Patients' perception of the ambulance services at Hospital Universiti Sains Malaysia

Anisah A, Chew K S, Mohd Shaharuddin Shah C H, Nik Hisamuddin N A R

ABSTRACT

Introduction: Little is known regarding public opinion of prehospital care in Malaysia. This study was conducted to find out the public's perception and expectations of the ambulance services in one of the university hospitals in Malaysia.

Methods: A six-month prospective cross-sectional study to look at patients' perception of Hospital Universiti Sains Malaysia's (HUSM) ambulance service was conducted from February 2006 to July 2006. Upon arrival at the hospital, patients or their relatives (who used our hospital's ambulances) were interviewed with a set of questions regarding their perception of the ambulance services and were asked to rate the perception on a Likert Scale from 1 to 10. A convenient sampling method was applied.

Results: A total of 87 samples were obtained. Despite the many problems faced by the ambulance service in HUSM, the mean score for each of the questions on patient's perception ranged from 9.33 to 9.70 out of 10. The questions with the highest mean score, which were both 9.70 each, were related to staff attentiveness and staff gentleness.

Conclusion: Patients' perceptions can be very subjective, but until further similar studies could be carried out in other parts of Malaysia, this set of data merely represents a numerical measure of public perception of the ambulance services from HUSM.

Keywords: ambulance services, emergency medicine, prehospital care, public perception

Singapore Med J 2008;49(8):631-635

Emergency Medicine Department, Hospital Kuala Lumpur, Jalan Pahang, Kuala Lumpur 50586, Malaysia

Anisah A, MBBS, MMed
Emergency Physician

Emergency Medicine Department, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian 16150, Malaysia

Chew KS, MD, MMed
Senior Lecturer and Emergency Physician

Mohd Shaharuddin Shah CH, BSc, MSc
Lecturer and Prehospital Coordinator

Nik Hisamuddin NAR, MBChB, MMed
Senior Lecturer and Head

Correspondence to:
Dr Chew Keng Sheng
Tel: (60) 9 766 3000 ext 3204
Fax: (60) 9 765 9360
Email: cksheng74@yahoo.com

INTRODUCTION

The inclusion of patients' opinions in assessments of medical services has gained greater prominence over the past 25 years.[1] In any field, including medicine, customers' perception on any service provided is of paramount importance and is a necessity for continual service improvement.[2] This is very much akin to the concept of Kaizen in Japan, commonly employed by Toyota Production System. Kaizen, when translated to English, literally means continual improvement. And within the concept of Kaizen, one of the very vital ways of continuous service improvement is through suggestions and feedback from customers.[3]

Emergency ambulance services in Malaysia was started more than a decade ago as part of the prehospital care services. The Government of Malaysia, through the Ministry of Health, is the main provider of the service. The university hospitals, on the other hand, like Hospital Universiti Sains Malaysia (HUSM), run their own ambulance services independently from the Ministry of Health. Besides that, non-government organisations such as the St John Ambulance of Malaysia, the Malaysian Red Crescent Society, the Civil Defence 3 as well as some private hospitals, also play a part in providing ambulance services in Malaysia. Nevertheless, despite the multi-player involvement in the development of ambulance services in Malaysia, there is no single body or organisation given the responsibility to coordinate and to oversee the entire running of the ambulance services here. One of the reasons for the lack of integration between the various agencies is due to the lack of interest for administrative coordination from various agencies.[4] As a result, there is a no uniformity among the ambulances run by the different agencies in terms of the four Ms – machinery (types of ambulances and equipment), manpower (trained and skilled human resources), mechanism (service system) and monetary or financial support.

Some of the ambulances in Malaysia are old and are inadequately equipped.[4] There is no standardisation of equipment. Many of these old ambulances are only fitted out with basic equipment such as scoop stretchers, cervical collar and orthopaedic splints.[4] Such a predicament may result in the patient not getting the appropriate first responder measures if the patient is unfortunate enough to be brought in by an ill-equipped ambulance. For example, a lack of cervical collars in some of the low-grade hospital

ambulances may result in motor vehicle accident patients not receiving the appropriate initial neck immobilisation. Similarly, the lack of human resources will result in the lack of trained personnel to handle emergency conditions.[4] Sending someone who is not properly trained in basic life support and lacked experience in handling medical emergencies (which is currently the scenario in Malaysia) may cause a lot of potential unhappiness among the patients and relatives and could lead to medicolegal implications.

In terms of service system development, the average ambulance response time is more or less similar in most parts of Malaysia; in Kuala Lumpur, it is about 25.6 minutes and in Kota Bharu, where this study was conducted, it is about 15.2 minutes.[4] This relatively long response time (as compared to 7–8 minutes in developed countries like the United States) is due to various factors, which include traffic congestion, frequent roadwork changes and roadblocks, and inadequate communication information resulting in the inability to reach the called destinations or reaching the wrong destinations. Such problems would probably result in unpleasant rides, creating a lot of anxiety for the patients and relatives for having to wait a long time, and most importantly, may cause physiological deterioration especially in dire emergencies, such as cardiac arrest where every minute counts. Finally, in Malaysia, one of the main reasons why the development of prehospital care systems is slow and lacking is because of the lack of money spent in this area, as compared to expenditure and concern given to other areas like public health and inhospital care.

Yet, despite the many problems highlighted above, by and large, the Malaysian public has seldom been asked for their opinion of our quality of prehospital care. Likewise, they have seldom expressed their perception of ambulance services in Malaysia. There was also no study undertaken to evaluate the efficiency of the emergency services. It is with the hope to find out the public's perception and expectations of the ambulance services in Malaysia, that this study was conducted.

METHODS

A six-month prospective cross-sectional study to look at patients' perception of HUSM ambulance service was conducted from February 2006 to July 2006. This study was conducted in the Emergency Department of HUSM. HUSM is a regional tertiary referral centre and the HUSM ambulance service provides emergency prehospital care to about 10,000 people in the community living within a 25-km radius of the hospital. There are two types of ambulance services running concurrently in HUSM: one is run by Civil Defence 3, and the other by HUSM itself. Most cases, especially the non-emergency cases, are run by the Civil Defense 3, and their ambulances are the Grade C ambulances, which consist of simple equipment such as splints, cervical collar and portable oxygen source. These ambulances are merely providing "scoop and run" services. HUSM ambulances are at least Grade B ambulances that are equipped with cardiac monitors with defibrillators as well as emergency airway kits and emergency drugs. This study was conducted to look at the public perception towards the ambulance services run by HUSM.

Upon arrival of the HUSM ambulance to the emergency department, the emergency department team leader interviewed the patient/accompanying relatives (depending on the patient's condition). Two independent coordinators were present at all times during the interviews to reduce bias. The interviewee was asked to give his/her opinion of the ambulance service based on a scoring scale. Interviews rather than giving out questionnaires were conducted in order to improve the response rate. The objective of the questions was to assess customer perception of the HUSM ambulance service based on a scoring scale (using a Likert scale). These questions were divided into six components of customer's perception: vehicle, attitude, performance, professionalism, efficiency of service and image. To suit our cultural background, this set of questions was modified from a survey previously done on the customer's perception of the Metropolitan Ambulance Service in Australia, and from Balance Scorecard, Emergency Department System Integration and Change Questionnaire Instruction.[5] Translation of the original questions into Malay, the national language, was done and verified by the Language Unit of the university. Patients were asked to rate their perception for each item in the questionnaire from a scale of 1 to 10, with the score of 10 rated as "excellent" and the score of 1 as "poor" (Table I).

Exclusion criteria were unconscious patients with Glasgow Coma Scale less than 15, children less than 12 years of age with no accompanying relatives or family members, as well as patients who are in pain or severely distressed. Other than that, all other patients using the HUSM ambulance service were included in the study. A convenient sampling method was applied. For patients who were unconscious or unable to answer the questions, the accompanying relatives were asked to rate their perception. Demographical data including gender, age group and education level was also obtained. Statistical analysis was done using independent *t*-test and chi-square test from the Statistical Package for Social Sciences

Table I. Questionnaire adapted from the Victoria University of Technology Research Project into the satisfaction of Metropolitan Ambulance Service (MAS) customers.[5]

Domain	Item	Score*
Vehicle	1. General appearance of the ambulance	1 2 3 4 5 6 7 8 9 10
	2. Cleanliness of the ambulance	1 2 3 4 5 6 7 8 9 10
	3. Comfort of ride in the ambulance	1 2 3 4 5 6 7 8 9 10
	4. Feeling of security in the ambulance	1 2 3 4 5 6 7 8 9 10
	5. Adequacy of ambulance equipment	1 2 3 4 5 6 7 8 9 10
Staff attitude	6. Helpfulness of staff	1 2 3 4 5 6 7 8 9 10
	7. Attentiveness of staff	1 2 3 4 5 6 7 8 9 10
	8. Empathic nature of staff	1 2 3 4 5 6 7 8 9 10
	9. Friendliness of staff	1 2 3 4 5 6 7 8 9 10
	10. Gentleness of staff	1 2 3 4 5 6 7 8 9 10
Staff performance	11. Ensuring of patient's comfort	1 2 3 4 5 6 7 8 9 10
	12. Calmness of staff	1 2 3 4 5 6 7 8 9 10
	13. Adequacy of explanation by staff of their actions	1 2 3 4 5 6 7 8 9 10
	14. Efficiency of staff	1 2 3 4 5 6 7 8 9 10
	15. Feeling of safety when staff arrive	1 2 3 4 5 6 7 8 9 10
Professionalism	16. Perceived level of training of staff	1 2 3 4 5 6 7 8 9 10
	17. Professional look of staff	1 2 3 4 5 6 7 8 9 10
	18. Level of trust in staff	1 2 3 4 5 6 7 8 9 10
	19. Level of competency of staff	1 2 3 4 5 6 7 8 9 10
	20. Confidence of staff to keep me alive until reaching the hospital	1 2 3 4 5 6 7 8 9 10
Efficiency of service	21. Availability of staff at all times	1 2 3 4 5 6 7 8 9 10
	22. Response time of ambulance to an emergency	1 2 3 4 5 6 7 8 9 10
	23. Speed of admittance to hospital	1 2 3 4 5 6 7 8 9 10
Image	24. What do you think is the public perception of our ambulance service?	1 2 3 4 5 6 7 8 9 10

* Score ranges from 1 (poor) to 10 (excellent).

version 12.0.1 (SPSS Inc, Chicago, IL, USA).

RESULTS

A total of 87 samples were obtained. There was almost an equal number of male (47%) and female subjects (52%). Majority of the subjects were of Malay ethnicity (96.6%) and only 3.4% were Chinese. This essentially reflects the demographical proportion of the population in Kota Bharu, Malaysia. Furthermore, 80.5% of subjects consisted of non-healthcare workers. In terms of age group, the highest number of HUSM ambulance service users was from the age group of 41–50 years (25.3%). The lowest number of users was from the 71–80 years (2.3%) and 81–90 years (2.3%) age groups. In terms of educational level, 53 subjects (60.9%) (which forms the largest group in this study), had attained a secondary school education. The second largest group of users were those with a primary school education—21 subjects (24.1%), followed by ten subjects (11.5%) with a college/university education, two (2.3%) with a post-graduate degree, and the smallest group of one subject (1.1%) did not receive any formal education.

Ironically, despite the many problems faced by the ambulance service in Malaysia, the mean score for each of the questions on patient's perception ranged from 9.33 to 9.70 (see Table II). The questions with the highest mean score, which was 9.70, were related to staff attentiveness and staff gentleness. The lowest mean score was 9.33, for the question relating to adequacy of equipment in the ambulance. The standard deviation (SD) for the same question (adequacy of equipment in the ambulance) was high, 1.318, due to a wide range of scores given by subjects, the lowest score being 2. Similarly, the question on external appearance of the ambulance, comfort of ride and feeling of security in the ambulance also had a high SD of 1.119, 1.181 and 1.155, respectively. These questions were also shown to have a wide variety of responses from a score of 1 or 2 as the lowest score to 10 as the highest.

DISCUSSION

Generally, most of the subjects gave a very high score for each item in the questionnaire assessing the ambulance service. Based on the mean scores, staff attentiveness and gentleness rated the highest, both with a mean score of 9.70. This should be seen as an encouragement to the ambulance team and for them to continue to create a positive image as well as a friendly environment to the public. The uniform of the ambulance crew also reflected the tidiness as well as the professionalism of the team. In terms of ambulance response time, it was rated at 9.57. One of the main problems of such research in ambulance services in Malaysia is the lack of a specific standard for our public to compare with. Hence, our public has no idea of what an acceptable or appropriate level of prehospital care is. There was also no previous standard of prehospital care to benchmark the services provided.

Nevertheless, benchmarking multi-faceted ambulance services is more than just looking at the ambulance response time. Unfortunately, in some places, the ambulance response time has become the dominant

Table II. Result for each item in the questionnaire.

Domain	Item	n	Min.	Max.	Mean	SD
Vehicle	1. General appearance of the ambulance	87	2	10	9.34	1.119
	2. Cleanliness of the ambulance	87	5	10	9.40	0.882
	3. Comfort of ride in the ambulance	87	2	10	9.36	1.181
	4. Feeling of security in the ambulance	87	1	10	9.39	1.155
	5. Adequacy of ambulance equipment	87	2	10	9.33	1.318
Staff attitude	6. Helpfulness of staff	87	7	10	9.67	0.604
	7. Attentiveness of staff	87	8	10	9.70	0.573
	8. Empathic nature of staff	87	8	10	9.64	0.628
	9. Friendliness of staff	87	8	10	9.64	0.610
	10. Gentleness of staff	87	7	10	9.70	0.612
Staff performance	11. Ensuring of patient's comfort	87	7	10	9.56	0.677
	12. Calmness of staff	87	7	10	9.66	0.662
	13. Adequacy of explanation by staff of their actions	87	6	10	9.49	0.776
	14. Efficiency of staff	87	6	10	9.47	0.729
	15. Feeling of safety when staff arrive	87	7	10	9.53	0.696
Professionalism	16. Perceived level of training of staffs	87	6	10	9.37	0.891
	17. Professional look of staff	87	7	10	9.56	0.727
	18. Level of trust in staff	87	7	10	9.66	0.662
	19. Level of competency of staff	87	4	10	9.53	0.963
	20. Confidence of staff to keep me alive until reaching the hospital	87	5	10	9.52	0.805
Efficiency of service	21. Availability of staff at all times	87	5	10	9.61	0.826
	22. Response time of ambulance to an emergency	87	3	10	9.57	0.972
	23. Speed of admittance to hospital	87	4	10	9.44	0.961
Image	24. What do you think is the public perception of our ambulance service?	87	5	10	9.67	0.802

factor serving as a yardstick to measure prehospital care success. For example, in an interview study conducted on 20 experienced paramedics in United Kingdom, the paramedics argued that measuring ambulance response time as a performance indicator may be too simplistic and narrow. They felt that by placing too much emphasis on the ambulance response time, they may run the risk of "treating the clock rather than the patient". An ambulance may be considered successful if it arrives in less than 8 minutes regardless of whether or not the patient survives; or an ambulance may be considered to have failed in its service despite the patient being transported to the hospital alive.[6]

There are a number of limitations in this study that need to be mentioned. Patient's perceptions can be very misleading, subjective and may be culturally influenced. Their expectations should always be interpreted in the context of some understanding of the rationale that underlies those expressions rather than taking them at face value.[7] In our setting, high scores could be attributed by the nature at the people here in Malaysia, and Kelantan particularly, where they do not like to appear to be confrontational and offensive by giving low scores to the questionnaire. Another reason could well be because patients and relatives are considered as a vulnerable group and therefore tend not to be too critical of healthcare workers, particularly immediately after an emergency. This would lead to high perception scores if customers were surveyed immediately after their experience. We could have conducted the interview after there was no more perceived "threat" to the quality of care, such as after discharge from hospital. This would have reduced the bias; however, this would run the risk that the interviewees may not be able to remember the experience vividly at a later date.

Interviewing rather that giving out questionnaires may increase the number of responses, yet the very presence of interviewers may adversely increase the confounding factors including the way the interviews were conducted. The presence of additional independent coordinators might also have added to the "intimidation factor" of the interviews. However, besides the expected low rate of response with using a questionnaire, we felt that with the generally lower educational level of study population, questionnaires may not be effective as an instrument and interviewing may be the best available mode for now. Other limitations in this study include the small sample size which may be a contributing factor to causing a skewed data. The reason why there were only 87 samples was because this study was done merely to look into the public perception on ambulance services by HUSM. The majority of the patients, especially the non-emergency cases, were transported using the Civil Defence 3 ambulances. Secondly, there are other confounding factors which were not controlled, including the educational level of the respondents as well as whether the respondents were healthcare providers or not. In addition, some of those interviewed were relatives rather than the patients themselves, and the patients and their relatives may have totally different viewpoints. Nevertheless, with this

backdrop, we hope that future studies regarding perception as well as patient's satisfaction with prehospital care or ambulance could be carried out. These studies may be expanded to multi-centre studies in order to reduce bias, improve the power of the studies, and to more accurately reflect the heterogeneous society of Malaysia.

In conclusion, it is hard to generalise such findings for all ambulance services in Malaysia, especially when the patients' or their relatives' perceptions are subjective. It may not accurately reflect the quality of the service provided. However, it is also unfair for the authors as healthcare providers in the area of emergency medical services, to impose their assessments and knowledge of the weaknesses of the ambulance services and judge that the public perception is not accurate. Until and unless further similar studies could be carried on the public perception of other ambulance services in Malaysia, this study with its standalone set of data merely represents a numerical measure of the public perception of the ambulance services from HUSM. Regarding the survery feedback, this study demonstrated certain positive characteristics that the ambulance crew in HUSM, Malaysia can be proud of. They are perceived by the public as a uniform body that dresses smartly, speaks gently and acts politely to the public. On the other hand, the ambulance team should also be cautioned not to be too contented despite the high scores attained, especially in areas such as response time, level of training in prehospital care of the team members, as well as the adequacy of equipment and the types of ambulance used. Rather, it should serve as an impetus for the team to develop a healthy sense of growing dissatisfaction, to constantly improve ourselves that will ultimately benefit the public.

REFERENCES

1. Sitzia J, Wood N. Patient satisfaction: a review of issues and concepts. Soc Sci Med 1997; 45:1829-43.
2. Sitter D. Perception is Real; Reality is Not. Available at://ezinearticles.com/?Perception-is-Real;-Reality-is-Not&id=96078. Accessed June 15, 2007.
3. Kaizen. Available at: //en.wikipedia.org/wiki/Kaizen. Accessed June 16, 2007.
4. Hisamuddin NA, Hamzah MS, Holliman CJ. Prehospital emergency medical services in Malaysia. J Emerg Med 2007; 32:415-21.
5. Stewart SI. Customer Satisfaction in the Metropolitan Ambulance Service. Available at: //eprints.vu.edu.au/archive/00000225/01/02whole.pdf. Accessed June 16, 2005.
6. Price L. Treating the clock and not the patient: ambulance response times and risk. Qual Saf Health Care 2006; 15:127-30.
7. Locker D, Dunt D. Theoretical and methodological issues in sociological studies of consumer satisfaction with medical care. Soc Sci Med 1978; 12:283-92.