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Quality of hospital services in 5S-KAIZEN-TQM implemented secondary level hospital: a cross-sectional study

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Abstract: This cross-sectional study was conducted with an objective to find out the quality of health care services in 5S-KAIZEN-TQM implemented two secondary level hospital in Bangladesh. The study participants were the service receiver's whose age more than 15 years and those who were attended at 100 bedded Narsingdi General Hospital, Bangladesh. The period of the study extending from January to December 2016. Data were collected from 50 service receivers through face to face interviews using a semi-structured questionnaire. Out of 50 respondents, half (50.0%) of the service receiver was ≤ 25 years in which maximum (74.0%) were female. More than half of the respondent's monthly income was less than 20000 taka. In this study, half (50.0%) of the respondents stated that they were waiting for 15-30 minutes, 60.0% patients stated that the doctor had concentrated to patients during treatment and more than two-third (68.0%) of them performed physical examination. A vast majority (90.0%) of the patients said that the doctor gave the explanation of prescribed drug. More than three-fourth (76.0%) of the respondents replied that they were satisfied on receiving the nursing services and rest of them (24.0%) were not satisfied. The present study findings stated that less than two-third (64.0%) of the respondents said that safety and security system was very good. On the other hand, 64.0% of the respondents were satisfied about cleanliness of the hospital and 88.0% had satisfied about ambulance service. Maximum of the respondents (88.0%) were satisfied on water and sanitation facility and more than half (54.0%) of the respondents were satisfied on electricity supplies in the hospital. In this study, majority (88.0%) of the respondents were satisfied on lab investigation facilities and 72.0% of the respondents were satisfied on drug supply and radiology and imaging services. 5S could be applied to health-care facilities regardless of locations. However, the evidence base on its applicability in such settings is limited, and further research is required in this area.

Keywords: quality; hospital services; 5S-KAIZEN-TQM, secondary level hospital

1. Introduction

The 5S management method where 5S stands for the five Japanese words Seiri, Seiton, Seiso, Seiketsu, and Shitsuke has been used in the automotive and other industries. These five words, often translated into English as "sort, set in order, shine, standardize, and sustain" broadly refer to the discipline of cleanliness in any place (Hirano, 1996; JICA, 2013).

The 5S management method was originally implemented by manufacturing enterprises in Japan (Hirano, 1995). In Japan, 5S has been commonly practiced at hospitals (Hasegawa, 2006; Takahara, 2010). It has also been recognized as a method for health-care quality improvement in several books published in the USA (Chalice, 2007; Graban, 2011; Kaplan, 2008).

In the context of the health-care quality improvement, 5S has often been regarded as one of the “lean” tools (Mazzocato *et al.*, 2010) where lean refers to a set of approaches for continuous improvement that aim to maximize added value by removing all necessary factors that do not generate value (Womack *et al.*, 1990). Lean has been recognized as one of the key quality improvement approaches in health-care (Powell *et al.*, 2008).

The Japan International Cooperation Agency (JICA) has adopted 5S as part of its technical cooperation scheme to improve health-care service quality and has assisted several low- and middle-income countries (JICA, 2013; Honda, 2012).

In some context, the 5S approach toward TQM was represented as “5S-KAIZEN-TQM,” which was also interchangeably referred to as “5S-CQI-TQM” (MHSW, 2009). To identify additional information pertaining particularly to the context of the 5S application and its adoption as part of the Bangladesh government initiatives, we set an objective to find out the quality of health care services in 5S-KAIZEN-TQM implemented two secondary level hospitals in Bangladesh.

2. Materials and Methods

2.1. Study type and area

This study cross-sectional study was conducted in 5S-KAIZEN implemented 100 bedded Narsingdi District Hospital.

2.2. Study participants

The study participants were the service receiver’s whose age more than 15 years and those who were attended at 100 bedded Narsingdi General Hospital.

2.3. Sampling and data collection technique

The estimated sample size was 50 and service receiver (patients) were selected by convenient sampling. Data composed of five hospital services such as administrative, clinical, nursing, and utility and support services. Data were collected through face to face interviews using a semi-structured questionnaire. Observational checklist was used to identify the hospital service related data.

2.4. Data processing and analysis

Data was cleaned for completeness and consistencies, coded and entered in to SPSS version 20 for analysis. The results were organized, summarized and presented using appropriate descriptive measures such as text, tables, graphs, frequencies and percentage.

2.5. Ethical issues

Ethical clearance was obtained from Institutional Review Committee of National Institute of Preventive Medicine (NIPSOM). Permission letter was obtained from all selected study health facilities. Informed verbal consent was obtained from each study participant after explaining the aim of the research. Individual participant records were coded on each respective questionnaire and confidentiality was maintained at all levels of the study.

3. Results

The sociodemographic profile of the respondents were distributed in Table 1. Out of total 50 respondents, half (50.0%) of the service receiver was ≤ 25 years in which maximum (74.0%) were female. Approximately two-third (66.0%) of the respondents’ were Diploma, HSC and below. More than half of the respondent’s monthly income was less than 20000 taka (Table 1).

About 78.0%, 76.0%, 90.0% and 40.0% of the stated that they saw citizen charter, visibility of mission and vision of the hospital, easy access of the reception and problem during registration, respectively (Table 2).

Table 1. Socio-demographic profile of the service receiver (n=50).

Characteristics	Service Receiver (n=50)	
	n	%
Age group		
≤ 25 years	25	50.0
26-35 years	07	14.0
>35 years	18	36.0
Gender		
Male	13	26.0
Female	37	74.0
Educationalstatus		
Diploma, HSC and below	33	66.0
Graduate	10	20.0
Masters/Post graduate	7	14.0
Monthly Family Income		
≤ 20000 taka	27	54.0
20001-40000 taka	20	40.0
≥ 40001 taka	3	6.0

Table 2. Opinion about administrative services by the service receiver (n=50).

Administrative service	Service Receiver (n=50)	
	n	%
Visibility of citizen charter	38	78.0
Yes	12	24.0
No		
Visibility of mission and vision of the hospital		
Yes	38	76.0
No	12	24.0
Easy access of the hospital reception		
Yes	45	90.0
No	5	10.0
Opinion about problem during registration		
Yes	20	40.0
No	30	60.0

Table 3. Opinion about clinical services by the service receiver (n=50).

Clinical Services	Service Receiver (n=50)	
	n	%
Waiting time for doctor visit		
<15 minutes	10	20.0
15-30 minutes	25	50.0
> 30 minutes	15	30.0
Doctor concentration to patient		
Yes	30	60.0
No	20	40.0
Perform physical examination		
Yes	34	68.0
No	16	32.0
Explanation of prescribed drug use		
Yes	45	90.0
No	5	10.0

In this study, half (50.0%) of the respondents stated that they were waiting for 15-30 minutes, 60.0% patients stated that the doctor had concentrated to patients during treatment and more than two-third (68.0%) of them performed physical examination. A vast majority (90.0%) of the patients said that the doctor gave the explanation of prescribed drug (Table 3). Figure 1 depicts the nursing services of the 5S-KAIZEN implemented hospitals. More than three-fourth (76.0%) of the respondents replied that they were satisfied on receiving the nursing services and rest of them (24.0%) were not satisfied (Figure 1).

The present study findings stated that less than two-third (64.0%) of the respondents believed that safety and security system was very good. On the other hand, 64.0% of the respondents were satisfied about cleanliness of the hospital and 88.0% had satisfied about ambulance service. Maximum of the respondents (88.0%) were satisfied on water and sanitation facility and more than half (54.0%) of the respondents were satisfied on electricity supplies in the hospital (Table 4). In this study, a vast majority (88.0%) of the respondents were satisfied on lab investigation facilities in the hospital. Whereas about 72.0% and 54.0% of the respondents were satisfied on drug supply and radiology and imaging services, respectively (Figure 2).

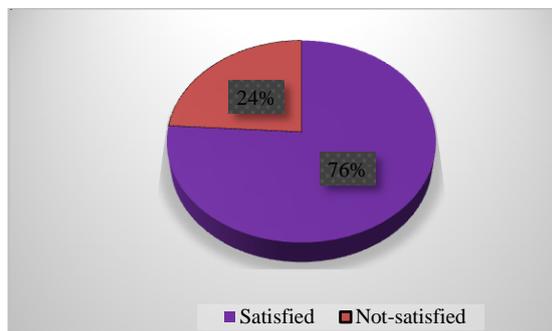


Figure 1. Opinion about nursing services by the service receiver (n=50).

Table 4. Opinion about utility services by the service receiver (n=50).

Utility Services	Service Receiver (n=50)	
	n	%
Safety and security of the hospital		
Very good	32	64.0
Good	14	28.0
Bad	4	8.0
Cleanliness of the hospital		
Satisfactory	32	64.0
Not-satisfactory	18	36.0
Ambulance service		
Yes	44	88.0
No	6	12.0
Adequate water and sanitation facility		
Satisfactory	41	82.0
Not-satisfactory	9	18.0
Electricity supply		
Satisfactory	27	54.0
Not-satisfactory	23	46.0

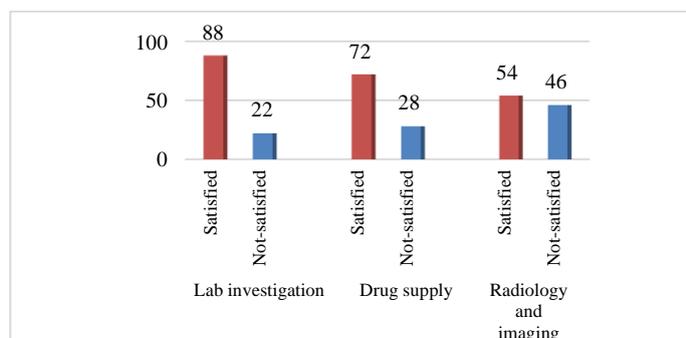


Figure 2. Opinion about support services by the service receiver (n=50).

4. Discussion

This study was undertaken to find out the quality of hospital services in 5S-KAIZEN-TQM implemented 100 bedded district hospital. The current study shows that about half (50.0%) of the service receiver was ≤ 25 years

in which maximum (74.0%) were female. A cross-sectional comparative study conducted by Gapp *et al.*, 2008 found that 67.8% of the respondents were female. There is a similarity with the present study findings and these may be due to the similar characteristics of the study respondents.

In the present study, 78.0% respondents stated that they saw citizen charter in the 5S-KAIZEN-TQM implemented hospital. This finding is inconsistent with the study conducted by Emad and Al-shdaifat in the year 2015. In our study it was revealed that 50.0% of the respondents were waiting for 15-30 minutes to visit the doctor whereas 60.0% patients stated that the doctor had concentrated to patients during treatment and more than two-third (68.0%) of them performed physical examination. More than three-fourth (76.0%) of the respondents replied that they were satisfied on receiving the nursing services and rest of them (24.0%) were not satisfied.

Asian countries like Bangladesh often fight with inadequate human resource, shortage of supplies along with the inadequate access to necessary medicines and technologies which resulted a compromise with the quality of care (Salam *et al.*, 2014; Islam *et al.*, 2015; Chowdhury *et al.*, 2009). However, many of the Asian countries addressed the quality issues by adopting the 5S-KAIZEN-TQM approaches successfully (Islam *et al.*, 2015; Bhuiyan and Baghel, 2005). Not only the Asian countries but also the African countries experienced different types of approaches of quality programs to improve quality of health facility care (Samky *et al.*, 2012 and Titu *et al.*, 2010).

The present study revealed that less than two-third (64.0%) of the respondents believed that safety and security system was very good. Maximum of the respondents (88.0%) were satisfied on water and sanitation facility and more than half (54.0%) of the respondents were satisfied on electricity supplies in the hospital. Additionally, in a study conducted by Mmbando, 2012 and reported that 5S-CQI-TQM was first implemented at Kilema hospital in October 2011 and the immediate quality improvement outcome and impact was observed six months later at 4 areas practicing 5S: Maternity ward, Pharmacy, Operating Theatre and Laboratory (Mmbando, 2012).

The results from this study show a set of key success factors for KAIZEN implementation in the public service sector, which are government commitment and support, top management commitment and involvement, visionary leadership, customer focus, good coordination and establishment of cultural change programmes embracing employee empowerment and involvement throughout the entire KAIZEN implementation process.

5. Conclusions

5S-KAIZEN-TQM could be applied to health-care facilities regardless of locations in Bangladesh. The low-cost nature of 5S implies that this method is an appropriate initial step toward quality improvement even among resource-constrained healthcare facilities. However, the evidence base on its applicability in such settings is limited, and further research is required in this area. In addition to understand its applicability in the context of strengthening health systems in Bangladesh, the cost-effectiveness, viable scale-up mechanisms, and sustainability of 5S application also need to be further studied.

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Conflict of interest

None to declare.

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