

DETERMINANTS OF PATIENT SATISFACTION (PS) IN PUBLIC HEALTH SERVICE ORGANIZATIONS (PHSO) IN EASTERN PROVINCE OF SRI LANKA

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Abstract:

Satisfaction is satisfying the needs and desires of the consumer (Besterfield, 1994). In case of public health service organizations, patient satisfaction is vital. Research attempts to determine factors affecting patient satisfaction in PHSOs; know the reliability and validity of items & factors of patient satisfaction and create a mathematical equation model for factors of patient satisfaction. Researcher selected 100 employees from only 3 government hospitals in Addalaichenai Divisional Secretariat of Ampara District. Data have been collected during the period of first quarter of 2013. Collected questionnaires have been analysed by a factor analysis and regression analysis. Core services, human element, non- human element and servicescape factors have been identified as determinants of patient satisfaction in public health service organizations. Cronbach alpha for core service, human element of the service, non-human element of the service and servicescapes are 0.819, 0.626, 0.965 and 0.783 respectively. Most of the items in factors have higher validity. Values of KMO for items of core service, human element of the service, non- human element of the service and servicescapes are 0.500, 0.554, 0.697 and 0.610 respectively. These values indicate that content and convergent validity are higher. Discriminant validity are lower statistically. In this study, Log log model is the best fitted model than linear models since core services, human element of the service and non- human of the service factors in the model explain 94% of total variation for patient satisfaction.

Key words: Eastern Province, Patient Satisfaction, Public Health Service Organizations, Sri Lanka.

JEL classification: M12

1. INTRODUCTION

Eastern Province (EP) of Sri Lanka consists of three cardinal districts such as Ampara, Batticaloa and Trincomalee. Public health service organisations (PHSO) are all sorts of government medical institutions (GMIs) that are government hospitals (GHs). Satisfaction is satisfying the needs and desires of the consumer (Besterfield, 1994). *Ahmad, Nawaz, Khan, Khan, Rashid and Khan (2011) studied about predictors of patient satisfaction.* Patient satisfaction is a multi-factorial concept. The results also found that patient satisfaction is determined by the predictors such as attitude about hospital services and satisfaction from staff. Holder and Berndt (2009) found the effect of changes in servicescapes and service quality perceptions in maternity ward patients in a private hospital with the help of SERVPERF instrument to determine perceptions of service quality. On this basis, patients can be satisfied by way of core services, human element, non- human element and servicescape factors. The population of Sri Lanka in 2003 was estimated at 19.25 million. The annual population growth rate was reduced to its current 1.3% level with an increase in Life Expectancy at birth. Sri Lanka is aging rapidly (Department of Census & Statistics, 2001). It is projected that by 2020, 20% of Sri Lanka's population will be 60 years of age or over, while the proportion in the young age group is decreasing. Sri Lanka's progress in health and social development can be seen in the vital health outcomes. The Infant Mortality Rate (IMR) has declined steadily since the beginning of the last century (11.2 per 1,000 live births – 2003) while the Maternal Mortality Ratio (MMR) steadily declined until 1992 but remained stagnant thereafter (47 per 100,000 live births – 2001). However, there was significant district variation in IMR and MMR. Batticaloa and Trincomalee of Eastern Province were among the top ten in maternal deaths in

Island. Batticaloa, Trincomalee and Ampara of Eastern Province had 116.1, 60.3 and 31.8 maternal deaths per 100, 000 live births during the past (World Health Organization, 2006). These demographic, economic and socio- cultural situations highlight that patients in public health service organizations should be satisfied.

2. STATEMENT OF THE PROBLEM

Oyvind, Sjetne and Iversen (2012) studied about overall patient satisfaction with hospitals in relation to the effects of patient-reported experiences and fulfillment of expectations. Patient satisfaction and experiences are important parts of healthcare quality, but patient expectations are seldom included in quality assessments. Results found two variables are about fulfillment of expectations and eight are about patient-reported experiences and three are socio-demographic variables. Borghans, Sophia, Rudolf and Gert (2012) studied about whether there is the length of stay [LOS] in hospital correlated with patient satisfaction. Research design used standardized LOS and standardized patient satisfaction data from seven specialisms such as internal medicine, cardiology, pulmonology, neurology, general surgery, orthopaedic surgery and obstetrics and gynaecology in the period 2003–2010. They found no correlation between LOS and patient satisfaction in six out of seven specialties. They only found significantly higher patient satisfaction scores in pulmonology for some specific items on hospitals wards with a shorter LOS. [You, Linda, Douglas, Liu, He, Hu, Jiang, Li, Li, Liu, Shang, Lee](#) and [Sermeus](#) (2012) studied about hospital nursing, care quality and patient satisfaction with reference to cross-sectional surveys of nurses and patients in hospitals in China and Europe. Nurses in both China and Europe described their work environment, the quality of care on their unit and patient safety as the determinants for patient satisfaction in different degrees. So, these empirical evidences suggest that there may be a variety of determinants that generate satisfaction for patients. There is a room for further investigating about factors determining patient satisfaction. These studies have been carried out in different contexts, in different countries and in different periods. Findings of these studies are different. Factors identified these studies also different. Therefore this study is undertaken in the performance of public health service organization specially, in government hospitals in Eastern Province of Sri Lanka during the period of 2011 to 2014.

2.1 RESEARCH QUESTIONS AND OBJECTIVES

Empirical review of literatures of previous studies confirms that research issue exists on determinants of patient satisfaction in public health service organization i.e. government hospitals. This main research issue is cascaded into three sub research questions. They are; first is what factors influence patient satisfaction in public health service organizations. Second is whether these items & factors of patient satisfaction are reliable and valid?. Third is it possible to create a mathematical equation model for factors of patient satisfaction. These three research questions are converted into research objectives. They are; first is to determine factors affecting patient satisfaction in PHSOs. Second is to know the reliability and validity of items & factors of patient satisfaction. Third is to create a mathematical equation model for factors of patient satisfaction.

3. NEED FOR THE STUDY

Job satisfaction experienced by employees will include the people to give their best to the organization (Velnampy, 2008). Incentives have a significant effect on employees' motivation (Velnampy, 2006). Reichheld (1996) denoted that customer satisfaction is the key factor for organizational success. On this basis, it is true that if public health service organizations want to be successful patient satisfaction is vital. Service quality and customer satisfaction are inarguably core concepts that are in the crux of the marketing theory and practice (Spreng and Mackoy, 1996). Customer satisfaction leads to higher customer loyalty (Anderson and Sullivan, 1993; Boulding et.

al., 1993). Patients are satisfied they may be loyal to public health service organizations. Public health service organisations should provide better service quality for satisfying patients. When patients are satisfied they can spread positive word of mouth about hospitals and staff. This situation may lead more allocation of funds and infrastructures. Findings of this study may be useful to hospital managers and executives to better serve to customers in future. According to the societal marketing concept, when public health service organizations satisfy patients it can serve to society. Society can have healthy and wealthy workforce that should help for higher economic growth of a country. This study is beneficial to staff who work in public health service organizations. Satisfied patients can recommend with top authorities to sort out the needs and wants of the staff. Using factor analysis, Velnampy and Sivesan (2013) assessed the service quality of university libraries in Sri Lanka. This study analyzed twenty three variables which measure the service quality of university libraries and finally extracted four factors using factor analysis, namely convenient opening hours, current information, collection comprehensiveness, and convenient access to collection. Velnampy and Sivesan (2012) in their research on determinants of customer relationship marketing of mobile service providers in Sri Lanka extracted three factors namely trust, rapport and accuracy using factor analysis. In another study of (Velnampy and Sivesan, 2012), they extract from the analysis that together accounted 84.924% of the total variance. These factors were categorized as payment, achievement and proud to work.

4. REVIEW OF LITERATURE

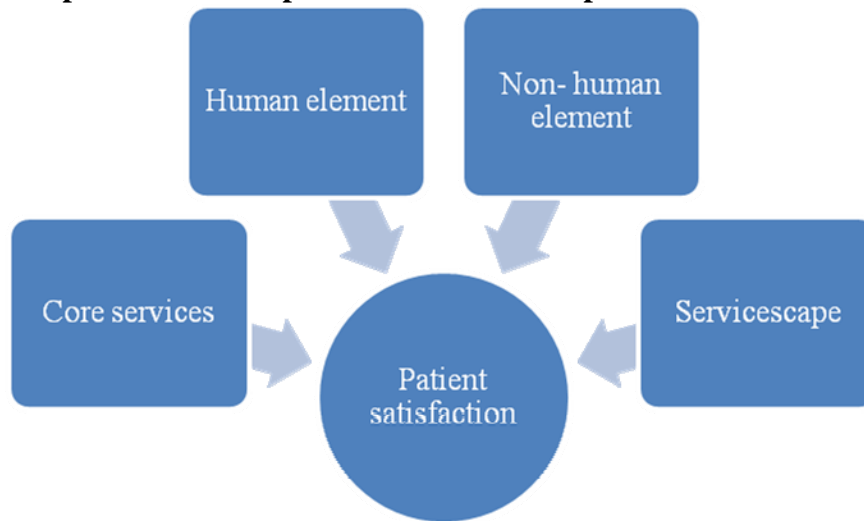
Qunxiang, Peng and Lihua (2012) studied about the investigation of patients' satisfaction degree with public hospitals in the city of Hangzhou under the background of new medical reform. They made questionnaire survey on 200 patients randomly selected from 4 public hospitals in Hangzhou and analyzed the data with descriptive statistics and regression analysis. The score of the general satisfaction degree of the patients is 3.68. The main factors affecting the patients' general satisfaction degree with hospitals are the professional skills of medical workers and medical costs. When implementing and progressing new medical reform the patients' general satisfaction degree with hospitals is fine to show the great space in improvement. Dasanayaka, Gunasekera, and Sardana (2012) studied about [quality of healthcare service delivery in public sector hospitals which was a case study based on western province in Sri Lanka](#). This study was conducted in Colombo, Gampaha and Kalutara districts in Western Province in Sri Lanka. A structured questionnaire survey based on SERVQUAL model related to healthcare and situation analysis based on in-depth interviews were carried out. The findings of this study indicated that there is a large gap between the expectations of the patients and the perceived services. These gaps are high in rural, peripheral hospitals compared with the teaching, national and base hospitals in urban areas. Nurunnabi and Islam (2012) studied about accountability in the Bangladeshi privatized healthcare sector. Research *design was that* data were collected from 533 patients using services in 45 Dhaka city privatized hospitals. A questionnaire was designed based on 60 patient focus study group and the literature. *Findings showed that* structural equation modeling provides a comprehensive picture that allows healthcare constructs and accountability to be tested. The goodness-of-fit statistics supported the four factors of professionals, administration & management, legal enforcement, ethics & government which were significantly associated with patient accountability. Literature review identified core services, human element, non- human element and servicescape as factors for patient satisfaction.

5. CONCEPTUAL MODEL

A conceptual model has been created by researcher using identified factors for patient satisfaction. This model can be justified by several reasons. This model is a result of detailed and thorough literature review. Factors and measures have been taken from well- known, widely used

and generally accepted models. Patient is based on SERVQUAL and SERVSUPERF instruments. This conceptual model is shown in figure 1.

Figure 1: Conceptual model for patient satisfaction in public health service organization



(Source: Review of literature)

6. OPERATIONALISATION OF STUDY

Operationalisation for patient satisfaction in public health service organizations is shown in table 1.

Table 1: Operationalisation for patient satisfaction

Concept	Factors	Measures	Number of measures
Patient satisfaction	Core service	Core benefit, problem solving and core feature	03
	Human element of the service	Reliability, responsiveness, assurance, recovery, empathy, critical incidence	06
	Non- human element of the service	Process, procedure, system	03
	Servicescapes	Sign/ symbol, space, layout of units, interior décor, exterior décor, entertainment/ music, food, condition of bed sheet & pillow	03

(Source: Literature review)

7. METHODOLOGY

Data collection is made using secondary source and primary source. Secondary source was used for literature review. Primary data have been collected using questionnaire.

7.1 DATA COLLECTION

Data are collected in both secondary and primary sources. Literature review was carried out using secondary data collection. Researcher collected 39 articles from patient satisfaction in public health service organisations' performance. Secondary source of data collection was made to collect articles during the period of 2012 to 1999. Data have been collected from primary source using questionnaire as an instrument. Questionnaire was prepared in English language first. Then, it is translated into Tamil. Research translated questionnaire from English version to Tamil version on his own with the assistance of the supervisor. Pilot study has been conducted to test the

questionnaire in selected government hospitals in Addalaichenai Divisional Secretariat, Ampara District, Eastern Province of Sri Lanka.

7.2 SAMPLING UNITS (SUS)

Primary sampling units (PSUs) are all government hospital units in all three Districts of Eastern Province. There 65 government hospitals in Eastern Province. Ampara, Batticaloa and Trincomalee districts consist of 29, 18 and 18 government hospitals respectively. Sample size has been determined using the sample size formula. Primary sampling units (PSUs) are research sites i.e. government hospitals where research is carried out. Researcher wished to know how many government hospitals have to be taken from these 65 government hospitals as primary sampling units. He estimated mean number of government hospital units more precisely so that the estimate will be within ± 2 government hospitals of mean number of true population of government hospitals. The following formula is used to calculate sample size of government hospital units.

$$n = \frac{\sigma^2 * z^2}{D^2} \dots \dots \dots \text{formula (1)}$$

(Source: Malhorta, 2002). Where; σ^2 = variance of the population number of hospitals. z^2 = z value associated with 95 % of the confidence level. Associated z value is 1.96. Of the 65 government hospitals, 39 government hospitals have to be taken as sample size for the study in Eastern Province. 17, 11 and 11 government hospitals have to be taken in Ampara district, Batticaloa district and Trincomalee district of Eastern Province respectively. Pilot study should be undertaken with a limited sample size. Since this is a pilot study researcher selected only 3 government hospitals in Addalaichenai Divisional Secretariat of Ampara District.

Secondary sampling units are patients who get treatments from these 3 government hospitals. Hospitals hesitate to provide the records of patients. However, researcher collected data of bed capacity. Sample size of SSUs is calculated using sample size formula. There are 5069 beds in all 65 hospitals. Researcher wishes to know how many beds (in- patients) to be sampled. Researcher wants to estimate mean/ average number of beds for in- patients more precisely so that the estimate will be within ± 30 beds (in- patients) of true population number of beds (in- patients). The following formula is used to calculate sample size of beds (in- patients). It is assumed that all beds are occupied at all times for in- patients.

$$n = \frac{\sigma^2 * z^2}{D^2} \dots \dots \dots \text{formula (1)}$$

Where; σ^2 = variance of the population number of beds. It is known to the researcher from secondary data analysis i.e. Annual Health Bulletin (2010). z^2 = z value associated with 95 % of the confidence level. Associated z value is 1.96. Researcher is confident that 95 % of mean/ average number of sample beds fall in the acceptance region. Researcher is confident that 5 % of mean/ average number of sample beds fall in the rejection region. Therefore, researcher is confident that 95 % mean/ average number of beds in true population fall in the acceptance region. Researcher is confident that 5 % mean/ average number of beds of population fall in the rejection region. D^2 = Maximum permissible difference between sample number of beds and population number of beds. Of the 5069 beds in 65 hospitals, 608 beds in 55 hospitals should be taken as sample size of SSUs. These 608 beds represent 608 in- patients. In case of out- patients, a same amount of out- patients should be considered for research. Totally, 1216 patients should be considered for the research. Since this is a pilot study researcher selected only 100 patients from both in and out patients out of 3 selected government hospitals in Addalaichenai Divisional Secretariat of Ampara District.

7.3 DATA SOURCE, PERIOD AND ANALYSIS

Primary source of data collection have been made to collect questionnaires from hospital employees. A questionnaire has been prepared using identified measures above. Questionnaire consists of two sections such as personal & demographic variables of patients and patient satisfaction in PHSOs. Instrument- questionnaire is scaled in 5 point likert- scale. Patient

satisfaction in public health service organizations are scaled in agreement scale ranging from 5 to 1. Collected questionnaires have been cross checked and used as input for processing in SPSS. Data have been collected during the period of first quarter of 2013. Collected questionnaires have been analysed by a factor analysis and regression analysis.

8. RESULTS AND DISCUSSION OF FINDINGS

8.1 RELIABILITY AND VALIDITY

Cronbach alpha is most widely used method for checking the reliability of scale. It may be mentioned that its value varies from 0 to 1 but, satisfactory value is required to be more than 0.6 for the scale to be reliable (Malhorta, 2002; Cronbach, 1951). In this study, researcher use Cronbach alpha scale as a measure of reliability. Core service factor is comprised of core benefit, problem solution and features. Cronbach alpha for features was also high. But, this was not taken into grant due to communality value of less than 0.6. Values of Cronbach alpha for the 2 items of core benefit and problem solution are 0.819. Human element of the service factor is composed of reliability, responsiveness, assurance, recovery, empathy and critical incidence. Cronbach alpha for reliability and empathy were also high. But, these were not taken into grant due to communality value of less than 0.6. Cronbach alpha for these 4 items is 0.626. Non- human element of the service factor is composed of process, procedure, system and technology. Cronbach alpha for these 4 items is 0.965. Servicescapes is composed of signs & symbols, space, layout of units, interior décor, exterior décor, music, food and conditions of bed sheets & pillow. Cronbach alpha for these 8 items is 0.783. Reliability statistics are shown in table 2.

Table 2: Reliability statistics

Factors	Value of Cronbach's Alpha	N of items	N of items
Core service	0.819	3	2
Human element of the service	0.626	6	4
Non- human element of the service	0.965	4	4
Servicescapes	0.783	8	8

8.2 COMMUNALITIES AND TESTING THE SUFFICIENCY OF SAMPLE SIZE

Researcher tested collected data for appropriateness for factor analysis. Appropriateness of factor analysis is dependent upon the sample size. In this connection, MacCallum, Windaman, Zhang and Hong (1999) have shown that the minimum sample size depends upon other aspects of the design of the study. According to them, as communalities become lower the importance of sample size increases. They have advocated that if all communalities are above 0.6 relatively small samples (less than 100) may be perfectly appropriate. In this regard, communalities for core benefit (0.849) and problem solution (0.849) are more than 0.6. Since communality features was less than 0.6 so, it was not taken into grant. Communalities for responsiveness (.973), assurance (.701), recovery (.899) and critical incidence (.756) are greater than 0.6. Communalities for process (.963), procedure (.861), system (.905) and technology (.915) are greater than 0.6. Communalities for signs & symbols (.742), space (.849), layout of units (.873), interior decor (.813), exterior decor (.874), music (.938), food (.859) and conditions of bed sheets & pillow (.850) are greater than 0.6. Communalities are shown in table 3.

Table 3: Communalities

Core service factor	Values of Community (Extraction)	Human element of the service	Values of Community (Extraction)	Non-human element of the service factor	Values of Community (Extraction)	Servicescapes	Values of Community (Extraction)
Core benefit	0.849	Responsiveness	0.973	Process	.963	Signs & symbols	.742
Problem solution	0.849	Assurance	0.701	Procedure	.861	Space	.849
		Recovery	0.899	System	.905	Layout of units	.873
		Critical incidence	0.756	Technology	.915	Interior decor	.813
						Exterior decor	.874
						Music	.938
						Food	.859
						Conditions of bed sheets & pillow	.850

8.3 MEASURE OF KEYZER-MEYER-OKLIN (KMO)

Measure of Keyzer-Meyer-Oklin (KMO) is another method for to show the appropriateness of data for factor analysis. KMO statistics varies between 0 and 1. Keyzer (1974) recommended that values greater than 0.5 are acceptable; between 0.5 to 0.7 are moderate; between 0.7 to 0.8 are good; between 0.8 to 0.9 are superior (Field, 2000). Bartlet's test of sphericity is the final statistical test applied in this study for verifying its appropriateness (Bartlet, 1950). In this study, values of KMO for 2 items of core service factor, 4 items of human element of the service factor, 4 items of the non- human element of the service and 8 items of servicescapes 0.500, 0.554, 0.697 and 0.610. These values indicate sample taken to process factor analysis is statistically significant. In addition to KMO, Chi- square values for core service factor, human elemnt of the service, non- human element of the service and servicescapes are 64, 157, 628 and 559 with significance value of 0.000. These values confirm test is statistically significant when significance value is less than significance level. Significance value is 0.000 at 5% level of significance. These values indicate that data are statistically significant for factor analysis. Values of KMO and Bartlet test of Sphericity are shown in table 4.

Table 4: KMO & Bartlett's Test of Sphericity

Core service factor			Human element of the service factor			Non-human element of the service factor			Servi cesca pes		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.500		Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.554		Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.697		Kaise r-Meye r-Olkin Meas ure of Samp ling Adeq uacy.	.610	
Bartlett's	Approx.	64.972	Bartlett's	Approx.	157.335	Bartlett's	Approx.	628.686	Bartle	Appr	559.3

Test of Sphericity	Chi-Square		Test of Sphericity	Chi-Square		Test of Sphericity	Chi-Square		tt's Test of Sphericity	ox. Chi-Square	41
	Df	1		Df	6		Df	6		Df	28
	Sig.	.000		Sig.	.000		Sig.	.000		Sig.	.000

8.4 FACTOR ANALYSIS

After examining the reliability of the scale and test appropriateness of data as above, researcher carry out factor analysis to know factors affecting corporate performance of Public Health Service Organisations in Eastern Province of Sri Lanka and to select an appropriate regression model for Public Health Service Organisations in Eastern Province of Sri Lanka. For achieving these objectives, researcher employs principal component analysis (PCA) that is followed by the varimax rotation. Varimax rotation is mostly used in factor analysis (Hema and Anura, 1993).

From table, it can be seen that core service factor has one component. This component is extracted from the analysis with an eigen value greater than 1 (Tabachnick and Field, 1996). In this study, this one component of core service factor explains 85% of the total variation. Two components of human element of the service factor explain 83% of the total variation. One component of non- human element of the service factor explains 91% of the total variation. Three components of servicescapes explain 85% of the total variation. Total variation is explained in table 5.

Table 5: total variation

Core service factor				Human element of the service factor				Non- human element of the service factor				Servicescapes			
Component	Total	% of Variance	Cumulative %	Component	Total	% of Variance	Cumulative %	Component	Total	% of Variance	Cumulative %	Component	Total	% of Variance	Cumulative %
1	1.697	84.873	84.873	1	2.291	57.280	57.280	1	3.644	91.096	91.096	1	3.367	42.090	42.090
				2	1.038	25.953	83.233					2	2.258	28.219	70.309
												3	1.174	14.679	84.988

8.5 MODEL SELECTION

Gujarati, Porter and Gunasker (2012) stated that Variation Inflation Factor (VIF) should be less than 10 and Durbin Watson (DW) should be between ($d_L \leq d \leq d_U$) i.e. 1.020 to 1.920 for a model selection. In this study, Log Log model has less than 10 for VIF and 2.28 for DW. Thereby, researcher selects this model as the best fitted model for his study. Results are shown in table 6

Table 6: Selection of model

Models	Type of the model	R ² %	F statistics [MSx/MSerror]	P	Values of VIF	DW	Selected model
PATIENSATISFACTION = - 0.000000 + 0.000000 CORE SERVICE + 0.407 HUMAN ELEMENT OF THE SERVICE + 0.291 NON-HUMAN	Linear Linear	100.0%	2310298/0	0.000	1.100, 1.713, 1.152 & 1.709	0.0593452	

ELEMENT OF THE SERVICE + 0.409 SERVICESCAPES							
PATIENT SATISFACTION _{LOG} = 6.23 - 0.00557 CORE SERVICE - 0.0132 HUMAN ELEMENT OF THE SERVICE + 0.000234 NON-HUMAN ELEMENT OF THE SERVICE + 0.000300 SERVICESCAPES	Log Linear model	94.1%	365.03	0.000	1.100, 1.713, 1.152 & 1.709	0.490798	
PATIENT SATISFACTION _{LOG} = - 0.00086 + 0.0121 CORE SERVICE _{LOG} + 0.0303 HUMAN ELEMENT OF THE SERVICE _{LOG} + 0.455 NON-HUMAN ELEMENT OF THE SERVICE _{LOG} + 0.404 SERVICESCAPES _{LOG}	Log Log model	94.1%	377.23	0.000	1.094, 1.007, 1.109 & 1.103	2.27035	√

9. CONCLUSIONS

As promised in the research objective section, my first objective is to determine factors affecting patient satisfaction in PHSOs. Core services, human element, non- human element and servicescape factors have been identified as determinants of patient satisfaction in public health service organizations. Second objective is to know the reliability and validity of items & factors of patient satisfaction. Core service factor is comprised of core benefit, problem solution and features. Cronbach alpha for features was also high. But, this was not taken into grant due to communality value of less than 0.6. Values of Cronbach alpha for the 2 items of core benefit and problem solution are 0.819. Human element of the service factor is composed of reliability, responsiveness, assurance, recovery, empathy and critical incidence. Cronbach alpha for reliability and empathy were also high. But, these were not taken into grant due to communality value of less than 0.6. Cronbach alpha for these 4 items is 0.626. Non- human element of the service factor is composed of process, procedure, system and technology. Cronbach alpha for these 4 items is 0.965. Servicescapes is composed of signs & symbols, space, layout of units, interior décor, exterior décor, music, food and conditions of bed sheets & pillow. Cronbach alpha for these 8 items is 0.783. Keyzer-Meyer-Oklin (KMO) is used to know statistical validity of factors. In this study, values of KMO for 2 items of core service factor, 4 items of human element of the service factor, 4 items of the non- human element of the service and 7 items of servicescapes 0.500, 0.554, 0.697 and 0.610. These values indicate sample taken to process factor analysis is statistically significant. Content and convergent validity are higher. Discriminant validity are lower statistically. Third objective is to create a mathematical equation model for factors of patient satisfaction. In this study, Log log model is the best fitted model than linear models. In terms of this model, core services, human element of the service and non- human of the service factors explain 94% of total variation for patient satisfaction.

10. LIMITATIONS AND OPPORTUNITIES FOR FURTHER RESEARCH

This research is based a pilot study that depended on small number of sample size. This study could be expanded to a larger sample size that covers Eastern Province.

11. ORIGINALITY

This study fills the literature gap. In Sri Lanka, previous studies related to corporate performance in both health service organizations and in non- health service organizations are poor. Limited number of researches are found in Public Health Service Organisations in foreign and Sri Lanka. This literature gap motivated researcher to research PHSOs in Sri Lanka. A conceptual model has been created using identified factors for public health service organization. Reliability and validity have been tested statistically. Mathematical modeling has been generated.

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13. REFERENCES

1. Ahmad, I., Nawaz, A., Khan, S., Khan, H., Rashid, M. A. and Khan, M. H. (2011), "predictors of patient satisfaction", Gomol Journal of Medical Sciences, Vol 9, No 2, pp. 10.
2. Anderson, E. W. and Sullivan, M. (1993), "The antecedents and consequences of customer satisfaction for firms", Marketing Science, Vol. 3 No. 2, pp. 125 - 43
3. Bartlett, M. S. (1950), "Test of significance in factor analysis", British Journal of statistical psychology, Vol. 3, pp. 77 - 85
4. Besterfield, D. H. (1994), "Quality control", Prentice Hall, Englewood, Cliffs, NJ.
5. Borghans, I., Sophia, M. K., Rudolf, B. K. and Gert, P. W. (2012) "Is the length of stay in hospital correlated with patient satisfaction?", "International Journal of Quality and Health Care 24 (5): 443-451.
6. Boulding, W., Kalra, A., Staelin, R. and Zeithaml, V. A. (1993), "A dynamic process model of service quality: from expectations to behavioural intentions", Vol. 30 No. 1, pp. 7 – 27
7. Cattell, R. B. (1966), "The Scree Test For The Number Of Factors", Multivariate Behavioral Research, Vol.1, Iss.2, pp. 245-276
8. Cronbach, L. J. (1951), "Coefficient Alpha and the Internal Structure of the Tests, Psychometrika ", Vol. 6 No. 3, pp. 297 – 334.
9. Dasanayaka, S.W.S.B., Gunasekera, G.S.P., and Sardana, G.D. (2012), "Quality of healthcare service delivery in public sector hospitals: a case study based on Western Province in Sri Lanka", World Review of Entrepreneurship, Management and Sustainable Development, Vol.8, No.2, pp. 148 – 164.
10. Department of Census & Statistics (2001), "Population characteristics: Census of population and housing", Department of Census & Statistics, Sri Lanka.
11. Department of Health (2010), "Annual Health Statistics", Medical Statistics Unit, Ministry of Health and Nutrition, Sri Lanka.
12. Field, A. (2000), "Discovering statistics using SPSS for windows", London, Sage Publication

13. Gujarati, D. N., Porter, D. C. and Gunasker, S. (2012), *Basic Econometrics*, 5th edition, Tata McGraw Hill Education Private Limited, New Delhi.
14. Hema, W. and Anura, D. Z. (1993), "A factor analytical study of the determinants of success in Manufacturing SMEs", School of Accounting and Finance, University of Wollongong, Australia. Retrieved August, 28. 2008. Accessed from: <http://www.app.lese.edu.au>.
15. Holder, M. and Berndit, A. (2009), "The effect of changes in servicecapes and service quality perceptions in a maturity unit", *International Journal of Health Care Quality Assurance*, Vol. 24 No. 5, pp. 389 – 405
16. Ismail, M. B. M. (2013), "Determinants of Employee Satisfaction (ES) in Public Health Service Organizations (PHSO) in Eastern Province of Sri Lanka: A Pilot Study", Working paper.
17. Ismail, M. B. M. (2013), "A Pilot Study of Determinants of Corporate Performance (CP) in Public Health Service Organizations (PHSO) in Eastern Province of Sri Lanka: A Use of Balanced Score Card (BSC)", Working paper.
18. Ismail, M. B. M. (2013), "Corporate Performance (CP) and Satisfaction in Public Health Service Organizations (PHSO) in Eastern Province of Sri Lanka: A Use of Balanced Score Card (BSC) ", Working paper.
19. Kaizer, H. F. (1974), "An Index of factorial simplicity", *Psychometrica*, Vol. 39, pp. 31 – 36
20. MacCallum, R. C., Windaman, K. F., Zhang, S. and Hong, S. (1999), "Sample size factor analysis", *Psychological Methods*, Vol. 4 pp. 84 - 99
21. Malhorta, N. K. (2002), "Marketing Research: An Applied Orientation", 3rd edition, New Delhi, India, Pearson Education Asia.
22. Nurunnabi, M. and Islam, S. K. (2012) "Accountability in the Bangladeshi privatized healthcare sector", *International Journal of Health Care Quality Assurance*, Vol. 25 Iss: 7, pp.625 – 644
23. Oyvind, A. B., Sjetne, I. S. and Iversen, H. H. (2012), "Overall patient satisfaction with hospitals: effects of patient-reported experiences and fulfilment of expectations", *BMJ Quality and Safety*, 21:39-46
24. Qunxiang, Z., Peng, Y. and Lihua, Z. (2012), "Investigation of Patients' Satisfaction Degree with Public Hospitals in the City of Hangzhou under the Background of New Medical Reform", *Modern Hospital Management*, Vol. 1, p. 197
25. Reichheld, F. (1996), *The Loyalty effect: The hidden force behind growth, profits and lasting value*, Bain & Company, Inc. Harvard Business School Press, Boston, MA.
26. Spreng, R. A. and Mackoy, R. D. (1996), "An examination of a model of perceived service quality and satisfaction", *Journal of Retailing*, Vol. 72, pp. 73 - 80
27. Tabachnick, B. G. and Field, L. S. (1996), "Using multivariate statistics", New York, Hcorper Collins.
28. Velnampy.T.(2008), Job attitude and employees performance of public sector organizations in Jaffna district, Sri Lanka,GITAM Journal of Management,Vol.6,issue,2,pp 66-73.
29. Velnampy.(2006), A study on incentives and work motivation of public sector organizations in Sri Lanka,Journal of Annamalai Business Review.
30. Velnampy,T., & Sivesan, S. (2012), Determinants of Customers Relationship Marketing of Mobile Services Providers in Sri Lanka: An exploratory Factor Analysis, *Industrial Engineering Letters*, 2,(6), 10-15.
31. Velnampy, T., & Sivesan, S. (2013). Factor analysis of service quality in University Libraries in Sri Lanka – an application of Servqual Model. *Industrial Engineering Letters*, 3(5), 40-49.
32. Velnampy,T., & Sivesan,S. (2012), Determinants of Employees' Job Satisfaction: A Study of Banking Industries in Sri Lanka. *Global journal of management and business research*, 12(22), 23-29. V
33. You, L. M., Linda, H. A., Douglas, M. S., Liu, K., He, G. P., Hu, Y., Jiang, X. L., Li, X. H., Li, X. M., Liu, H. P., Shang, S. M., Lee, A. K. and Sermeus, W. (2012), "Hospital nursing, care quality, and patient satisfaction: Cross-sectional surveys of nurses and patients in hospitals in China and Europe", *International Journal of Nursing Studies*, Vol. 2. No. (12) pp. 00156-3.
35. World Health Organization (2006), *WHO country Cooperation Strategy 2006 - 2011*, Democratic Socialist Republic of Sri Lanka, pp. 06, 06 – 07, 12.