODE: 22290180
aline.luna@unirio.br

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