

# **INVESTIGATING THE ROLE OF 5S-KAIZEN-TQM APPROACH IN PATIENT SAFETY IN SAUDI HEALTHCARE INSTITUTIONS**

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## **Abstract**

This descriptive study will use a mixed approach (qualitative and quantitative methods) to achieve the aim and objectives of this study. Thus, the population of this study is all the healthcare institutions at the kingdom of Saudi Arabia. The sample of this study will consist of 150 employees worked in Saudi healthcare institutions to participate in the questionnaire that the researcher will design based on the research issues based on the related previous studies. As well, this study will conduct interviews with 20 the managers of Saudi healthcare institutions, to know more about their views on their experience of applying 5S-KAIZEN-TQM Approach and how it benefits from this approach, in addition to know how its effect on their patient safety.

## **Keywords:**

5S-KAIZEN-TQM, Patient Safety, Saudi Healthcare Institutions

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## Introduction

Healthcare is ending up progressively mind-boggling and the cost of medicinal services is expanding because of elements, for example, a maturing populace or choices for new medications (Thies, 2016). From a verifiable viewpoint, the medicinal services framework was intended to manage intense conditions as opposed to continuous ones, which still wins as a method of operation today (Stiernstedt, Zetterberg, & Ingmanson, 2016). Be that as it may, today, incessant conditions win and constitute roughly 70-85% of the costs (Stiernstedt et al., 2016; Thies, 2016).

Continual change and advancement have gotten a noteworthy concentration in broad daylight part associations for quite a while. The fundamental motivation behind the consistent change is to actualize change activities that expansion achievements and reduce disappointments. Raised amounts of value can be accomplished in an association through a procedure of constant search for development and contribution of all levels (Hutchings and Vree, 2017).

To increase in value the significant duty to progress the quality of health of health and social welfare administration and make a commitment to the fulfillment of key health and social welfare markers, the Health Services Inspectorate Unit of the Ministry, began from a modest start of Health administrations examination. It is imperative that the unit's work has been becoming bit by bit finished the previous decade to the point that its degree has extended and as of late it has been moved up to a Health Services Inspectorate and Quality Assurance Section (HSIQA) inside a Health Quality Assurance Department (The Ministry of Health and Social Welfare (MoHSW), 2013).

Amid the preparing time of the previous decade, the leader of the unit helped by a few experts figured out how to pull in promotion activities and particular topical QI extends some with scale-up after pilots [IPC, SBM-R, 5S-CQI (KAIZEN)- TQM, preparing of Tutors in Health Schools, improvement of apparatuses, etc.....]. The unit likewise fashioned community oriented connections with projects, for example, Improvement Collaborative (IC) National Quality Improvement Strategic Plan 2013 – 2018, assistance and support of HIV and AIDS; and working relations with Laboratory QI under the help of CDC (MoHSW, 2013).

Since 2007, JICA (refer to Japan International Cooperation Agency) has executed, a program called "Program of TQM for Better Hospital Services", presenting '5S-KAIZEN-TQM' approach, which presents Japanese-style business technique in stepwise approach, in human services offices in 15 African nations to address this issue (Fujita Planning CO. 2013).

The term 5S is a truncation for five Japanese words, *Seiri, Seiton, Seisou, Seiketsu, and Shitsuke*, which to a great extent related to looking after cleanliness. These five words mean English as *Sort, Set in Order, Shine, standardize, and Sustain*, separately, and describe an arrangement of practices intended to enhance working environment association and profitability (Kanamori, et al, 2014, P. 1).

The 5S administration strategy (refer to '5S') is known as the establishment of the lean methodologies, which augment an incentive by evacuating inefficient elements. It advanced in the Japanese assembling



part and was acquainted with the West in the 1980s. As of now, 5S is utilized as a part of medicinal services settings to arrange and institutionalize the workplace for lean healthcare. Because of its minimal effort and innovatively undemanding highlights, 5S is viewed as a fitting beginning stage for enhancing healthcare administrations (Imai, 2012).

Utilization of kaizen in medicinal services is a more commonsense contrast with advancement. Kaizen is a little change that is made by healthcare staff. It is a little, minimal effort, low-risk enhancement change that can be effortlessly connected. Kaizen is a progressing system and rationality for testing and approves, everybody in the association to utilize their inventive plans to improve their day to day work (Kaptanoğlu, 2012).

Accordingly, this study will explore the role of 5S-Kaizen-TQM approach and its factors in patient safety in Saudi healthcare institutions.

### **Problem statement**

The development of hospital administration toward a superior nature of care and restorative health began to draw universal consideration as a basic territory for better health in both industrialized and creating nations. This was incompletely activated by repeating occurrences of therapeutic mistakes in developed countries, and it was upgraded by mounting proof demonstrating that better quality and more secure care is probably going to prompt higher usage of healthcare services even by the poor in low-wage nations (Honda, 2012).

Around the world, medicinal services part is the most critical quality pointer of the life of countries (Funk, 2016). There are many issues and difficulties faced the human services benefit for the healing facilities, keeping in mind the end goal to accomplish benefit greatness. The administration must be altered by every individual case while it has trustworthiness qualities which make it troublesome for the patients to precisely evaluate the nature of administration (Hamid, et al., 2016).

As indicated by (Purcărea, et al., 2013), a condition of administration greatness is the point at which the healing facility is satisfying what is guaranteed to the patients, giving individual consideration, putting additional exertion and taking care of issues and inquiries well. Patient's fulfillment has a positive noteworthy association with commitment. As specified by (Abdul Aziz, Neshaminy & Azizan, 2013), a solitary unsatisfied patient can send away more business contrasted with 10 fulfilled patients.

Then again, Haque and others (2012) announced that the patient saw benefit quality is the principal driver to compelling consumer loyalty, and the strong response of the hospitals is urgent in advancing health administrations. The examination was completed at one of the private healing center in Southern Malaysia with the sample size of 200 including staffs and patients. To finish up, the administration perfection will essentially prompt fulfilled patients to return to the hospital in future.

In this way, the present examination endeavor to talk about the role of 5S-Kaizen-TQM approach in patient security in medicinal services establishments, as one of the lean administration rehearses appropriate to be actualized among human services foundations. The created estimation was adjusted from the conventional assembling rehearses with some revised to suit the clinic in around the world.

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However, different investigations identified with the execution of 5S-KAIZEN in the hospital; yet, the greater part of the past examinations were led inside the US, UK, Nigeria, Japan and India social insurance setting (Thawesaengskulthai, Wongrukmit & Dahlgaard, 2015; Sarwar, 2014).

But, there are rarely related studies (Ishijima, et al., 2016; Kanamori, et al., 2015; Ishijima, et al., 2014) that talked about the effect of 5S-Kaizen-TQM approach and its factors on the patient safety in healthcare institutions, as well as there is no past study talked about this issue in Saudi Arabia.

Accordingly, this study discusses the following main question **“what is the role of 5S-Kaizen-TQM approach in patient safety in Saudi healthcare institutions?”**

To answer this question, it must discuss the following sub-questions:

1. How can 5S-Kaizen-TQM approach affect and its factors (feedback and information sharing, involvement and commitment, QIT roles and responsibility, 5S knowledge and availability of KAIZEN guideline) on patient safety in Saudi healthcare institutions?
2. What are the main advantages that can be achieved from applying 5S-KAIZEN-TQM Approach in the patient safety at Saudi healthcare institutions
3. What are the most barriers that faced Saudi healthcare institutions in applying 5S-KAIZEN-TQM?

#### **Aims and objectives**

This study focuses on 5S-KAIZEN-TQM Approach in healthcare institutions and in what way this approach effect on patient safety.

This study will achieve also the following sub-objectives:

- Determine the effect of 5S-KAIZEN-TQM Approach on patient safety in Saudi healthcare institutions, in terms feedback and information sharing, involvement and commitment, QIT roles and responsibility, 5S knowledge and availability of KAIZEN guideline factors.
- Determine the main improvements that can 5S-KAIZEN-TQM Approach do in the patient safety at Saudi healthcare institutions.
- Determine the obstacles that face Saudi healthcare institutions in applying 5S-KAIZEN-TQM Approach.
- Describing the healthcare institutions around the world that applied 5S-KAIZEN-TQM Approach in it, and show how its effect on patient safety.

#### **Hypothesis of the study**

The main null hypothesis of this study is:

**H<sub>0</sub>: There is no positive significant relation between 5S-KAIZEN-TQM Approach and the patient safety in Saudi healthcare institutions.**

**The following sub-hypotheses of this study are:**

*H<sub>01</sub>: There is no positive significant relation between 5S-KAIZEN-TQM Approach and the patient safety in Saudi healthcare institutions, in terms feedback and information sharing.*



*H<sub>01</sub>: There is no positive significant relation between 5S-KAIZEN-TQM Approach and the patient safety in Saudi healthcare institutions, in terms involvement and commitment.*

*H<sub>01</sub>: There is no positive significant relation between 5S-KAIZEN-TQM Approach and the patient safety in Saudi healthcare institutions, in terms QIT roles and responsibility.*

*H<sub>01</sub>: There is no positive significant relation between 5S-KAIZEN-TQM Approach and the patient safety in Saudi healthcare institutions, in terms 5S knowledge.*

*H<sub>01</sub>: There is no positive significant relation between 5S-KAIZEN-TQM Approach and the patient safety in Saudi healthcare institutions, in terms availability of KAIZEN guideline.*

### **Significant of the study**

Lean is an efficient approach and a blend of a few methods so as to distinguish and take out waste, which prompts consistent change and at last superb execution and upgrade of patient esteem. It is an approach to accomplish cost lessening, quality and productivity change with less exertion. The coveted change can be accomplished by fitting execution of lean devices and strategies, practices and standards. One of the greatest significant lean administration approaches is 5S-KAIZEN-TQM (Chourasia, and Nema, 2016).

Behavioral Health Service Provider (BHSP), a triangular participation program helped by JICA, particularly addresses the difficulties of development of healthcare benefit quality. It intends to share Sri Lankan and Japanese encounters and learning of 5S-KAIZEN-TQM with fifteen African nations and structures one of the subsequent activities of the Third Tokyo International Conference on Africa's Development (Ishijima, Eliakimu and Mshana, 2016).

The proposed 5S-KAIZEN-TQM approach depends on the Japanese administration apparatuses initially utilized as a part of the mechanical area like Toyota and different organizations. Be that as it may, it has been established in Japanese customary culture Tea Ceremony or Omotenashi. In 2000, Dr. Wimal Karandagoda, chief of Castle Street Hospital in Sri Lanka, first connected this modern apparatus to health area at the maternity healing center, where he, as the hospital executive, worked for (Hasegawa and Karandagoda, 2011).

Despite the fact that he encountered protection from the workforce in the underlying stage, he effectively introduced the 5S exercises and progressively spread them to the entire healing center. Dr. Wimal Karandagoda imagined the stepwise approach from 5S to KAIZEN at that point to TQM. KAIZEN is the Japanese word for the Continuous Quality Improvement (CQI). This critical thinking procedure can spread to the entire association under the best administration's initiative. TQM arrange, from there on, can be begun (Hasegawa and Karandagoda, 2011).

Moreover, 5S-KAIZEN-TQM is a cross strain administration change approach for medicinal centers. It joins three resolutely steps related however isolate instruments for efficiency and quality change, specifically 5S, KAIZEN, and TQM (Total Quality Management), the following steps are (Honda, 2012):

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1. The initial step, 5S, is an arrangement of passage activities towards a further developed phase of KAIZEN-TQM, and it speaks to individually for 5 activities of “Sort, Set, Shine, Standardize, and Sustain” for a superior workplace.
  2. The Second step, KAIZEN, is a participatory execution and efficiency change approach through incremental and intelligent gathering activities.
  3. The last step, add up to the quality administration or TQM is the approach for system-wide administration in seeking after higher quality in items and administrations.

As appeared in the three resolutely steps of its approach, one of its remarkable highlights is that it places specific significance on the strengthening and mentality changes of clinic staff toward the change of the nature of care as opposed to top-down forthright hierarchical rebuilding. In this manner, the main prescribed activity is to enhance their workplace with the goal that they feel the advantage and the feeling of accomplishment, which at that point give the inspiration and impetuses to the staff to additionally proceed with their base up change activities (Honda, 2012).

5S-KAIZEN-TQM approach empowers the healing centers to diminish misuse of merchandise, workplaces and time for looking and clean work put additionally to bring issues to light of staff, trailed by change of occupation quality and productivity, administration of drugs and equipment and contamination aversion, as well as control and disposal of restorative mishaps through stimulating of ranked limit including staff fulfillment. In this manner, the hospitals can enhance their administration showed by cost lessening and increment in quiet fulfillment (JICA, 2013)

#### **Related works**

Several studies reviewing 5S-KAIZEN-TQM Approach and how its effect in healthcare institutions, including disease rates, have decreased, patient's and healthcare staff's satisfaction and nature of care enhanced, for example, lessening of holding up times. While there are a few difficulties that confronted the hospital's administration in applying this approach, consists of low permeability, governmental issues and constrained resources, poor correspondence, and insufficient information (World Health Organization (WHO), 2016; Kanamori, et al., 2016; Chourasia and Nema, 2016).

As, in Bangladesh, the hospitals adjusted "quality improvement Model System" and built up its usage structure, rules and devices under the idea of WHO six building pieces of a healthcare framework and plan-do-check-act cycle alongside 5S-KAIZEN-TQM approach, for maternal and infant healthcare administrations of area and sub-locale level of these hospitals. from that point forward, the national specialists demonstrated that a few key territories of value change found after received and built up the Model QI System of these hospitals, for example, enhance healthcare framework bolster, increment clinical administration conveyance, upgrade between departmental coordination, increment usage of administrations and customer satisfaction (Islam, Rahma, and Halim, 2016).

AS well, Ishijima, et al., (2016) found a positive relation between the applying 5S approach and advance an employed setting through Difference-in-Difference (DID) analysis by comparing of the total waiting time reduction of the patients from 16 hospitals in Northern Tanzania were chosen and divided into treatment and control groups using block randomization.



Additionally, Kanamori, et al., (2015) interviewed with health center staff members in Senegal, he found that regardless of resource requirements and other demotivating factors exhibit at the healthcare focus, the 5S program made changes in the workplace, including reduce undesirable things, enhanced methodicalness, and enhanced marking and directional pointers of administration units. These endeavors induced positive changes in the nature of administrations (e.g. making administrations more productive, quite focused, and safe), and in the demeanor of staff and increase the satisfaction of the patients on these health center.

Furthermore, Ishijima and others (2014) pointed that a significant relationship between the implementation of 5S-KAIZEN-TQM approaches and five explanatory variables (feedback and information sharing, involvement and commitment, QIT roles and responsibility, 5S knowledge and availability of KAIZEN guideline) were found in public hospitals in Tanzania.

### **Methodology**

This descriptive study will use a mixed approach (qualitative and quantitative methods) to achieve the aim and objectives of this study. Thus, the population of this study is all the healthcare institutions at the kingdom of Saudi Arabia.

The sample of this study will consist of 150 employees worked in Saudi healthcare institutions, to participate in the questionnaire that the researcher will design based on the research issues based on the related previous studies.

As well, this study will conduct interviews with 20 the managers of Saudi healthcare institutions, to know more about their views on their experience of applying 5S-KAIZEN-TQM Approach and how it benefits from this approach, in addition, to know how its effect on their patient safety.

Then, the collected data from the questionnaire and interviews will be analyzed using the SPSS program for the data collected by the questionnaire, while the data collected by the interviews will be analyzed through transliterated interview records and prearranged the description data through developing themes by means of thematic analysis using the coding procedure.

The theoretical framework of this study separated into two key portions: independent factors (patient safety) and depended factor (5S-KAIZEN-TQM Approach) which includes five factors according to (Kanamori, et al., 2015; Ishijima and others 2014): feedback and information sharing, involvement and commitment, QIT roles and responsibility, 5S knowledge and availability of KAIZEN guideline factors.

Figure 1 shows the theoretical framework of this study.



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*Figure 2 the theoretical framework of this study*

### References

- Abdul Aziz, A R., Nishazini, M B., & Azizan, N A. (2013). Using ‘Service Excellence’ (SE) – The KPJ Way Program to Improve Customer Satisfaction and Enhancing Business Growth. *IOSR J. Bus. Manag.*, 13(1), 61–66.
- Chourasia, R., & Nema, A. (2016). Review on Implementation of 5S methodology in the Services Sector. *International Research Journal of Engineering and Technology (IRJET)* e-ISSN, 2395-00563.
- Chourasia, R., & Nema, A. (2016). Review on Implementation of 5S methodology in the Services Sector. *International Research Journal of Engineering and Technology (IRJET)* e-ISSN, 2395-00563.
- Fujita Planning CO. (2013). Preparatory Survey on The Program Of Quality Improvement Of Health Services By 5s-Kaizen-Tqm. *Japan International Cooperation Agency*, 13(36), 1-126.
- Funk, M. (2016). *Global burden of mental disorders and the need for a comprehensive, coordinated response from health and social sectors at the country level*. Geneva: World Health Organization.
- Hamid, N. A. A., Hisham, M. H. B., & Abdullah, N. H. (2016). The Development of 5s-Kaizen and Service Excellence Measurement Framework for Malaysia Private Hospitals. *Proceedings of the 2016 International Conference on Industrial Engineering and Operations Management*, March 8-10, 2016, Kuala Lumpur, Malaysia.
- Haque, A., Sarwar, A. A. M., Yasmin, F., & Anwar, A. (2012). The impact of customer perceived service quality on customer satisfaction for private health centre in Malaysia: a structural equation modeling approach. *Information Management and Business Review*, 4(5), 257-267.
- Hasegawa, T., & Karandagoda, W. (2011). *Change Management For Hospitals. Through Stepwise Approach, 5S KAIZEN-TQM.* (2nd Ed.). Tokyo: Japan International Cooperation Agency (JICA).
- Honda, S. (2012). *Inspired by Sri-Lankan practice: scaling-up 5S-KAIZEN-TQM for improving African hospital service*. JICA Research Institute, editor. Scaling up South-South and triangular cooperation. Tokyo: JICA Research Institute, 107-27.
- Hutchings, A., & Vree, R. (2017). *Institutional Logics in Continuous Improvement: A study of nurses’ involvement in healthcare change*. (Master thesis Business Management, Engineering Management), Jönköping University, Jönköping.
- Imai, M. (2012). *Gemba Kaizen: A commonsense approach to a continuous improvement strategy*. New York: McGraw Hill Professional.
- Ishijima, H., Eliakimu, E., & Mshana, J. M. (2016). The “5S” approach to improve a working environment can reduce waiting time: Findings from hospitals in Northern Tanzania. *The TQM Journal*, 28(4), 664-680.





Islam, F., Rahman, A., & Halim, A. (2016). A Model Quality Improvement System for Maternal and Newborn Health Services Applicable for District and Sub-district Level Hospitals in Bangladesh: Description of Model Development Process. *Health Syst Policy Res*, 3(1), 1-9.

Japan International Cooperation Agency Co., Ltd (JICA), (2013). thematic evaluation analysis of the outcome generating process of 5S-KAIZEN-TQM approach in hospitals. *Final report*. Tokyo: JICA.

Kanamori, S., Castro, M. C., Sow, S., Matsuno, R., Cissokho, A., & Jimba, M. (2016). Impact of the Japanese 5S management method on patients' and caretakers' satisfaction: a quasi-experimental study in Senegal. *Global health action*, 9(1), 1-14.

Kanamori, S., Castro, M. C., Sow, S., Matsuno, R., Cissokho, A., & Jimba, M. (2016). Impact of the Japanese 5S management method on patients' and caretakers' satisfaction: a quasi-experimental study in Senegal. *Global health action*, 9(1), 32-52.

Kanamori, S., Sow, S., Castro, M. C., Matsuno, R., Tsuru, A., & Jimba, M. (2015). Implementation of 5S management method for lean healthcare at a health center in Senegal: a qualitative study of staff perception. *Global health action*, 8(1), 27-56.

Kaptanoğlu, A Y. (2012). Innovation and The Idea of Revolutionary Business Culture via The Mood of Kaizen in Health Care Management. *International Journal of Health Administration and Education Congress (Sanitas Magisterium)*, 3(1), 10-14.

Purcărea, V. L., Gheorghe, I. R., & Petrescu, C. M. (2013). The assessment of perceived service quality of public health care services in Romania using the SERVQUAL scale. *Procedia Economics and Finance*, 6, 573-585.

Sarwar, A. (2014). Healthcare services quality in Malaysian Private Hospitals: A qualitative study. *International Journal of Hospital Research*, 3(3), 103-112.

Stiernstedt, G., Zetterberg, D., Ingmanson, A., & Inledning, D. A. ISSN 0375-250X Till statsrådet Gabriel Wikström. *Kvalitet*, 90(4.1), 17-634.

Thawesaengkulthai, N., Wongrukmit, P., & Dahlgaard, J. J. (2015). Hospital service quality measurement models: patients from Asia, Europe, Australia and America. *Total Quality Management & Business Excellence*, 26(9-10), 1029-1041.

The Ministry of Health and Social Welfare (MoHSW), (2013). *National Health And Social Welfare Quality Improvement Strategic Plan 2013 - 2018 (Nhsqwisp-I - 2013 - 2018)*. The United Republic Of Tanzania Ministry Of Health And Social Welfare, USAID ASSIST Project, ISBN: 78-9987-737-14-7.

Thies, A. (2016). *Understanding Complex Problems in Healthcare: By Applying a Free-Flowing Design Practice* (Doctoral dissertation, Stockholm University, Department of Computer and Systems sciences).

World Health Organization. (WHO) (2016). *Inter-Regional Technical Consultation on Best Practices in Patient Safety and Quality of Care in the African and Asia Pacific Regions*. WHO headquarters and the WHO Eastern Mediterranean Regional Office in collaboration with and with the support of the Governments of Japan and Oman, 8-10 February 2016, Muscat, Oman.