

THE PERCEIVED QUALITY AND SATISFACTION WITH SERVICES AT EVACUATION CENTRES: THE CASE OF KEMAMAN EVACUATION CENTRE

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ABSTRACT

The east coast states in Peninsular Malaysia (Kelantan, Terengganu and Pahang) receive heavy rainfall during the monsoon season, which typically occurs for a few months between March to October every year. And at that time, there are thousands of victims will be evacuated from the flood areas. In the case of Malaysia, there are cases reported at evacuation centres such as insufficient food supply, lack of understanding between victims, overcrowded environment and insufficient and unsuitable infrastructures and equipment. This study determines to investigate the key attributes of services of flood evacuation centre in Kemaman, Terengganu especially on evacuees' perception and satisfaction with service quality in order to better understand the attributes of evacuation centres of its essential for improving quality at the evacuation centres. A number of questionnaires have been distributed to the evacuees at the identified major flood affected in Kemaman area at Terengganu. Descriptive analysis was employed by analysing the mean score of perceived quality, satisfaction and importance in determining the flood evacuees' evaluation of the seven factors of services at the Kemaman evacuation centre. In conclusion, all services at the Kemaman evacuation centre in Terengganu were perceived quality and satisfied for the evacuees.

Keywords: Flood, Evacuation Centre Services, Perceived Quality, Satisfaction

Introduction

The east coast states in Peninsular Malaysia (Kelantan, Terengganu and Pahang) receive heavy rainfall during the monsoon season, which normally occurs for a few months starts from November to March each year. There are many factors contributed to the monsoon season in the east coast states and among the factors are the unexpected heavy rains and the unsystematic drainage (Weng Chan, 1997). The severe monsoon season is not even threatening the life of the victims, but also impacting to the damage of individual and public properties (Weng Chan, 1997). It is no wonder that monsoon rains has influenced so much to the living of people in the east coast states in Peninsular Malaysia (Weng Chan, 1995).

During the monsoon season, there are thousands of victims will be evacuated from the flood areas. The flood victims would be placed in safe evacuation centres as determined by National Security Council of Malaysia. In Terengganu itself, there are about 88 evacuation centres which covering the district of Dungun, Besut, Hulu Terengganu, Kuala Terengganu, Kemaman, Marang and Setiu. Like the state of Kelantan and Pahang, the state of Terengganu also has reported that thousands of victims would be evacuated during the severe monsoon rains.

The Malaysian Government has an excellent standard of operation (SOP) to handle this situation and one of the preparedness and emergency response is to evacuate the victims at a safe place or temporary sheltering (Gilbert, 2001). Safe evacuation for flood victims in Malaysia is one of the most important emergency response activities after the occurrence of floods or other disasters or hazards (Bologna, 2010). Nevertheless, evacuation and emergency sheltering were always challenging issues reported by some researchers (Hosseini et al, 2014) and thus, motivates this study to find out the management issue of evacuation centres in term of perceived quality and satisfaction. Therefore, this study determines to investigate the key attributes of services of flood evacuation centre in Terengganu especially on evacuees' perception and satisfaction with service quality in order to better understand the attributes of evacuation centres of its essential for improving quality at the evacuation centres.

This paper is organized as follows. First, review the function of flood evacuation centres, perceived quality and satisfaction. Later, the paper discussed on research methodology and analysis. Finally, the paper ends with a conclusion and recommendation.

Literature review

The function of flood evacuation centres

The evacuation centre is a place where the community of the disaster affected areas assembled (Somasundaram and Davies, 2014). This is the place where all essential services provided to evacuees such as food, accommodation, information and other services in a period of time, days or weeks (Somasundaram and Davies, 2014). The evacuation centre is also involved technical, financial, social assistance and emotional support (McInerny, 2012); it may be “a place used solely for receipt of service, or a staging point for future action” (Davis, 1978). Due to the importance of this support system during the crisis, an effective standard evacuation centre management is indeed vital, so that all services could be accessed and used by evacuees conveniently. In the case of Malaysia, there are cases reported at evacuation centres such as insufficient food supply, lack of understanding between victims, overcrowded environment and insufficient and unsuitable infrastructures and equipment (Said, Gapor, Samian, Abed Aziz, 2013). At the recent flood disaster in 2014, for instance, the cases reported include a desperate need for counsellors for personal and emotional support (Sinar, 2014) and the shortage of essential necessity such as foods (The Malaysian Insider, 2014). The Government and non-government authorities must take a serious attention on this matter. This situation also, could indicate a poor management at the evacuation centre if it is not properly managed. This raises some questions: To what extent is the evacuees’ perception on the quality of services at evacuation centres in Terengganu? To what extent has the evacuees satisfied with all the services at evacuation centres in Terengganu?

In this study, the researcher studies two components of intangible and tangible in measuring service quality of flood evacuation centres in meeting the expectations and needs of evacuees (DeShields et al., 2005). And the intangible and tangible services were identified based on the sources from local and international such as reports, journals and websites. The identified services of evacuation centres include:

1. Food catering,
2. Health and safety,
3. Transportation, volunteers,
4. Site services,
5. Telecommunication and
6. Special facilities for special needs.

Evacuees perceived quality and satisfaction

There is a consensus with the definition of perceived quality that is, whether customers’ expectation is met from the actual service they experienced (Groenroos, 1984; Parasuraman et al., 1985). If they received excellent service higher than what they expected, they would satisfy and vice versa (Parasuraman et al., 1988). Meanwhile, the definition of satisfaction is the fulfillment of what customers expect to get that is match their needs and desires (Olsen, 2002). Measuring perceptions within the measure of satisfaction is regarded as the important part which often influence on satisfaction (Halstead, et al., 1994). Customer perceptions are often accurate or realistic, and will seldom evolve and change once the customer utilises the service. Because this can occur and affecting their overall evaluation of the service performance, evaluation of perceived quality has thus been found to have a strong link to overall satisfaction (Chen, & Chang, 2013; Kayeser & Razaque, 2014; Žabkar, Brenčič, & Dmitrović, 2010). For purposes of this research, evacuee’s perceptions of service provided at flood evacuation centres are investigated to determine whether the quality of the service experienced by evacuees met their expectations (Parasuraman, et al., 1985). Eventually, the perceived quality is the results from the evacuees’ perception of what service they received. Satisfaction also can be seen as transaction-specific satisfaction and overall satisfaction (Jones & Suh, 2000). In the case of this study, overall satisfaction or cumulative satisfaction is applied and defined as evacuees overall satisfaction based on all encounters and experiences at the evacuation centres (Jones & Suh, 2000; Sureshchandar, et al., 2002).

In marketing the term “customer” is used to represent the individual who experience the service. In this study, however, the term “consumer” is used to refer the person, individual or group who uses the services. It is because the term is selected according to its circumstances or on what the situation is happening (McLaughlin, 2009). Thus, the study would like to measure how consumers (evacuees) evaluate the services they received or the performance at the evacuation centres. It is all based on users’ judgments during their stay at the evacuation centres (Chen, et al., 1994).

Methodology

This chapter provides an overall view of how this study was implemented. It outlines the research process that was utilized to achieve the objectives of the study. It covers sampling, data collection and analysis.

Sampling, data collection and analysis

A number of questionnaires have been distributed to the evacuees at the identified major flood affected area which is Kemaman, Terengganu. The Kemaman evacuation centre is selected due to the reason that the number of evacuees was among the highest compared to other evacuation centres in Terengganu. There were 172 villagers involved in this study (Sekaran, 2003). With the permission of the National Security Council of Malaysia, the primary data collected by research assistants and administered the surveys in two weeks at Kemaman, Terengganu. Respondents were selected on random sampling basis technique where everyone has the potential to be the respondents of the study. A total 200 questionnaire distributed by four research assistants (every person was given 50 questionnaires). They were properly instructed and asked to ensure 100 percent response rate of distributed questionnaires. Due to a number of limitations to reach flood respondents, 173 questionnaires were returned and the

response ratio was 86 percent. However, one questionnaire was disregarded because of not being filled properly and leaving 172 questionnaires to be used for the study.

Measures

The questionnaire uses seven-point Likert scale. In the questionnaire, the measurement of importance starts with “1” very not important – indicates the lowest important until “7” very important – indicates the highest importance. The measurement of perceived quality starts with “1” strongly disagree – indicates the lowest disagreement until “7” very agree – indicates the highest agreement. The measurement of satisfaction starts with “1” very dissatisfied – indicates the lowest level of satisfaction until “7” very satisfied – indicates the highest level of satisfaction. Some of the items were developed by researchers and some were selected based on a number of flood studies such as Kayeser and Razzaque (2013), Bigne, Moliner and Sanchez (2003) and Huddleston, Whipple, Mattick, and Lee (2009). One must know that the sources of flood studies are very limited and thus, some items were identified based on the general information. Meanwhile, the design of the questionnaire was based on customer service model such as Zeithaml et al. (1993) and Parasuraman et al. (1988). There are four main areas highlighted in the questionnaire that are:

- Section 1: The importance rankings with services provided at evacuation centres,
- Section 2: The respondent’s perceptions with services provided at evacuation centres,
- Section 3: The respondents’ overall satisfaction with services provided at evacuation centres,
- Section 4: Open-ended question of overall perceptions with flood evacuation centres,
- Section 5: A series of respondent demographic items.

In Section 1 and 2, there are three main parts which include the measurement of importance, perceived quality, and overall satisfaction. The seven dimensions included in this study were as follows:

- FCQ = Food Catering Quality;
- HSQ = Health and Service Quality;
- TQ = Transportation Quality;
- VQ = Volunteering Quality;
- SSQ = Site Service Quality;
- TLCQ = Telecommunication Quality;
- SFSNQ = Special Facilities for Special Needs Quality

For the data analysis, statistical procedures were applied using SPSS 21.0. Descriptive statistics were analysed to summarize means of the seven dimensions items, and demographic characteristics of the respondents.

Results and Discussion

For data analysis results, it discusses the reliability, the survey response and the analysis of research objective of the study.

Respondents Demographic

The total respondents for this study are 172 people. As in Table 1.0, the number of male respondents (89, 51.4%) is higher than female respondents (83, 48%). The highest respondents were from the age ranges from 30 years old and below (75, 43.4%), and whilst, the respondents’ age ranges from 36-40 years old (15, 8.7%) contribute the lowest. The Malay (168, 97.1%) is the highest number of races who involved in this study, followed by Chinese (3, 1.7%) and others which is a Siamese (1, 0.6%). Meanwhile, secondary school (84, 48.6%) is the highest respondent’s level of education and only a few of the respondents were degree holder (36, 20.8%). About 63.6% of respondents were married, 28.9% respondents are still single and, other than that were widower/widow which is 1.7%. Most of the respondents at Kemaman were not working which is 34.7% of them because of the age factor. About 28.3% of them worked in the government sector and only 6.4% worked in the private sector. Another 26% respondents working as businessman, rubber tappers and labour work.

Table 1.0: Demographic Profile of Respondents

Sex	Frequency	Percent (%)	Age	Frequency	Percent (%)
Male	89	51.4	30 and below	75	43.4
Female	83	48	31 – 35	24	13.9
			36 - 40	15	8.7
Race	Frequency	Percent (%)	41 – 45	22	12.7
Malay	168	97.1	45 – 50	16	9.2
Chinese	3	1.7	51 and above	20	11.6

Others	1	.6
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Level of Education	Frequency	Percent (%)
None	5	2.9
Primary School	15	8.7
Secondary School	84	48.6
Diploma	27	15.6
Bachelor	36	20.8
Master	3	1.7

Status	Frequency	Percent (%)
Married	110	63.6
Single	50	28.9
Widower/Widow	3	1.7

Profession	frequency	Percent (%)
Government	49	28.3
Private Sector	11	6.4
Own Work	45	26.0
Not Working	60	34.7

Factor Analysis Results

Table 2.0 shows the results of factor loadings and Cronbach’s alpha. Based on the results, it shows that all item loadings were above 0.5 (Hair et al., 2010) and indicates the strong loadings values. The Cronbach’s alpha results were above the value 0.9 (Nunnally and Bernstein, 1994). It reveals that all factors show a high reliability.

Table 2.0: The Factor Loadings and Cronbach’s alpha Results

Construct	Items	Loadings	α
FCQ	FCQ_Food Standards	0.674	0.953
	FCQ_Nutritious Food & Drinks	0.752	
	FCQ_Various Food & Drinks	0.592	
	FCQ_Dining Area	0.580	
	FCQ_Food Appliance	0.603	
	FCQ_Caterer's Behavioral	0.701	
	FCQ_Special Food Needs	0.627	
HSQ	HSQ_Prompt Treatment	0.604	0.966
	HSQ_Sufficient Medication	0.633	
	HSQ_Monitoring of Patient	0.731	
	HSQ_Sufficient Doctors and Nurses	0.749	
	HSQ_Sufficient medical equipment	0.695	
	HSQ_Efficient Treatments	0.695	
	HSQ_Flood Information Provided	0.572	
	HSQ_Vaccinations Available	0.727	
	HSQ_Counseling Session Provided	0.654	
	HSQ_Periodic Health Examination	0.702	
HSQ_Friendly Doctors and Nurses	0.752		
TQ	TQ_Safe Transports	0.619	0.959
	TQ_Quick Transportation Service	0.659	
	TQ_Carry Out Services On Time	0.635	
	TQ_Friendly Management of Transportation	0.555	
	TQ_Efficient Services	0.560	

	TQ_Sufficient Transports	0.592	
	TQ_Comfortable Transports	0.589	
VQ	VQ_Numbers of Volunteers	0.614	0.959
	VQ_Have Experiences	0.653	
	VQ_Diligently Performing Their Duties	0.741	
	VQ_Full Commitment	0.752	
	VQ_Always Giving Moral Support	0.769	
	VQ_Performing Well on Duties	0.802	
	VQ_Always There for Evacuees	0.792	
	VQ_Have Good Communication	0.777	
SSQ	SSQ_Extensive Evacuation Centers	0.556	0.96
	SSQ_Efficient Management	0.507	
	SSQ_Sufficient Facility	0.520	
	SSQ_Security At Evacuation Centers	0.535	
TLCQ	TLCQ_Usable Fixed-Line Phone	0.824	0.979
	TLCQ_Availability Phone Network	0.868	
	TLCQ_Internet Network	0.897	
	TLCQ_Convenience Mobile Phones	0.819	
	TLCQ_Top-up Availableness	0.880	
	TLCQ_Power Banks for Charging	0.893	
SFSNQ	SFSNQ_Strictly Health Monitoring	0.540	0.924
	SFSNQ_Preparedness of Special Needs	0.532	

Notes: α , Cronbach's α ; FCQ, Food Catering Quality; HSQ, Health and Service Quality; TQ, Transportation Quality; VQ, Volunteering Quality; SSQ, Site Service Quality; TLCQ, Telecommunication Quality; SFSNQ, Special Facilities for Special Needs Quality

Perceived quality Mean Score

Table 3.0 shows the mean score results of perceived quality and overall performance for each of the dimensions. The highest perceived quality dimension is "Food Catering Quality" with the mean score of 6.21, followed by "Transportation Quality" 6.17, "Volunteering Quality" 6.15. The dimension of "Health and Safety Quality" and "Special facilities for Special Needs Quality" share the same mean score of 6.13. The mean score of "Site Service Quality" was 6.06, and "Telecommunication Quality" was 5.54. The mean score for overall performance of evacuation centre was 5.40 and overall satisfaction was 5.39.

Table 3.0: Perceived Quality and Overall Performance

Dimension	Perceived Quality (<i>m</i>)
(1) Food Catering Service	6.21
Food Standards	6.25
Preparedness of Food & Drinks	6.28
Nutritious Food & Drinks	6.29
Various Food & Drinks	6.11
Dining Area	6.03
Food Appliance	6.16
Time of Preparedness	6.06
Caterer's Behavioral	6.28
Special Food Needs	6.26
Sufficient Food	6.41
(2) Health and Safety Service	6.13

Prompt Treatment	6.23
Sufficient Medication	6.22
Monitoring of Patient	6.15
Sufficient Doctors and Nurses	6.19
Sufficient medical equipment	6.17
Efficient Treatments	6.15
Flood Information Provided	6.07
Vaccinations Available	6.01
Counseling Session Provided	5.95
Periodic Health Examination	6.04
Friendly Doctors and Nurses	6.25
(3) Transportation Service	6.17
Safe Transports	6.23
Quick Transportation Service	6.20
Carry Out Services On Time	6.16
Friendly Management of Transportation	6.12
Efficient Services	6.18
Sufficient Transports	6.23
Comfortable Transports	6.08
(4) Volunteering Service	6.15
Numbers of Volunteers	6.16
Have Experiences	6.11
Diligently Performing Their Duties	6.14
Full Commitment	6.22
Always Giving Moral Support	6.18
Performing Well on Duties	6.16
Always There for Evacuees	6.14
Have Good Communication	6.10
(5) Site Service	6.06
Extensive Evacuation Centers	6.14
Level of Cleanliness	6.11
Efficient Management	6.13
Sufficient Facility	6.08
Bedding Layouts	6.01
Clean Toilets	6.03
Other Facilities	5.86
Security At Evacuation Centers	6.14
(6) Telecommunication Service	5.54
Usable Fixed-Line Phone	5.56
Availability Phone Network	5.53
Internet Network	5.50
Convenience Mobile Phones	5.68

Top-up Availableness	5.54
Power Banks for Charging	5.43
(7) Special Facilities for Special Needs Service	6.13
Quality of Specialty Care	6.17
Special Needs Safety Priority	6.19
Strictly Health Monitoring	6.25
Preparedness of Special Needs	6.21
Insurance Provided	5.85
Overall Performance Quality	5.40
Performance at Evacuation Centers	5.40
Overall Satisfaction	5.39

Notes: *m* = mean score; Likert-scale = “1” – strongly disagree to “7” – strongly disagree (perceived quality), “1” – strongly dissatisfied to “7” – very satisfied (Overall satisfaction)

Services Importance Mean Score

Table 4.0 shows the results the mean score of service importance of each dimension and based on the mean score the dimensions ranked according to its importance to evacuees. The dimension of “Volunteering Service” mean score was 6.55 and ranked as the most important service for evacuees. It followed by “Special Facilities for Special Needs” with the mean score of 6.51 and ranked as the second. There were two dimensions share the same mean score which is “Site Service” and “Transportation Service” - 6.50 and the dimension of “Health and Safety Service” mean score was 6.45 and ranked as the fifth. The dimension of “Food Catering Service” mean score was 6.42 and ranked as the sixth and the dimension of “Telecommunication Service” with the mean score of 6.17 and ranked as the lowest important service to evacuees.

Table 4.0: The Ranking and Service Importance Mean Score

Rank	Dimensions	Importance (<i>m</i>)
1	(4) Volunteering Service	6.55
2	(7) Special Facilities for Special Needs Service	6.51
3	(5) Site Service	6.50
4	(3) Transportation Service	6.50
5	(2) Health and Safety Service	6.45
6	(1) Food Catering Service	6.42
7	(6) Telecommunication Service	6.17

Note: *m* = mean score; Likert-scale = “1” very not important to “7” very important

Conclusion and Recommendation

The objective of this study is to investigate and understand the key issue on flood evacuation management in Terengganu especially on evacuees’ perception and satisfaction with service quality of evacuation centres. Based on the results, evacuees’ perceived quality of the services at the Kemaman evacuation centre has been determined. Three services of Kemaman evacuation centre that have highly rated on perceived quality by evacuees were:

1. Food catering service,
2. Health and safety service, and
3. Transportation service

Meanwhile, three services of evacuation centre that have high rated importance by evacuees were:

1. Volunteering Service,
2. Special Facilities for Special Needs service, and
3. Site service

Based on the results, it also suggests that evacuees were satisfied with all services provided at the evacuation centre. It means all services provided at evacuation centre have met their expectations and their level of satisfaction.

This study focuses on evacuees at the Kemaman evacuation centre. This, however, the result of the study is not generalized to other evacuation centres. Further suggestion is to extend this research by focusing on the qualitative research so that additional factors can be determined and by identifying additional factors, it could improve the services of evacuation centre in Malaysia. The limitation of this study is the difficulty to get cooperation from the evacuees as well as the time constraint. Due to time constraints, the researchers were only able to get a number of respondents as mentioned previously. If more time was given, researchers may be able to get as many respondents as possible. As overall conclusion, a proper investigation with services provided to evacuees at the evacuation centres is important to upgrade and improve the flood disaster management. The appropriate actions should be taken into consideration by the Government and non-government authorities in Malaysia in ensuring that the services at the evacuation centre in Malaysia reach evacuees' expectations and finally meeting their level of satisfaction.

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