

Effect of the organizational leadership on the Sustained Quality Improvement in Government Hospitals in Sri Lanka- A Study in Regional Director of Health Services Area Kurunegala

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Abstract- Japanese 5S was selected as the quality improvement tool in this study as 5S is the stepping stone for many quality improvement concepts and its roots date back to 16th century. When successfully implemented, 5S gives many benefits to the organization as well as its stakeholders. Though 5S itself has a tool to sustain, most of the organizations find it difficult to sustain the 5S practice over the time. Therefore the objective of this study was to find out the effect of the organizational leadership on the sustainability of quality improvement in Government Hospitals in Sri Lanka.

This study was a descriptive cross sectional study with two components. First component was to identify the 5S sustaining hospitals from not sustaining hospitals by validated evaluation sheet. Second component was to determine the effect of the organizational leadership on the sustainability of 5S programmes in selected study setting which were government hospitals in RDHS area Kurunegala. Self-administrated questionnaire was used for this purpose. Total study population was 543 employees of all the categories of hospital staff. Calculated sample size was 422 and 375 were responded to the questionnaire giving response rate of 88.9%.

The study revealed that the implemented 5S programmes were sustaining in eight hospitals out of ten i.e. sustaining rate was 80%. When it considered the degree of sustainability, 50% of the selected hospitals reported more than 70% sustainability. This was considered as favourable trend in government health sector in healthcare quality point of view.

Researcher concluded that **organizational leadership** has great effect on sustainability of quality improvement while **task oriented leadership** is the major contributing factors.

Index Terms- Leadership, Quality Improvement, 5S, RDHS area Kurunegala

I. INTRODUCTION

Sri Lanka provides free health care to all the citizens irrespective of their status, income or geographic location, and achieved remarkable health outcomes, particularly relative to neighbouring countries with a similar income range. Though we have better health outcomes, productivity and service quality of

Sri Lankan public health sector has been not very attractive. So there has been high felt need to policy makers to improve the productivity and service quality of public health sector. 5S has been identified as the entry point to improve the service quality in health care provision in Sri Lankan health sector.¹

5S is a Japanese concept used globally to improve productivity and quality. It was introduced by Takashi Oshada in the early 1980s. 5S is the acronym for 5 Japanese words which stand for Seiri, Seiton, Seiso, seiketsu and shitsuke.² 5S is the stepping stone for many other quality techniques and process improvements such as Kaizen, Just-in-time (JIT), Six Sigma and Total Quality Management (TQM). Seiri is the systematic removing of all items from the work place that are not needed for processes and activities. Seiton is the arrangement of needed items so that they are easy to use and label them so that providers can find them easily and put them away when they are done. It can be simply defined as that all equipment should have dedicated places and that equipments should be kept in their places. Seiton is important in health care facility because it eliminates many types of wasteful clinical and administrative activities. Seiso is the third component of 5S concept that emphasizes the systematic and meaningful removal of dirt, trash, waste and other contaminants from the work place. As such Seiso means that everything is kept wiped swept and clean at all times. One of the obvious purposes of the Seiso is to turn the work place in to a clean, bright, safe and sanitary place where everyone will enjoy working. Seiketsu means creating a consistent way of carrying out tasks and procedures i.e. standardization. This is the method used to maintain first three steps in 5S concept. It can be defined as the outcome of properly maintained Seiri, Seiton and Seiso. In other words, Seiketsu integrates those three steps into a unified whole. The basic purpose of Seiketsu is to prevent setbacks in the first three steps, to make implementing them a daily habit and to make sure that all three steps are maintained in their fully implemented state. Shitsuke means to make a habit of properly maintaining correct 5S procedures forever. The implementation of the Shitsuke is different from other 4S in the sense that results are not visible and cannot be measured. Commitment to it exists in people's heart and mind, and only their behaviour shows its presence. Therefore it cannot be implemented like a technique but

conditions can be created to encourage the implementation of Shitsuke.³

Most Japanese company claimed that they have improved their productivity, quality and thinking pattern of employees with the implementation of 5S. Although it gives vast range of benefits to the organization as well as to the employees, it can be implemented at very low cost.

The National productivity policy for Sri Lanka was formulated in 2002 to promote the productivity and quality in organizational level. Readiness to improve productivity in the work place implies a new work culture which is about new ways of thinking and doing. The National productivity policy envisages that such a strong work culture is a *sine qua non* for continuous productivity and quality improvement.⁴ 5S is the gateway of the most of quality and productivity improvement programmes.

The idea of the 5S concept was introduced to Sri Lanka in 1990 by Dr. Taiki Akimoto, a renowned practitioner of 5S in Japanese industry.⁵ Since then several public and private organizations in Sri Lanka have implemented 5S successfully and improved their productivity and service quality.

Many health care institutions in Sri Lanka have improved their productivity and service quality by implementing the Japanese 5S concept. Castle Street Hospital for Women was the first Healthcare institution which implemented the 5S concept successfully in year 2000. This was the best example in Sri Lanka that the ability of successfully implemented 5S programmes to enhance the service quality of a hospital.⁶ Most of the curative health care institutions in North Western Province in Kurunegala and Puttalam RDHS areas have successfully implemented the Japanese 5S concept. Productivity and quality improvement programmes based on Japanese 5S concept will give better outcome with limited resources in health sector.⁷

II. OBJECTIVE

To determine the effect of the organizational leadership on the sustained quality improvement in government hospitals in Sri Lanka.

III. METHODOLOGY

This was a hospital based Descriptive Cross Sectional Study to assess the effect of the organizational leadership on the sustained quality improvement in government hospitals in Sri Lanka. Regional Director of Health Services area, Kurunegala was selected as the study setting.

There are 46 Hospitals in Kurunegala Regional Director of Health Services area including four Base Hospitals. Out of this, only Divisional Hospitals in the Regional Director of Health Services area Kurunegala were selected to the study to minimize the selection bias. From 42 Divisional Hospitals ten Hospitals have been selected using stratified random sampling techniques for the study. All selected Divisional Hospitals have implemented 5S programmes since 2007. Selected Hospitals for the study were Hiripitiya, Polpithigama, Rideegama, Bingiriya, Katupotha, Nammala, Indulgodakanda, Karambe, Kobeigane and Muwanhela.

The data was collected over the period of one month in selected hospitals, commencing from 1st of August 2013 to 1st September 2013. Ethical clearance was obtained from the Ethics Review Committee, Faculty of Medicine-University of Colombo. The study was completed within the period of five months. Study population of this study consisted of all the employees of selected ten Hospitals during the study period. Total number of employees in the selected hospital was 543. Sample size for the study was calculated according to the standard formula.⁸ And it was 422 while 375 were responded. Population proportion technique was applied to the study population to decide the relevant sample from each hospital. Then study population of each hospital was divided in to strata according to the type of employee category. Number of participant chosen in each stratum was proportional to the size of the stratum. This is called proportional allocation.⁹ Data taken from the payroll was used to make the sampling frame. Separate sampling frames were made for each category of the employees. Then using a table of random numbers, required numbers of employees from each category were selected. This procedure has reduced the selection bias in the study.

IV. STUDY VARIABLES

Sustainability of the 5S programme and components of organizational leadership were considered as study variables.

V. STUDY INSTRUMENTS

This study has two study instruments.

1. Direct observation for evaluation of 5S sustainability
2. Self administrated questionnaire

Japan Sri Lanka Technical and Cultural Association (JASTECA) have developed a 5S evaluation sheet for their 5S award competition. This is called Taiki Akimoto's 5S evaluation sheet which was used for the evaluation of 5S sustainability.⁵ Taiki Akimoto's 5S evaluation sheet is well structured and gives complete details on every aspect of 5S evaluation and it gives total 250 marks. Organizations which have scored more than mean-1.96SE were considered as having sustained 5S programme for this study.

The self administrated questionnaire consisted of five questions on components of organizational leadership. Those were task orientation, people orientation, charismatic power, innovation and ability to work in difficult condition. The responses to these questions were assessed in Six point Likert Scale.¹⁰ Ratings of six point Likert scale is strongly disagree, disagree, slightly disagree, slightly agree, agree and strongly agree.

VI. RESULTS

Level of sustainability of 5S programmes in each hospital was evaluated by using Taiki Akimoto Evaluation sheet which gives points out of 250 according to the degree of the sustainability. Table 1 shows the results of evaluation.

Table 1: Level of sustainability of 5S programmes

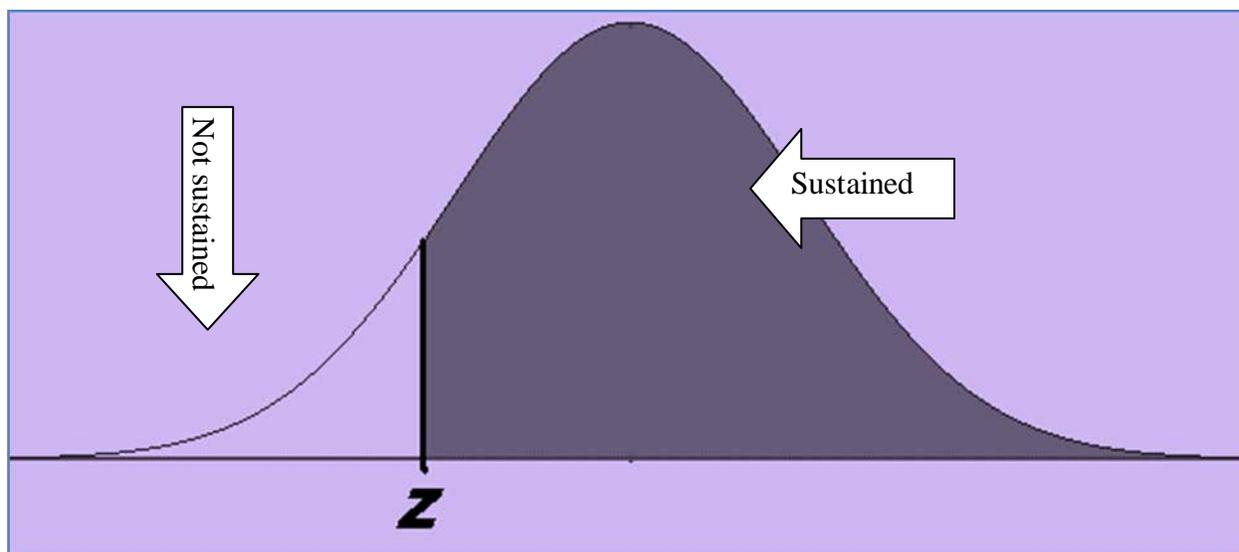
Hospital	Sustainability	Percentage of sustainability %
DH Hiripitiya	162	64.8
DH Polpithigama	192	76.8
DH Rideegama	185	74.0
DH Bingiriya	180	72.0
DH Katupotha	182	72.8
DH Narammala	103	41.2
DH Indulgodakanda	148	59.2
DH Karambe	97	38.8
DH Kobeigane	196	78.4
DH Muwanhela	137	54.8
Mean	158.2	
Standard Deviation	36.043	
Standard Error of Mean	11.398	

The highest degree of sustainability of 5S programme was reported in DH Kobeigane (78.4%) while the lowest degree was reported in DH Karambe (38.8%). Cut off point for sustainability was determined statistically as follows.

$$\begin{aligned} \text{Cut off point for sustainability} &= \text{Mean} - 1.96 \text{ SE} \\ &= 158.20 - 1.96 * 11.398 \\ &= \underline{\underline{135.86}} \end{aligned}$$

Therefore DH Narammala and DH Karambe were categorized as not sustain group and other eight hospitals were categorized as sustain group of hospitals. Figure 1 further elaborates the determination of cut off point for sustainability.

Figure 1: Cut off point for sustainability of 5S programmes



Z is equal to Mean – 1.96SE. Hospitals that scored more than Mean- 1.96SE points from the Taiki Akimoto evaluation sheet were considered as sustained. Therefore there were two groups of hospitals in this study as sustained and not sustained

Correlation between degree of sustainability and mean score of leadership

Correlation between degree of 5S sustainability and mean score of organizational leadership was calculated. There was a strong correlation between sustainability of the 5S and the organizational leadership at 0.05 level. Table 2 shows the results.

Table 2: Correlation between degree of sustainability and mean score of leadership

Hospital	Sustainability	Mean score of leadership
DH Hiripitiya	162	5.364
DH Polpithigama	192	5.522
DH Rideegama	185	4.007
DH Bingiriya	180	5.140
DH Katupotha	182	4.766
DH Narammala	103	3.120
DH Indulgodakanda	148	5.670
DH Karambe	97	2.533
DH Kobeigane	196	5.634
DH Muwanhela	137	4.825
Pearson correlation 0.747		
P value 0.013		

Correlation between degree of 5S sustainability and components of the leadership

Correlation between degree of 5S sustainability and components of the organizational leadership was calculated. The strongest significant correlation found was task oriented leadership and the 5S sustainability while there was no statistically significant correlation between 5S sustainability and people oriented leadership. There were statistically significant correlation between 5S sustainability and other three components of the leadership. Table 3 shows these results.

Table 3: Correlation between degree of 5S sustainability and components of the leadership

Components of leadership	Pearson correlation	Significance
Task orientation	0.797	0.006***
People orientation	0.600	0.067*
Innovation	0.730	0.016**
Charismatic power	0.719	0.019**
Ability to work in difficult condition	0.759	0.011**

*** significant at 0.01 level ** significant at 0.05 level * no significance

ANOVA Test for Organizational Leadership between two groups

One way ANOVA test was done for organizational leadership between sustain and not sustain groups. There was a strong statistically significant difference between two groups. Table 4 shows the results.

Table 4: ANOVA Test for Organizational Leadership between two groups

	SS	df	MS	F	Significance
Between groups	209.675	1	209.675	265.617	0.000
Within groups	294.442	373	0.789		

ANOVA Test for components of the Organizational Leadership between two groups One way ANOVA test was done for components of the organizational leadership between sustain and not sustain groups. There was a strong statistically significant difference between two groups in each components of the leadership. Table 5 shows the results.

Table 5: ANOVA Test for components of the Organizational Leadership between two groups

Components	F value	Significance
Task orientation	314.357	0.000
People orientation	72.845	0.000
Innovation	216.030	0.000
Charismatic power	198.131	0.000
Ability to work in difficulty	254.435	0.000

VII. DISCUSSION

Nowadays, the adoption of 5S practice as the gateway to quality improvement is well accepted by many organizations worldwide.¹¹ Researchers agreed that 5S is very powerful tool, feasible to implement and incurred less investment in improving the organizational performances on the aspects of economic opportunities and environmental sustainability that include the benefits of quality, productivity, safety, cost, workplace environment and waste reduction.¹² The benefits that could be gained from 5S implementation are in accordance to 3Ps (people, planet and profit), a well-known marketing principle which is having strong linkage with sustainability.¹³ In short, the practice of 5S would generate benefits for people (e.g., safety, health, and discipline), planet (e.g., waste, pollution, and energy), and profit (e.g., productivity, quality, and operational cost). All aspects of 3Ps need to be fulfilled in order to become sustainable organizations. Therefore sustainability of the implemented 5S practice would enhance the sustainability of the organization. Sustainability of the 5S will reflect the sustainability of the improved quality of the organization. Further it improves the image of the organization in every aspect and dominates the market share among same category of organizations.

In this Descriptive Cross Sectional study, Pearson correlation coefficient was selected as the statistical test to calculate the correlation between 5S sustainability and organizational leadership. According to table 2, there was a statistically significant strong correlation between 5S sustainability and organizational leadership. Therefore organizational leadership could be considered as a main contributing factor for sustainability of the 5S programmes leading to sustain improved quality in government hospitals in Sri Lanka. These findings were compatible with a previous study on factors contributing to sustainability of 5S in Sri Lankan organizations.¹⁴ In their study, leadership of the organization, commitment of top managers and employee commitment were significantly correlated with 5S sustainability at 0.01 level.

According to table 3, correlation between task orientation and 5S sustainability was significant at 0.01 level. Therefore task oriented leadership could be considered as the most important type of leadership for the sustaining of the improved quality of an organization. Correlation between innovation, charismatic power and ability to work in difficult condition with 5S sustainability were significant at 0.05 level. There was no evidence of significant correlation between 5S sustainability and people oriented leadership according to the results of the study.

ANOVA Analysis was done to compare the mean score of the leadership between two groups of hospitals as shown in table 4. There was a strongly statistically significant difference of mean of the leadership found between two groups of hospitals. Therefore researcher has concluded that organizational leadership could be considered as contributing factors for 5S sustainability in statistical point of view.. It further confirmed the previous decision on leadership. These findings were compatible with a previous study of factors contributing to sustainability of 5S in Sri Lankan organization.¹⁴ ANOVA Analysis was done to compare the five components of the leadership between two groups of hospitals. Study revealed that there were strongly

statistically significant differences in all components of leadership between two groups of hospitals in this study setting. Further task oriented leadership was having the highest F value. Therefore it is not unfair to say that task oriented leadership is the most important factor in sustaining improved quality in government hospitals in Sri Lanka.

VIII. CONCLUSION

This study reveals better understanding of the effect of the leadership on the sustainability of 5S programmes in Governmental Hospitals in Sri Lanka . Majority of the 5S implemented hospitals in the selected RDHS area are able to sustain their 5S practices. In this study setting, 80% that is 8 out of 10 Hospitals sustain their implemented 5S programmes. 50% of the selected hospitals in RDHS area Kurunegala reported more than 70% sustainability. There was a statistically significant positive correlations between 5S sustainability and organizational leadership.. According to ANOVA analysis of mean score of organizational leadership in two groups of hospitals, there was a strongly statistically significant difference found between two groups of hospitals. Therefore organizational leadership could be considered as a contributing factor for 5S sustainability in statistical point of view. According to ANOVA analysis of components of leadership in two groups of hospitals, there were strongly statistically significant differences in all components of leadership between two groups of hospitals in this study setting. Further task oriented leadership was having the highest F value. Therefore task oriented leadership is the most important factor in sustaining improved quality in government hospitals in Sri Lanka.

IX. RECOMMENDATION

According to the findings of this study following recommendation could be made by the researcher.

1. Leadership of all the government hospitals should be strength in every aspect because organizational leadership is the most important factor for 5S sustainability hence the improved quality, according to this study.

2. More training programmes on leadership should be carried out because study revealed that it was significantly correlated with 5S sustainability.

3. This research was carried out to determine the effect of leadership on sustainability of the improved quality.. It is better to carry out further studies in detail.

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