
ABSTRACT
Objective: To know the profile of service and satisfaction of users served by the Mobile Emergency Care Service (SAMU).
Methods: A cross-sectional study of the 854 services performed by the Advanced Life Support (SAV) teams from SAMU of Porto Alegre/RS, in the first quarter of 2016. A total of 164 users or respondents answered by phone to the questions regarding the service performed. Analysis performed using the Spearman and Chi-square tests. Study approved in Ethics and Research Committee of the Institutions involved.
Results: A higher percentage of clinical visits (48.2%) followed by trauma care (32.8%). Regarding telephone calls, 71.4% of respondents rated the service as ‘very good’ while the service was classified by 76.8% of the respondents. From them, 81.1% stated that the service was resolving.
Conclusions: The clinical type stands out among the assistances and the users reveal satisfaction with the service provided, considering that it serves the population resolutely.
Keywords: Emergency medical services. Emergency nursing. Patient satisfaction.
INTRODUCTION

The Mobile Emergency Care Service (SAMU) provides 24-hour care for urgent and emergency health problems through specialized vehicles that go to where the user is(1). According to the Ministry of Health, the SAMU mode of care is classified in primary pre-hospital, when it comes from the user; and secondary care, for detachment of patients between hospitals whose care demands of greater complexity(2).

When requesting the number 192, the call is received by the Auxiliary Medical Regulatory Technician (TARM), which is responsible for collecting data such as user identification, patient situation, scene location, passing information to Medical Regulation(3). The regulator, a medical professional, is responsible for evaluating the occurrence and severity of the patient, determining the type of care: if there is a need to send vehicles and which team specialty directs the patient to the place during care(4).

SAMU has Ambulances of the Basic Life Support (SBV) type (B), with crew composed of driver and nursing technician; Advanced Life Support (D), with driver, doctor and nurse; Medical Transport Aircraft (E), containing pilot, doctor and nurse; and Medical Transport Vessel, which provides basic or advanced support(2,3,7). The Advanced Life Support (SAV) deals with cases that require a greater complexity of care, such as severe trauma and cardiorespiratory arrest, where the severity exposes the patient to the increased risk of death still in the scene(4).

Currently, SAMU serves 75% of the population in the national territory(5). Throughout the country, 2,965 mobile units are enabled, with 2,382 Basic Support Units, 567 Advanced Support Units and 217 Motolances, with nine Vessel Teams and seven Aeromedical Teams(5). The resources allocated by the Ministry of Health to support the service increased over the years, from R$ 432 million in 2011 to R$ 533 million in 2012(11). In the United Kingdom, the National Health Service (NHS) performs prehospital care through the NHS 111, where the satisfaction of users with the service reaches 63% agreement on the mobile emergency service in terms of resolution of the health problem and 59% satisfaction with the care provided(11).

SAMU/RS is organized with the support of multidisciplinary teams, consisting of 5 doctors, 5 TARM, 10 telephone operators and 1 nurse, as well as other professionals such as radio operators and telephone operators(3). In the city of Porto Alegre (RS, Brazil), SAMU started in 1995, according to the French model stay-and-play where the care is performed preferably at the place of occurrence until the stabilization of the victim. Sorry about the inconvenience but here is the right transcription(5,7). The advanced support vehicles must have the presence of a doctor and a nurse(2).

The nurse’s role in the emergency and emergency services is supported by Resolution 375/2011, with the participation of this professional in prehospital care (APH) in serious situations, with the presence of the nurse practitioner in the SAV services(5). In addition, this professional is responsible for the development of educational activities for the emergency services team, as well as leading, organizing and planning patient care(2,3).

The SAMU of Porto Alegre has 15 ambulances available for use, three of which are advanced life support and 12 basic life support. It also works with a Quick Intervention Vehicle (VIR) that supports the other ambulances and serves as an Advanced Support, not transporting patients. It also has three ambulances of low complexity, which carry patients between hospitals or for the conduct of examinations. It receives about 30 thousand monthly calls, from requests for information, to mistakes and pranks (40%)(9). As a public service and rapid response to the health problems of the population, SAMU needs feedback of the users served. Currently, there are few studies in the national and international literature about the profile and user satisfaction served by SAMU.

The team’s knowledge about the results of attending the assisted population could be considered an important indicator of the effectiveness of the care provided(5). Satisfaction relates to how the expectations of the user are met and their needs effectively met(10). The perceptions and opinions of the users are important, since they make possible the reflection dimensions of the actions that have been developed in the health sector, serving as object of directing and planning the work(10). Also, recognizing the type of service most requested, allows planning and planning the assistance directed to the needs of the population(11). In this way, the research problem was investigated: what is the population service profile and the level of user satisfaction about SAMU in Porto Alegre?

SAMU as a public health service, given the role of providing PHC to the population, can be qualified by knowing the main demands of the users’ assistance, improving the service. In this way, the objective is to analyze the profile of customer service and satisfaction by the Mobile Emergency Service (SAMU) of Porto Alegre.

METHODOLOGY

This is a descriptive cross-sectional study with a quantitative approach, the area of activity being the SAMU of Porto Alegre/RS. In the city, the service has 13 decentralized
bases in different regions of the city, they are: ER Hospital, Cristo Redentor Hospital, Cavalhada, Belém Novo, Bom Jesus, Restinga, Centro Vida, Navegantes, Partenon, Pronto Atendimento Cruzeiro do Sul, Lomba do Pinheiro, Serraria e Morro Santana, plus 3 ambulances for SAV and 12 for SAB calls. The study participants were the users and/or those responsible for the users served between January and March 2016 by SAMU Advanced Life Support in Porto Alegre.

To calculate the sample size, the number of SAMU Advanced Support monthly visits was considered in the period from January to March 2015 (9,168 visits) in order to guarantee the representativeness of the information and to consider the seasonality of the service for the application of the survey in the same months in 2016. The inclusion criteria were users served by the service or responsible/family members of the users served by the SAMU Advanced Support of Porto Alegre. Those who did not have the telephone number registered in the contact system and did not follow the patient's face-to-face care by the SAMU team were excluded from the study. For users incapacitated to respond or under 18 years of age, those responsible or relatives over 18 years of age were considered as respondents.

Data collection took place in three stages. First, a search was made in the system of the regulation center of SAMU, in the administrative headquarters in order to identify the number of calls and calls recorded between January and March 2016. In the second stage, variables relevant to the research were collected, such as telephone, age, gender, reason for the applicant’s connection to SAMU. Afterwards, the data collection of the study was started, through the application of a telephone questionnaire on the satisfaction of the service provided by the SAMU. In order to measure users’ perceptions, each respondent assigned a score between 0 and 10 in relation to the telephone and face-to-face calls of the ambulance staff. This note was used as reference for the classification of care through a concept. Therefore, the following classification was adopted: notes from 0 to 6 correspond to 'bad' service, scores from 7 to 8 correspond to 'good' service and scores from 9 to 10 correspond to 'very good' service. Data collection via telephone contact occurred between April and July 2016.

The collection logistics was defined after a one-week pilot test with SAMU services, which occurred in March 2016 and these did not compose the sample evaluated in this study. One nursing student, a member of the project team, was responsible for all phone calls. At the first contact, the interviewer read the Informed Consent Form (ICF), in order to obtain science and agreement for participation in the study, and faced with the denial of participation, the connection was terminated.

The calls lasted on average 7 minutes and at the end of the interview was reinforced to the participant user who would be guaranteed secrecy of the information and the right to attend in the future without any loss.

The research followed the Resolution of the National Health Council 466/2012 and was approved by the Research Ethics Committee of the University under the opinion 1.388.623, dated 14/01/2016 and CAAE 50568015.3.0000.5345, and by the Municipal Health Department of Porto Alegre under opinion 1.439.628, dated 06/03/2016 and CAAE: 50568015.3.3001.5338.

Data on SAMU services were extracted from the computerized system of the Porto Alegre (SAPH True®) and transported to a spreadsheet in Excel® format to identify the user to be interviewed. For each participant, three contact attempts were made, on different days of the week and at different times. If, after these three attempts, the user did not answer the phone, he would be automatically excluded from the search. All the data collected during the interview were stored in a database developed exclusively for the study and in sequence, the data were exported to the SPSS version 23 where the exploratory analysis of the variables was performed. For inferential statistical analysis, we used the Spearman and Chi-square test, considering the level and significance p<0.05.

**RESULTS**

The SAMU of Porto Alegre received 92,959 calls between January and March 2016. From them, 21,090 (22.69%) were referred to the regulatory physician, who evaluated the need for ambulance movement. From the 21,090 calls regulated by the doctor, ambulances were sent to 10,891 calls, of which 9,168 were actually performed, including Basic Support and Advanced Life Support. Every month there is this gap in care. The reasons for these 1,723 non-effective visits were diverse, but the predominant motive was the received trots (10.25% of the calls). Chart 1 shows the 9,168 cases performed, subdivided by type of relief provided.

In the first quarter of 2016, 854 (7.84%) of the services were provided through SAMU Advanced Support in Porto Alegre, of which 609 were identified as eligible for telephone contact. From the 609 connections made to users, 164 answered the questions presented and participated in the study. Twenty-seven individuals refused to participate in the study. Analyzing the profile of users who evaluated the service provided by SAMU, it was observed that 104 (63.4%) are males aged between 21 and 30 years (15.9%) and between 71 and 80 years (15.2%). In the sample of interviewees, only 3% were patients attended by SAMU;
45.7% revealed to be familiar or responsible of the patient attended and 54.3% are popular or neighbors who made the request to the SAMU.

In these 164 Advanced Support services, the same pattern of type of relief is observed: 99 (60.4%) clinical visits; 57 (34.8%) traumatic; 3 (1.8%) exclusive transportation services; 3 (1.8%) obstetric and 2 (1.2%) psychiatric. The most prevalent clinical interventions in the study are cases of cardiorespiratory arrest and cases of fainting (25.6% of the services), unconsciousness or decreased sensority (11.5% of the services). Among the services in the trauma category, there is a greater record of accidents due to injuries of firearms and white arms (10.3%), followed by traffic accidents (7.8%) and road accidents (7.3%).

When analyzing the time spent on the telephone, when the first information about the case is collected, added to the regulation system and passed on to the regulator and the time perceived by the requestor, a low but significant correlation (p=0.016). There was a difference in the time distribution to the telephone perceived by the requestor and time registered by the SAMU office (X²=5.67 and p < 0.017), presented in Table 1.

Analyzing the waiting time records for the arrival of the ambulance according to the records of SAMU, it was noticed that the average time of response of the teams is of 16.98 minutes. When analyzed from the applicants’ perspective, this average response time decreases to 16.87 minutes. This reduction in the mean numbers is not statistically significant (p-value > 0.05). It was observed a moderate and significant correlation between the perceived and recorded times, a correlation measured by the Spearman test (ρ=0.49 and p-value < 0.01). According to Table 2, the differences between the percentages of applicants who perceive the time to arrival of the ambulance equal to the time recorded in the SAMU are small but significant. There is a difference in the distribution of perceived times and times recorded by the SAMU central (X²= 40.48; p-value < 0.01).

As for telephone service, the participants classified it as: 11% bad; 17.7% good and 71.4% very good. As for face-to-face care, care was classified as: 5.5% bad; 17.6% good and 76.8% very good. The t-test for paired data shows that the satisfaction of face-to-face services (mean 9.16) is significantly higher than the telephone service satisfaction (mean 8.70).

The SAMU of Porto Alegre has four teams of SAV and the distribution of service frequency of these teams indicates a greater performance of the team headquartered in the Cristo Redentor Hospital for the aids of this category. According to the information presented in Table 3, the Cristo Redentor team performed 46.3% of the 164 services analyzed and from the point of view of the position measures (mean and median), a high satisfaction of the users with the services was described of all teams.

When asked about the resolvability of the service in the victim’s health outcome, 81.1% of the participants stated that care was resolvable, compared to 18.9% non-resolving. The death outcome was frequently cited by those who considered the service as non-resolvable at that time.

Table 1 - Time spent on the phone according to the user’s perception and registration in the SAMU system. Porto Alegre, RS, Brazil, 2016

<table>
<thead>
<tr>
<th>Time spent on the phone</th>
<th>Time recorded by SAMU</th>
<th>Time perceived by applicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 2 minutes</td>
<td>97%</td>
<td>31.1%</td>
</tr>
<tr>
<td>3 to 5 minutes</td>
<td>2.4%</td>
<td>40.2%</td>
</tr>
<tr>
<td>More than 5 minutes</td>
<td>0.6%</td>
<td>28.5%</td>
</tr>
</tbody>
</table>

Source: Research data, 2016.
DISCUSSION

In 2003, the Ministry of Health, in an attempt to bring the APH to public health services in Brazil, implemented the National Policy for Emergency Care, culminating in the creation of SAMU\(^{[12]}\). In Porto Alegre/RS, the structuring began in 1995, constituting the pioneering assistance at the State and Country level\(^{[3]}\). This is the first study conducted in the national literature, which evaluates the profile and satisfaction of the users assisted by SAMU.

SAMU has brought numerous improvements to health conditions, providing the population with immediate on-site care for various health problems and reducing mortality in urgencies and emergencies\(^{[13]}\). It is observed the need to determine the population profile requesting urgent care and emergencies, which are the relations of care provided by this service and the characteristics of the assistance that reaches the Brazilian population. In this way, it is possible to recognize the type of assistance most common among the assisted population, allowing better planning and reorganization of care.

Comparing the percentage of age and sex, male users prevailed, ranging from 21 to 30 years (63.4%) and 71 to 80 years (15.2%). This finding is in line with other studies, where the majority of applicants seeking care at SAMU were males with a similar age group\(^{[3,11-15]}\). It can be noted that of the 164 interviewees, 99 (60.4%) were clinically assisted and 57 (34.8%) were victims of trauma. Of these, firearms (FAF) and white-arm wounds (FAB) stood out in 10.3% of the aid, followed by a traffic accident (7.8%) and motor vehicle crashes (7.3%). In the country, 60 million people have suffered some kind of trauma, mainly related to homicides and traffic accidents\(^{[16]}\).

Men are more likely to suffer traumatic injuries from external causes than women, as shown in a survey in Rio Grande do Norte, where the majority of trauma victims were men (36.14%) and women (10.46%)\(^{[13]}\). Such a situation can be related to the fact that the numbers of traffic accidents and road accidents have increased significantly in recent decades, placing men as more susceptible to these incidents\(^{[16-17]}\).

Table 2 – Waiting time for the ambulance according to the user’s perception and according to the SAMU registration. Porto Alegre, RS, Brazil, 2016

<table>
<thead>
<tr>
<th>Waiting time for ambulance service</th>
<th>Time recorded by SAMU</th>
<th>Time perceived by applicant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 5 minutes</td>
<td>8.5%</td>
<td>10.4%</td>
</tr>
<tr>
<td>6 to 10 minutes</td>
<td>25%</td>
<td>36.6%</td>
</tr>
<tr>
<td>11 to 15 minutes</td>
<td>25.6%</td>
<td>18.9%</td>
</tr>
<tr>
<td>16 to 20 minutes</td>
<td>12.9%</td>
<td>16.4%</td>
</tr>
<tr>
<td>21 to 30 minutes</td>
<td>16.4%</td>
<td>10.4%</td>
</tr>
<tr>
<td>31 to 45 minutes</td>
<td>8.6%</td>
<td>3.6%</td>
</tr>
<tr>
<td>More than 45 minutes</td>
<td>3%</td>
<td>3.7%</td>
</tr>
</tbody>
</table>

Source: Research data, 2016.

Table 3 – Distribution of scores by SAV team. Porto Alegre, RS, Brazil, 2016

<table>
<thead>
<tr>
<th>SAMU support team</th>
<th>No. of calls</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>ER Hospital</td>
<td>40 (24.4%)</td>
<td>9.23±1.42</td>
<td>10</td>
</tr>
<tr>
<td>Cristo Redentor Hospital</td>
<td>76 (46.3%)</td>
<td>9.12±1.51</td>
<td>10</td>
</tr>
<tr>
<td>Team Serraria</td>
<td>38 (23.2%)</td>
<td>9.13±1.80</td>
<td>10</td>
</tr>
<tr>
<td>VlR</td>
<td>10 (6.1%)</td>
<td>9.30±1.06</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>164 (100%)</td>
<td>9.16±1.53</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: Research data, 2016.
The SBV care (92.16%) was superior to the SAV (7.84%) referrals in the called location, as well as in other studies, demonstrating the support in Basic Support in greater demand, compared to Advanced Support\(^{8,12-15}\). However, when referring to the severe cases for assistance, the SAV request is predominant, as demonstrated in a study carried out in Belo Horizonte: of the 543 victims of cardiorespiratory arrest (CRP), 51% of the so-called SAV ambulances were referred; 39% had SAV and SBV support, and in only 10% of the visits, assistance was provided through SBV\(^6\).

A study carried out in Montes Claros, Minas Gerais, observed that for 26.03% of the visits performed, the SAV was used for the transfer of patients to high-complexity care or other cities\(^{11}\). The care profile of the 9,168 connections with effective distress is distributed among the majority of clinicians (48.27%); traumatic (32.88%); psychiatric (9.74%); transport (7.23%); and obstetric (1.89%). Of the clinical cases, those referred were referred for cardiorespiratory arrest (CRP) and fainting (25.6%). The requests for clinical reasons in greater demand corroborate with other investigations\(^{8,12-15}\).

The most frequent visits are to men with heart problems in the 80’s age, in most cases, with cardiorespiratory arrest inside the house, being rescued and taken to the Cristo Redentor Hospital (46.3%), and the largest note of attendance attributed to VIR, 9.30. In a study carried out on the characteristics of the occurrences detected by SAMU in the city of Ijuí/RS, the main reasons for care among patients for clinical cases involved cardiovascular diseases (20.5%) followed by respiratory diseases (17.1%); 71.2% of the patients were transferred to the local hospital, and 8.2% remained in the place with problem resolution after medical evaluation\(^{11}\).

In Brazil, in 2015 cardiovascular diseases (CVD) accounted for 424,058 deaths, affecting more men (315.8 per 100,000 inhabitants) than women (210.7 per 100,000 inhabitants), and concern about progress of chronic diseases simultaneously with the aging of the Brazilian population\(^{11}\). For 81.1% of the applicants, there was resolution in the service provided by the SAMU. The positive satisfaction with SAMU’s attendance was revealed by 76.8% of the users of the service interviewed, and the score attributed to these services was between 9 and 10. The same happens with telephone service, where this percentage is lower, but remained at a high level of satisfaction of 71.4%.

As expected, it is verified that the service meets the population satisfactorily, they approve the service and indicate the use, considering the resolution of the problem. National and international studies on user satisfaction with prehospital care are scarce in the literature. A survey carried out in Rio Grande do Norte on the satisfaction of users in the telephone service provided by SAMU showed that 52% considered the time elapsed for telephone service as “good”, 30% “great”, where 42% reported as good service operator and 40% described as optimal\(^{11}\).

In other countries, resources such as telemedicine are also used, where a non-medical operator performs the initial service to the user from a software used to screen connections and direct them to specific service\(^{119}\). In England, in 2014 telephone service was deployed at National Health Service (NHS) by number 111: 43% of the English population were satisfied with the recent use of the NHS emergency and emergency system 111; and 33% use and feel very satisfied when they need the service for urgent care\(^{119}\).

Similarly, in another study on NHS emergency telephone service, 73% are satisfied with the way their requests are conducted\(^{16}\). User satisfaction can be related to the speed at which your case is answered and solved, how the operator communicates and directs attention, and also the infrastructure of the service provided. It is of paramount importance that the team direct attention to user demand and does not diminish the importance of their request; inappropriate subjective judgment puts at risk the life of those who wait for care.

It is important to emphasize in this work that the time difference between what the requester perceives and what the SAMU informs is statistically significant when compared to the telephone answering time: in 0.6% of the calls the time perceived by SAMU exceeded 5 minutes of service, while for the applicant occurred in 28.5% of telephone calls. Likewise, when comparing the waiting time for the arrival of the ambulance according to the perception of the applicant and the time recorded by the SAMU, there was a significant difference (p <0.01). Although the times differ between the SAMU registered and the user, the level of satisfaction is very good, with a mean of 9.16 attributed to face-to-face service by the applicant.

A study conducted in the city of Porto Alegre/RS regarding the time of telephone service by the SAMU, it was verified that in 77% of the calls the regulator communicates with the user in less than 2 minutes; 12.7% of the patients received the time elapsed between 2 and 4 minutes and more than 4 minutes in 9.6% of the total number of visits performed\(^{10}\). In this same research, in 30.6% of the requests, the SBV team departed from the base in less than 1 minute; in 9.2% of the visits, from the call to the arrival of the team on the scene, the time elapsed was 10 minutes\(^{10}\).

The difference between the time of service on the telephone received by the applicant and the one actually registered by the exchange can be explained by the fact that the telephone service time is short and difficult at the
moment due to the nervousness of the applicant and the health of the person. The data indicate that the majority of SAMU users are satisfied with the service and consider it resolutive in health outcomes. With these findings of the study it is possible to emphasize the real importance of the mobile emergency service in the country. It is fundamental to maintain and invest in this type of health service, because the results show the amount of people who are saved daily with the care of the teams.

This research was carried out as a graduation course in Nursing at a Public University. As limitations of the study, it can be mentioned that some calls registered at the base did not have a telephone number in the registry, therefore, they were not able to connect to the interview. Another limitation is the size of the sample, since a larger number of participants could increase the variability of the responses, which would allow us to broaden the evaluation of the data in different scenarios. In addition, the fact that the respondents could have assigned high marks to SAMU’s services, fearful of being harmed in future care. Although this fact has been clarified during the application of the ICF, it can be pointed as a limitation.

CONCLUSIONS

It was possible to trace the profile of the user seeking care, demonstrating that in the period of research, the SAMU of Porto Alegre mainly attends clinical cases with 48.27% of the requests, together with cases of trauma 32.88%. These data allow the demonstration of the most frequent types of requests that arrive to the team, from the understanding to better distribution of the assistance equipment in the ambulances and preparation of the professionals, to the epidemiological survey of the cardiovascular and traumatic complications that affect the population of Porto Alegre. In addition, it allows the study of ways to prevent these types of diseases, from future educational actions to the population, to be proposed to the SAMU teams, in a possible partnership with the Municipal Health Office and Universities.

There was a high level of satisfaction of users of SAMU of Porto Alegre in attendance (76.8%) and in telephone service (71.4%). Thus, it is demonstrated that the service meets the expectations of the population being considered resolutive by the users, even in a situation of poor health outcome. In addition, it was possible to verify in this research that there was a resolution of the service for the majority of the users (81.1%), demonstrating once again the importance of the SAMU to the immediate assistance to the population in cases of urgency and emergency.

Differences were found between the user’s perception of the time spent by telephone when requesting distress, as well as differences in time to wait for the ambulance to the place requested. Knowing the care profile and how the user feels about the care, allows SAMU to reorganize and plan their care in a way that meets the needs of the population in health problems. As management implications, it is proposed a greater valuation of the professional, who is subject to face any work situations, greater investment in the service and the dissemination of the importance of SAMU in the cities, considering the number of lives that are saved daily without social media show these feats.

REFERENCES


