

PROPOSAL FOR EMS RESEARCH

PAN ASIAN STUDY ON EMS PERFORMANCE INDICATORS “PASEPI”

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INTRODUCTION:

Ambulance services throughout the world measure their performance through the use of performance indicators

- response time
- on scene times
- customers satisfaction

(MacFarlane & Benn, 2003)

PUBLIC PERCEPTION

- ❑ The use of satisfaction as a key performance indicator for ambulance services is well accepted throughout the world.

- ❑ The expectations of patients and families being met by the services provided.

- ❑ People seldom asked or express their opinion regarding this specific aspect of the health care services delivering systems, which were received by them.

- ❑ This phenomenon is most probably due to the fact that
 - I. the communities themselves have no idea of the level of care provided to them.
 - ii. No specific parameter or bench mark to compare the services received by them.

- ❑ The level of EMS services differ within one country and across borders within the Asian region
- ❑ Dissimilarities in communication system, overall system, the level of skill and knowledge of ambulance personal etc.
- ❑ Cultural & social difference make up different perception towards EMS.
- ❑ All of those elements acts as important parameters which determine how well the organization function.
- ❑ How could the standard of care be established and how and with what basis can the communities perceive this service?

TEMPORAL COMPONENT

The components of EMS episode, based on timing, consists of the following;

call processing time,
control allocation time,
crew mobilization time,
traveling time to the scene,
time spent at the scene,
traveling time back to the ED or hospital and ends with
time spent at ED or hospital

(Guppy & Wollard, 1999).

□ The concept that time interval between getting early initial treatment at the so-call 'golden hour' phase provided by ambulance crews has a greater effect on the morbidity and mortality rate of the victim or patient.

□ Hunt *et al.*, (1989) stated that every minute delay in the initiation of cardio pulmonary resuscitation (CPR) during cardiac arrest for example, could increase the mortality and morbidity rate by up to 7 to 10%.

The issues on the ambulance interval response time can be further discussed under subheadings as follows;

- 1) definition of the response time,
- 2) effects of reducing response time on patient mortality and morbidity,
- 3) ambulance response time in others countries,
- 4) factors influencing the ambulance response time and
- 5) patient contact interval time and influencing factors.

DEFINITION OF THE RESPONSE TIME

- ❑ Meislin *et al.*, 1999, in his study found that the documentation of each EMS episode time was not always consistent.
- ❑ Different agencies use different time points to start and end their response time measurements, making it difficult to make comparison between various agencies or region.
- ❑ Committee for Regulation Information Requirements (CRIR) UK, (1999) standardized the definition of response time:



EFFECTS OF REDUCING RESPONSE TIME ON PATIENT MORTALITY AND MORBIDITY

Several studies had been done in the United Kingdom specifically to determine the effects of reducing response time on deaths rate from out hospital cardiac arrest:

- ❖ (Pell *et al.*, 2001),
- ❖ (Cone, D. C., 2002),
- ❖ (Cummins *et al.*, 1991) and
- ❖ (Guly *et al.*, 1995).

- ❑ Ambulance must arrive at the scene within 7 minutes for at least 50% of calls and within 14 minutes for 90% of calls.
- ❑ These authors concluded that increase of survival rates at hospital discharge might be associated with decreased response time interval

AMBULANCE RESPONSE TIME IN OTHERS COUNTRIES

- ❑ Varies from one country to another, & hence patient outcome?
- ❑ Pell *et al.*, (2001) stated that in the United Kingdom, ambulances are expected to arrive at the designated scene within 7 to 14 minutes for 90% of the calls received.
- ❑ Breen *et al.*, (2000) found that 14% of calls took 5 minutes or longer to activate response while 38% of emergencies obtained responses within 9 minutes.
- ❑ (Seow & Lim, 1993) reported that it took an average of 11.40 ± 4.88 minutes for an ambulance team to reach a patient and 30.50 ± 10.62 minutes for the patient to reach an emergency department.

AMBULANCE RESPONSE TIME IN OTHERS COUNTRIES

- ❑ Norway, Steen-Hansen *et al.*, (2001), shown the best performance can only achieved 48.9% of the populations where ambulance reaches their destination within 8 minutes.
- ❑ Shah et al (2006), Response time varies from one city/town to another I.e KL 34 min, Kota Bharu 18 min, Ipoh 25 min

Table 2
A comparison mean time of ART for
selected locations.

Country	ART(minutes)
United Kingdom	7.00-14.00
Australia	7.00-11.00
Ankara, Turkey	± 9.00
Singapore	± 15.00
ED of HUSM	± 15.20
City of New York	± 11.40
City of Chicago	± 11.30

Seow E, Lim E. ART to the ED. Singapore Med J 1993;34:530-2

Narad RA, Driesbock KR. Regulation of ambulance response time in California. Prehosp Emerg Care 1999; 3:131-5

Guppy L, Wollard M. Emergency ambulance services: performance management review. Prehosp Immed Care 2000; 4:\$0-5

FACTORS INFLUENCING THE SPEED OF AMBULANCE RESPONSE TIME

Theoretically able to affect these intervals time, these are:

- 1) Communication and dispatch - current system
- 2) Ambulance - type, brand and age
- 3) Personnel - driving skills and knowledge of area and routes
- 4) Patient - location and distance
- 5) External - weather and traffic jams
- 6) Level of education, attitudes of ambulance crew and public

❖ (O' Cathain *et al.*, 2002)

❖ (Harrison *et al.*, 1999).

❖ (O'Brien, D.J., 1999).

❖ (Seow, E. & Lim E., 1993)

PATIENT CONTACT INTERVAL TIME

□ Even if the ambulance arrives early at the site of emergency, the initiation of care might still be delayed due to unforeseen circumstances (Guppy, L. & Wollard, M., 2000).



OBJECTIVES OF THE STUDY

Objective 1

TO STUDY THE PERCEPTION OF CLIENTS AND HEALTH CARE PROVIDERS REGARDING AMBULANCE SERVICES AND EMERGENCY CARE

To determine the level of perception of clients and health care providers regarding ambulance services enroute emergency care at local hospital.

- ❖ The level of satisfactory toward en-route care of the ambulance services

Objective 2

TO IDENTIFY AND ANALYZE THE FACTORS THAT CAN AFFECT THE SPEED OF AMBULANCE RESPONSE TIME (ART)

To determine and analyze;

- ❖ To assess the client perception toward ambulance response time (ART) and to what level they graded it
- ❖ To determine the factors which affect the ambulance response time (ART)
- ❖ To compare the ART between regions

METHODOLOGY

The proposed study is an explorative study using a quantitative design

Two sets of questionnaires:

Set A (Ambulance Response Time Questionnaire), &

**Set B (Questionnaire to Asses Patient's Or
Accompanying Relative's, Ambulance Crew and Other
Health-Care Provider Perception towards Ambulance
Services)**

The modified questionnaire was utilized for the collecting of data. Set A were filled up by ambulance crews from both representative hospitals, whereas customers that use the ambulance services will complete set B.

The analyses of the data using various descriptive studies were performed using the Statistical Package for Social Study (SPSS) version 12.0.1 including that Microsoft Excel.

- The place of study include all the established EMS in Asian countries
- The outcome can be used to make comparison within and between regions
- Ethically, no physical and mental risks were associated with participants and they are free to choose not to be involved if they so wish.
- The language in the questionnaire may be tailored to the local needs
- Validation study on the Q may not be needed as pilot study had been carried out

PILOT STUDY IN MAJOR TOWN IN EAST COAST OF MALAYSIA

Ambulance Response Time & The Effects of EMD Program

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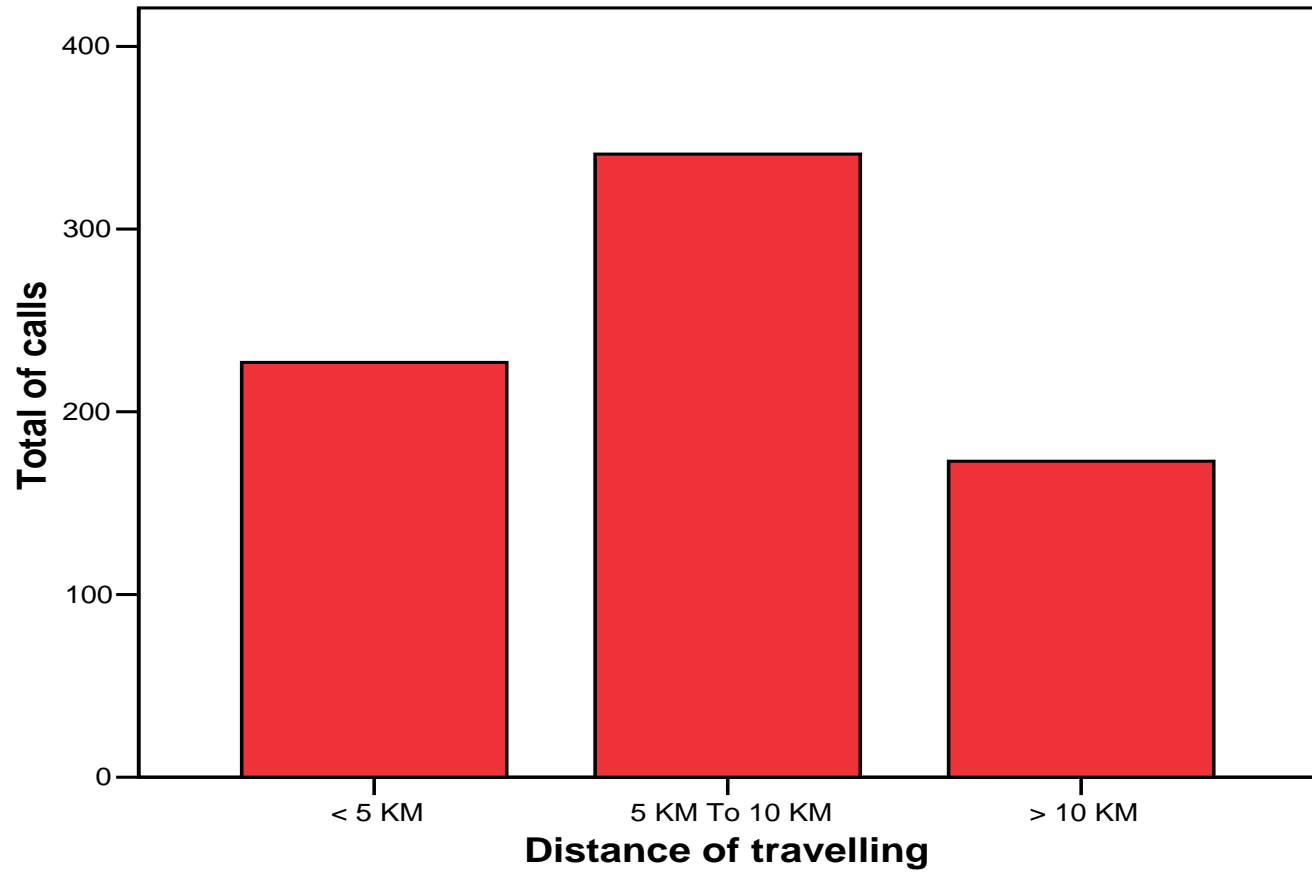
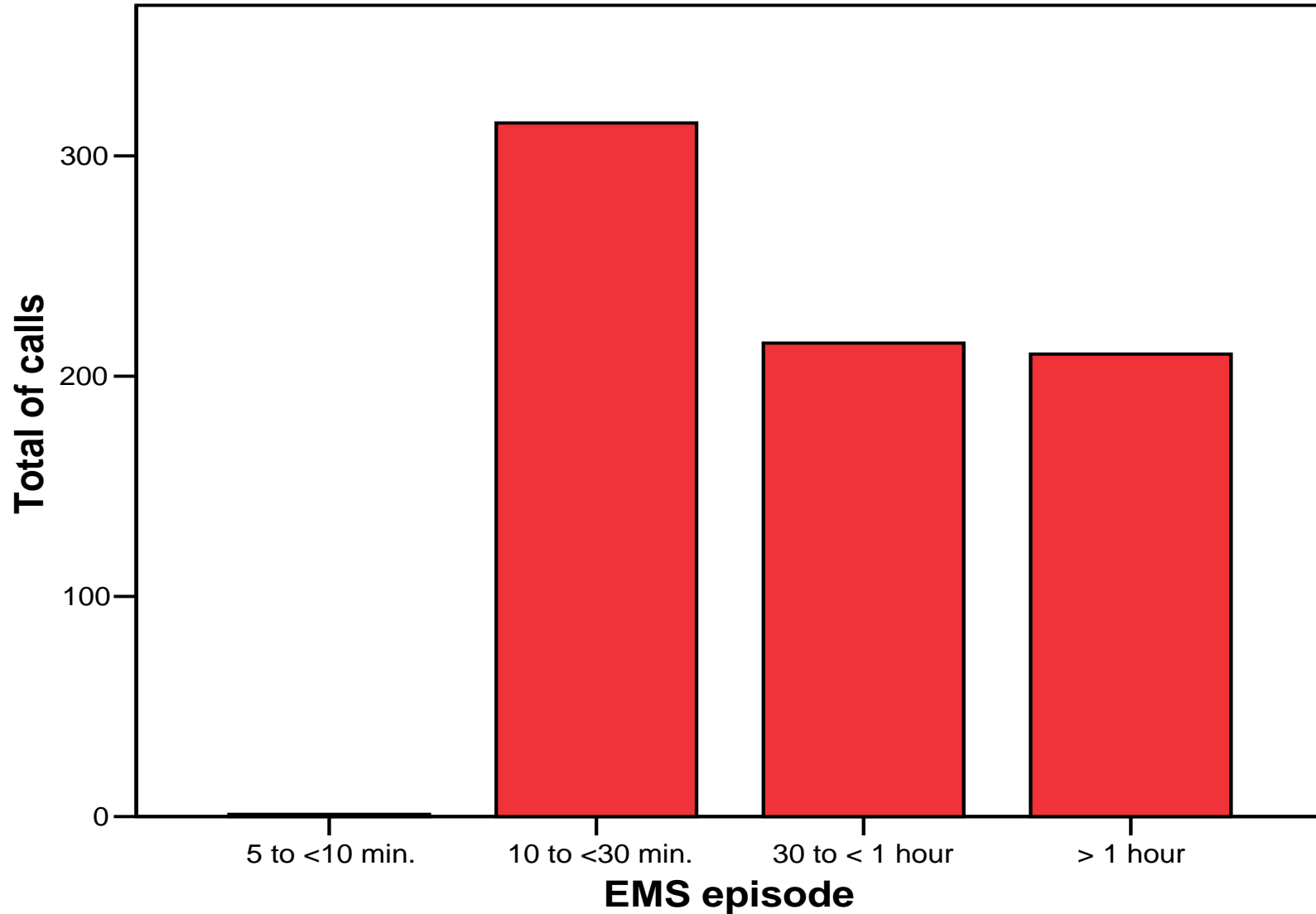


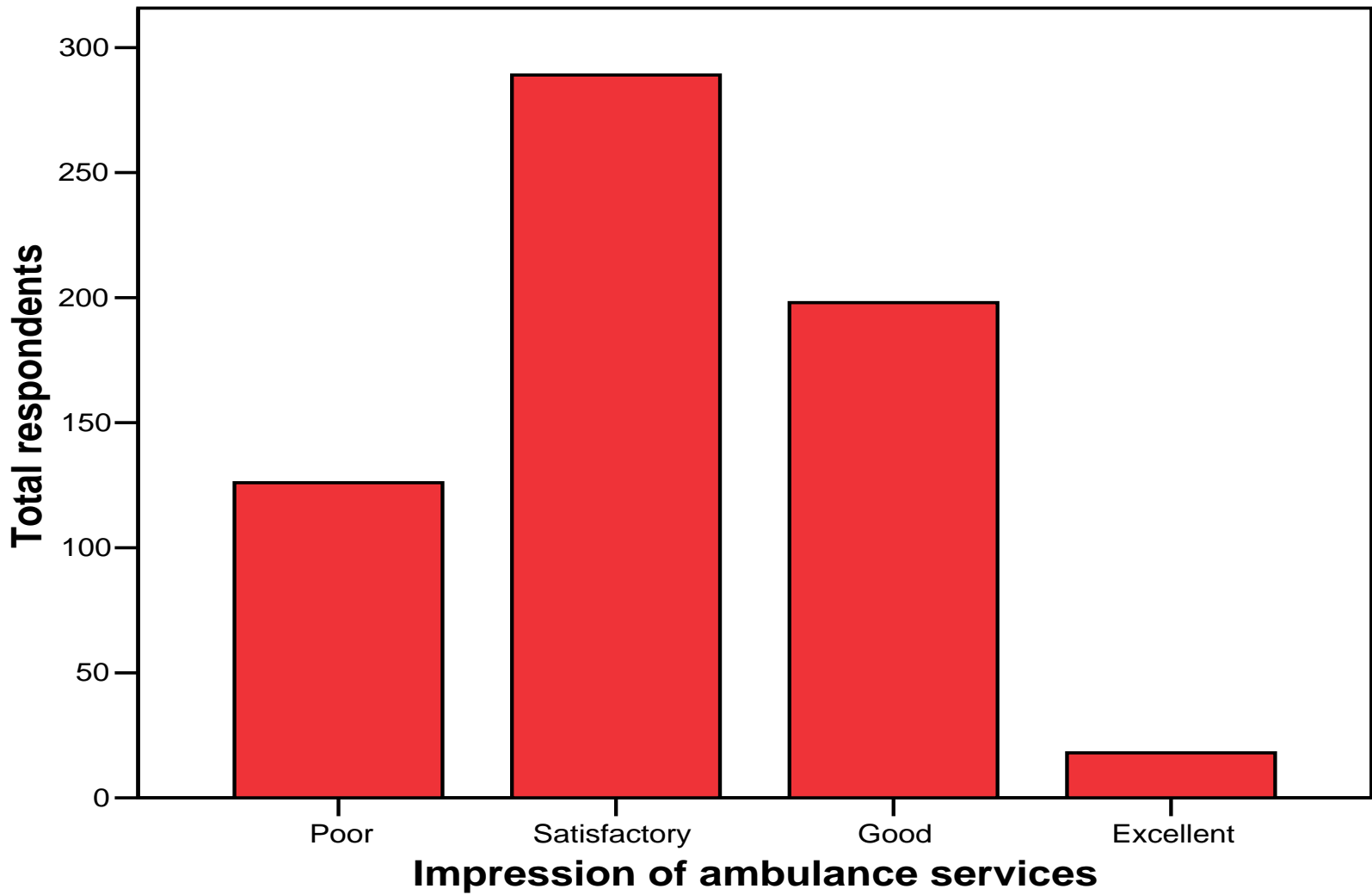
Table 1
Time taken to manage an emergency call by two study groups.

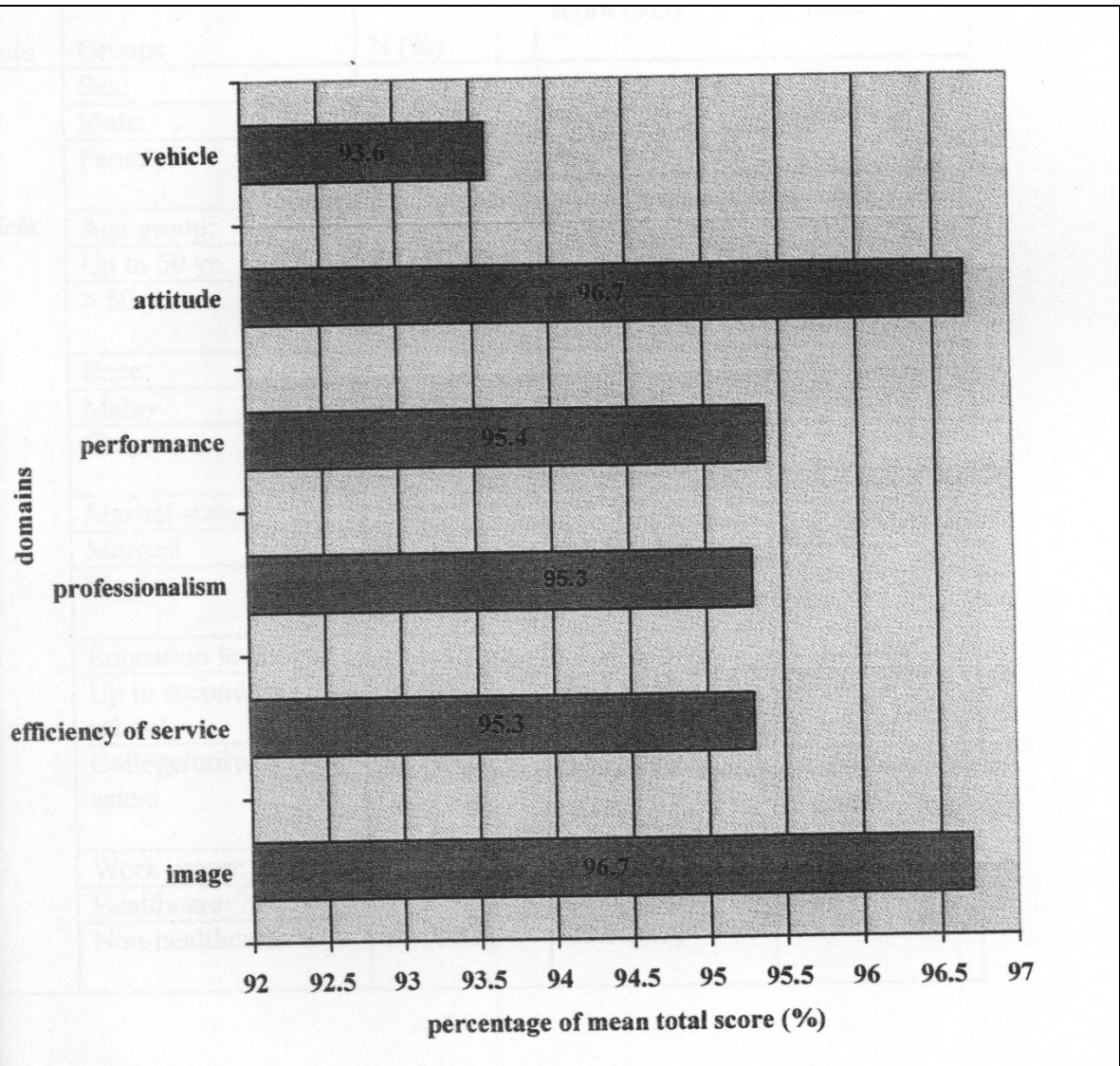
Variable	Group ^a	<i>n</i>	Mean score (SD) (sec)	Mean diff	p-value ^b
Call processing time	1	150	130.3 (50.8)	12.68	0.039
	2	150	117.7 (55.2)		
Time to prepare the team	1	150	270.7 (101.6)	25.36	0.039
	2	150	245.3 (110.4)		
Time to arrive at the scene	1	150	905.3 (301.4)	355.03	<0.001
	2	150	550.2 (173.8)		
Ambulance Response Time	1	150	1,306.3 (450.0)	734.71	<0.001
	2	150	913.2 (276.5)		

^a Group 1 = Non-EMD; Group 2 = EMD

^b Independent *t*-test, significant at $p < 0.05$







THANK YOU

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