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Representation of Response Time in PMI Ambulance Service Mojokerto City

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Abstrak

Respon time merupakan suatu faktor yang penting dan perlu mendapatkan perhatian khusus dalam pelayanan ambulans, khususnya pada saat terjadi keadaan gawat darurat baik keadaan darurat karena kasus trauma, maupun kasus medis, di Amerika Serikat didapatkan bahwa rata-rata waktu tanggap adalah 7 Menit untuk daerah perkotaan dan 14 Menit untuk daerah pedesaan.(Abdeen et al., 2022), dalam respon ambulans yang dilakukan oleh rekan rekan petugas ambulans PMI kota Mojokerto di dapatkan rata rata yaitu 8 – 10 menit dengan wilayah pelayanan yang cukup luas meliputi kota Mojokerto dan beberapa wilayah kabupaten yang dekat dengan kota Mojokerto .Penelitian ini menggunakan obervasional bersifat non eksperimental dengan pendekatan crossectional dengan populasi panggilan darurat di PMI kota Mojokerto dengan menerapkan consecutive sampling menggunakan sampel seperti kecelakaan lalulintas,kedaruratan medis,kedaruratan trauma dengan mengukur respon time yang di ukur dari mendapat panggilan sampai ambulans meluncur ke tempat kejadian dengan standart 5 menit sesuai dari jurnal portland fire and rescue.Selama periode 5 Mei sampai dengan 5 Juni Pelayanan ambulans PMI kota Mojokerto melakukan respon kegawatdaruratan sebanyak 47 kali dan mendapatkan hasil 82,97% pelayanan respon time kurang dari 5 menit hal ini menunjukkan bahwa pelayanan ambulans di PMI kota Mojokerto efektif.Hasil penelitian terhadap respon time di dapatkan hasil yang tepat sasaran dengan jumlah dari 47 data di dapatkan 39 data respon yang tepat sasaran hal ini setara dengan 82,97 % dari keseluruhan sampel yang ada. Hal ini sesuai dengan teori yang di kemukakan oleh jurnal dari Portland fire and rescue.

Kata Kunci: *Response Time, Ambulans Service*

Abstract

Response time is an important factor and needs special attention in ambulance services, especially when an emergency occurs, whether an emergency due to trauma or medical cases. In the United States, it was found that the average response time was 7 minutes for urban areas. and 14 minutes for rural areas. (Abdeen et al., 2022), in the ambulance response carried out by fellow PMI ambulance officers in the city of Mojokerto, the average was 8 - 10 minutes with a fairly wide service area covering the city of Mojokerto and several areas districts close to the city of Mojokerto. This research uses non-experimental observation with a cross-sectional approach with a population of emergency calls in PMI Mojokerto city by applying consecutive sampling using samples such as traffic accidents, medical emergencies, trauma emergencies by measuring response time which is measured from receiving a call. until the ambulance arrived at the scene with a standard of 5 minutes according to the Portland Fire and Rescue Journal. During the period 5 May to 5 June, the Mojokerto city PMI ambulance service responded to emergencies 47 times and obtained results of 82.97% of service response times less than 5 minutes, this shows that the ambulance service at PMI in the city of Mojokerto is effective. The results of the research on response time were that the results were right on target with a total of 47 data obtained from 39 response data that were on target, this is equivalent to 82.97% of the total existing sample. . This is in accordance with the theory put forward by the journal from Portland fire and rescue.

Keywords: *Response Time, Ambulance Service*

INTRODUCTION

The most important thing in pre-hospital emergency care is known as "The Golden Time", based on observations on patients who survive emergency situations is that patients who arrive at the hospital and receive follow-up care within one hour have a greater chance of survival than patients who arrive late at the hospital. The effectiveness of response time depends on three components, namely call processing time, time taken by the team in the ambulance to prepare and travelling time to the scene. Response times can be longer due to poor communication, untrained resources, and traffic congestion on major city roads. In Indonesia, integrated pre-hospital emergency care was pioneered in the early 1990s with the development of the 118 Emergency Ambulance Service by the Indonesian Surgeons Association. Initially, in five major cities, namely, Jakarta, Palembang, Yogyakarta, Surabaya, and Makassar, it was later expanded to Malang, Denpasar, and Medan. However, this pre-hospital emergency service has not yet received a fixed budget allocation from the government so the cost is charged to service users. Response time is an important factor and needs special attention in ambulance services, especially in the event of an emergency either an emergency due to trauma cases, or medical cases, preparedness will greatly affect the response time factor when getting a call or when starting to slide to the scene, in research in the United States found that the average response time is 7 minutes for urban areas and 14 minutes for rural areas. (Abdeen et al., 2022)

According to the Emergency Medical Service Association, in the United States, 2,214,480 ambulance responses to emergencies were identified in 2,268 US counties. The average regional response time was 9-11 minutes, after adjusting for rural size, time on scene and transport, access and available human resources, and traffic safety laws. The findings were highly consistent in both rural/wilderness and urban/suburban settings, with significant results associated with response times of 7 - 10 minutes. (Byrne et al., 2019). According to a journal study conducted by the ambulance service in the Accra region of Ghanna, a total of 652 ambulance responses and pre-hospital care were obtained. About 87% survived pre-hospital trauma. The average response time to patients was (6 ± 7) minutes and the average patient transport time was 82 minutes. (Mahama et al., 2018).

From the results of preliminary studies conducted from the statement of Mr Dio Riaz Sambora, S.Psi as the holder of the health and social services programme at PMI Mojokerto city, in the ambulance response carried out by fellow ambulance officers of PMI Mojokerto city obtained an average of 8 - 10 minutes with a fairly wide service area covering parts of the district and city of Mojokerto.

The response pattern of handling emergency cases reported is divided into two ways of handling, namely, emergency cases handled by PMI, however it is not yet known how the response time of emergency services carried out by PMI ambulances (centralised). This study aims to see how the representation of response time in the Mojokerto city PMI ambulance service.

RESEARCH METHODS

Based on the design of this research objective is non-experimental, with observational research design with a cross sectional approach. The population in this study were all emergency calls that entered the Mojokerto city PMI ambulance service. Using sampling, namely with Nonprobality sampling using consecutive sampling by setting samples that fit the research criteria. The inclusion criteria of this study In this study researchers used emergency calls that entered the Mojokerto city PMI call centre of an emergency nature only including traffic accidents in this study using emergency calls that entered the Mojokerto city PMI call centre of an emergency nature only including traffic accidents, medical emergencies, trauma, community conflicts with casualties with a call distance in accordance with the SPGDT response rules as far as 5 KM. exclusion criteria are emergency calls at PMI Mojokerto city that are not classified as emergency calls such as patient transportation, transportation of bodies, discovery of corpses.

In behavioural science, the dependent variable is the observed behavioural aspect of an organism under stimulus (Nursalam, 2015). In this study, researchers used the dependent

variable, namely response time. This research was conducted at the Mojokerto city PMI headquarters, especially in ambulance services and started from January 2023 to May 2023. Research data analysis is a tool to draw conclusions from the collected data (Saryono, 2010). Data processing in this study uses data processing techniques with one variable, namely unvariate.

RESULTS AND DISCUSSION

General Data

Table 4.1 Frequency Distribution of Ambulance Services During The Period 5 May to 5 June 2023 at PMI Mojokerto City

No.	Type of Service	Total	Presentae
1.	Traffic Accidents	26	55,33 %
2.	Medical Emergencies	20	42,55 %
3.	Community Conflict	1	2,12 %
	Total	47	100 %

Table 4.1 shows the results that during the period 5 May 2023 to 5 June 2023 (1 month) PMI Mojokerto city responded to ambulance services with a total of 47 responses with 26 traffic accidents, 20 medical emergencies and 1 community conflict handling.

Specialised Data

Table 4.2 Percentage of Ambulance Response Time in the period 5 May to 5 June 2023 at PMI Mojokerto City

No.	Classification Response Time	Frequency Response time	Percentage Response time
1.	Less than 5 minutes	39	82,97 %
2.	Exceeds 5 minutes	8	17,02 %
3.	Total	47	100 %

Table 4.2 shows that during the period 5 May to 5 June Mojokerto city PMI ambulance service responds to emergencies as many as 47 times and get the results of 82.97% response time service less than 5 minutes this indicates that the ambulance service at PMI Mojokerto city is effective.

Table 4.2 shows that the results of research on the presentation of response time in the ambulance service of PMI Mojokerto city which is in accordance with the target as much as 82.97%, when carrying out their duties, ambulance officers get an average in responding

to time from getting a call to the scene in getting time that is 3 to 4 minutes with a distance of up to 5 Kilometres.

At the time of data collection, the procedure was carried out precisely using a stopwatch and recorded on the available observation sheet in accordance with the theory used, namely from Portland Fire and rescue, from 47 data recorded at the time of responding to emergency calls obtained facts in the field as much as 39 appropriate response times.

In this case, in accordance with the theory put forward by Portland fire and rescue which suggests that the response time is said to be on target if the officer's response time from getting to the scene takes 5 minutes, and is said to be off target if the time exceeds 5 minutes (Griffi N-Valade et al., 2010).

In addition, only 8 response times were not on target, this can be caused by many factors, including the distance travelled from 8 responses that were less targeted, mostly because the distance travelled exceeded the effective distance of only 5 Km, The average mileage of the 8 responses that were not on target had a total of 10-12 Km from the PMI Headquarters of the city of Mookerto. This is because according to chapter 1 the range of PMI Ambulance services in Mojokerto city does not only cover the city of Mojokerto, but many areas in the north of Mojokerto city are supported by PMI Mojokerto city because of the lack of fleets available in the region.

In dealing with situations in the field, ambulance crews must also be equipped with driving skills and problem-solving skills very spontaneously, especially when stuck in traffic and when unwanted incidents occur, such as a burst tyre during the trip and others.

In a very emergency situation the ambulance crew is allowed to take steps against the flow or contra flow to anticipate that the response to the patient can be handled properly according to the target to get to the hospital.

Early ambulance services were provided by funeral homes and morticians, mostly as a service to families. Such services were manageable at the time, in that call volumes were much less than they are today. As modern EMS systems have matured over the past 25 to 30 years, the public appears to view services differently. Insomuch that EMS is still a vital necessity for unexpected emergencies, virtually all demographic groups frequently request EMS for diverse complaints.8–10 Access to the EMS system is considered by some to be the initial entry into the health care system. Therefore, as more demand is placed on the outof-hospital care system, resources must be augmented to meet the resultant volume expansion. As health care financing and managed care programs surface and continue to trim reimbursements, some providing incentives for care, EMS administrators are finding

themselves analyzing all portions of the system to meet new demands of this changing environment. Managing resources with limited assets is the motivation of today's EMS managers. Regardless, patients sustaining unexpected acute injuries or illnesses clearly have a need for emergency medical response and care.

Few would argue that rapid response with technically skilled personnel is paramount. The response time interval, or interval from call receipt to patient care, is perhaps the most important graded component of the EMS system as viewed by hospitals, administrators, elected officials, the media, and the public. Response time standards tend to be publicized and many systems, especially those falling under the aegis of a public authority or utility, have compliance specifications for response. Such specifications may simply be one benchmark, whereas others may break down responses into categories based on acuity. Further, response times may be reported as averages; however, this is a poor reflection of performance.

A more accurate description uses fractile response times. This illustrates the percentage of calls where responses were made within a certain time interval. For example, a system that reports a 90% fractile response time of 8 minutes, 30 seconds means that 90% of their responses were made in 8 minutes, 30 seconds or less. The ''perfect'' or ''standard'' response time has yet to be determined, in that a specified response time objective in one location may not be applicable in other areas with diverse characteristics.11,12 The recommendation of a 4-minute response for delivery of cardiopulmonary resuscitation, coupled with automatic defibrillation capability and 8 minutes for definitive care, has been proposed and continues to be advocated in an effort to achieve increased survival rates.13–15 A similar philosophy has been adopted for responding to traumatic injuries. Minimizing the entire out of hospital time, including response, scene, and transport times, is considered beneficial for survival.16–19 As an EMS system is activated, multiple components come into play, each working in concert with intramural (i.e., communications and operations) and extramural (i.e., first responders) system assets. Each of these components has the potential to directly or indirectly influence response times. While delays may occur at any point along a call continuum, several strategies exist for decreasing response times.20 One simple, albeit costly, solution includes allocating more resources into the community. This proposal mandates a large initial outlay for capital improvements, coupled with the continuing personnel and sustainment costs.

Another option may be to incorporate a first-responder tier whose personnel have the ability and capability to provide early defibrillation and airway management, or improving the dispatch component so that calls are prioritized and caller instructions are given.21–23

Many EMS systems develop plans that strategically position ambulances throughout a response jurisdiction during certain hours of the day and days of the week. Such movement or posting strategies, referred to as systems status management, are typically based on historical call data, and are tailored to increase the probability that resources will be in close proximity to calls within high demand service areas during peak hours. From an operational perspective, while emergency vehicle operators must embrace a working knowledge of the response locality in order to be familiar with exact or proximate call location, vehicle mobile mapping programs are now available to assist in identifying scene locations. Such upgrades would intuitively shorten responses.

Ancillary services, such as logistical management and fleet maintenance, must also function in concert to keep the system operational and efficient. In conclusion, any element failing to meet or support system needs increases the potential for prolonging a response and jeopardizing patient care. However, this can also still be considered within reasonable limits because there is also a theory that says that response time if according to the theory of the emergency team at the ambulance service in the San Mateo area of the state of the United States in a book entitled Emergency Ambulance Services with advanced life support (ALS) ambulance transport, which has a standardised classification of response time with the target if in rural areas it has a standard response time of 20 minutes while in urban and semi-urban areas it is 13 minutes and isolated rural areas with a maximum time of 30 minutes , the local government determines that the ambulance target time is said to be perfect if the time reached is only 10-15 minutes if it exceeds that time then it is said to be off target but of course with existing considerations (Lapolla, 2019). In this phenomenon, it can be attributed that differences occur due to environmental factors and natural conditions that are different in each country and each region, especially those in the Mojokerto City and Mojokerto district.

CONCLUSION

The results of this study discuss the representation of the response time of PMI ambulance officers in mojokerto city in carrying out tasks to the scene of emergencies can be concluded as follows: The results of research on response time obtained results that are right on target with the amount of 47 data obtained 39 response data that are right on target this is equivalent to 82.97% of the entire sample. The second research result is that only 8 of the 47 existing samples are not on target, this is equivalent to 17.02% of the existing data. It can be concluded that the ambulance service of PMI

Mojokerto City can be said to be right on target in accordance with the theory used by the author, namely using the theory obtained from Portland Fire and Rescue.

1. For Respondents

It is expected that the ambulance crew is always responsive in responding to emergency calls to maximise efforts to help victims of emergencies in the pre-hospital scope. And continue to improve the quality of skills.

2. For the research site

In accordance with the results of the study, ambulance officers are always responsive and maintain the quality of response time both when sliding to the scene and during preparation so that it will maintain maximum results in serving the community.

3. For further researchers

Response time is very important for every ambulance crew on duty to be able to help victims of emergencies such as traffic accidents, it is hoped that future researchers will choose different targets or respondents so that they can find out about the development and factors causing response time in the field. And it is hoped that future studies can explore the limitations of this research.

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