



# **The Role of Leadership in Improving Efficiency, Effectiveness and Safety Measures of Hospitals, Primary Healthcare Centers, & Pharmaceutical Firms**

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## **Author's contribution**

*The sole author designed, analysed, interpreted and prepared the manuscript.*

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## **ABSTRACT**

The aim of the current study is to investigate the impact of leadership of health care organizations on improving the efficiency, effectiveness and safety of their quality system and program. For this purpose data was collected from health care managers, directors of PHCs and hospitals of Saudi Arabia. Total 372 completed questionnaires were received and analyzed in the study. Non probability snow ball technique is used. PLS-SEM is used to analyze the data. Measurement model is developed to check the reliability and validity of the scales. It is found that scales are found reliable and valid after deleting two items from efficiency, two from effectiveness and two from safety. Structural model was run using bootstrapping. It is revealed that all the hypotheses are accepted and leadership of the hospitals and health organization has important role in improving quality of the services provided to hospitals.

*Keywords: Manager; management; Primary health Care (PHCs); hospitals; quality improvement.*

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## **1. INTRODUCTION**

Health system of Saudi Arabia is categorized into three parts, primary healthcare (PHCs), secondary healthcare (SHCs) and tertiary healthcare (THCs). PHCs are the first point for patients and general populations for healthcare. When the problem of the patient is serious and they need more advanced healthcare then PHCs referred their patients to SHCs and THCs. Saudi Arabia first priority is to established PHCs in all over the kingdom [1]. With respect to quality it varies in different countries and depends on the priorities set by the governments and their ministry of health (MOH) MOH- Saudi Arabia [2]. Like other countries Saudi Arabia is also facing different problems, issues and challenges in health sector. There is shortage of health workforce, long waiting time for patients for appointments, high cost, changes in patterns of diseases [3,4]. World Health Organizations [5] stated that quality in health care is multidimensional. Saudi Arabia has defined its guidelines for health sector for quality control such as effectiveness, efficiency, safety, accessibility and equity in 1993. The main features of these guidelines are communicable and chronic diseases, maternal and pediatrics health etc [6]. Later on in 1995 personnel and management development program was initiated for hospitals and PHCs. In this program PHCs and Hospitals managers were provided with trainings to increase their capabilities and skills so that they can improvise their efficiencies and help health organizations to improve their quality [1] (Busari et al., 2019). To the best of researcher's knowledge there is very limited knowledge and literature is available on the issues, problems and challenges faced by Saudi PHCs and hospitals' management. This study has tried to highlight quality issues and also tried to fill the gap and provide how health managers can improvise the quality standards and PHCs and hospitals. The aim of the current study is to investigate the role of leadership in healthcare organizations' to improve the efficiency, effectiveness and safety in the organizations.

## **2. LITERATURE REVIEW**

### **2.1 Factors affecting Primary Healthcare & Hospital Quality Management**

There are several issues related with health care organizations and their quality. Management of the hospitals and health organizations are

considered as most important factor to improvise the quality standards in health organizations. Management/leaders and managers have to make sure that their organizations are providing adequate quality services to their patients and whether their patients are satisfied or not. There are several factors which affect the quality of the services in health sector. These are as follows. Lack of manager's/leaders vision, laissez faire style of leadership in health organizations, lack of training and management skills, lack of adequate performance evaluation system, lack of financial and human resources, limited authority and inappropriate distribution of resources in organizations are the factors which affect the quality in healthcare organizations [7,8,9]. Regardless of these factors there are other factors which contribute significantly in lowering down the quality of services in hospitals such as shortage of equipments, facilities, keeping information of the patient secretly, hospital mortality rates, infectious diseases, and leadership play important role in enhancing the quality of services in organizations [10]. Patient and staff safety is also related with quality one cannot separate it from total quality management. Patient satisfaction plays a big role in achieving quality standards, responsiveness means to what extent to patient expectation has been met is the main issue faced by managers of the hospitals and PHCs. Patient expectation consists of clinical and non clinical both areas. It includes long time waiting for appointments, lack of cleaning, and low level of courtesy, comfort, bad attitude of staff, and inappropriate behavior of staff with patients etc.

Pharmacology is one the important courses for those students doctors, nurses, paramedical staff and professionals who have joined health profession. It is imperative for the students, professionals and practitioners that they should understand the basic principles of pharmacology and implement in clinical practice. In health colleges, schools and faculties pharmacology is lecture based course in which more focus is given to obtain factual knowledge and information about medicines and medications. Therapeutic applications and its training is overlooked in this course. It can be said that professionals does not possess sufficient information and knowledge about the field of pharmacology. Though the need and importance of pharmacology is clear but there is immense need to raise awareness about the pharmacology among health care professionals [11].

## 2.2 Quality of Care Provided

One can measure the quality with several different dimensions as discussed above the quality is multidimensional, in the current study researcher has measured quality with safety, efficiency and effectiveness. Efficiency means minimum use of resources to get maximum output while effectiveness means goals attainment in the given time frame. The PHCs and hospital managers have always shortage of resources; these are human and non human resources, financial and non financial resources [12]. Hospital managers have to use their management skills to efficiently use these resources and provide quality services to the patients so that the patients must be satisfied. In addition managers and management of the health organizations faces problems like lack of essential drugs [13] for example for diabetes, lack of coordination with staff as well as SHCs and THCs, lack of training, lack of awareness and appointments systems etc. health organizations' staff and pharmaceutical staff is also not satisfied from the management regarding their salaries, work environments, stress, over burden, quality of work life, interpersonal relationships [14]. In addition there is an issue of accessibility, i.e. the distance of patients' home and their nearest PHCs. According to Al AJaber and Da'ar (2016) limited numbers of hypertensive patients have visited PHCs for treatment. Dental services were also very limited in PHCs. The expenses and cost of dental services in private sector is very high. Every one cannot afford such huge cost and expenses for dental care services. Number of limited referrals and missing appointments are registered in large amount which creates a huge problem of accessibility to health centers in Saudi Arabia.

## 2.3 Hypotheses Development

As per World Health Organization, Quality and Safety are defined as, "Safety: the avoidance or reduction to acceptable limits of actual or potential harm from healthcare management or the environment in which healthcare is delivered." [15]. In addition quality is defined as "The degree to which health services for individuals and populations increased the likelihood of desired health outcomes, and are consistent with current professional knowledge" [16]. Likewise the two terms quality and safety are summarized as "Informally the term safety and quality is often summarized as: the right

care, in the right place, at the right time and cost. Safety and Quality is important in all areas of the health system and across all population groups". Moreover, patient safety is defined by World Health Organization (WHO), "The prevention of errors and adverse effects to patients associated with healthcare" and "to do no harm to patients".

It is reported in the past studies that leadership play important role in enhancing the performance of employees, organizations, and quality standards. Leadership through its idealized influence, attitude and behavior can motivate employees to deliver best services to patients and their clients (Busari et al., 2019). Leadership can stimulate their employees especially those who directly deal with patients such as doctors, nurses, and pharmacist to implement quality standard and follow the quality protocols to meet the demands and expectations of the patients [17]. On the basis of above discussions following hypotheses are developed:

H<sub>1</sub>: Leadership is significantly related with efficiency

H<sub>2</sub>: Leadership is significantly related with effectiveness

H<sub>3</sub>: Leadership is significantly related with safety.

## 3. RESEARCH METHODS

### 3.1 Research Design Population & Sampling Technique

Quantitative approach survey design is adopted for the current study. The advantage of the survey approach it is low in cost, covers the big population and collects the data in very short time saves time. The development of knowledge is based on positivism philosophy in which researchers believes that hypothetical arguments are verified scientifically using statistical tools on logical grounds. Cross sectional data is collected. Cross-sectional data is also called primary data which is first hand data and is not collected before. Population of the study is managers and directors from PHCs and hospitals from Saudi Arabia. Non probability sampling technique is used to select the sample.

### 3.2 Data Collection Instruments

The questionnaire of leadership/management in health care organizations is measured on five point scale and adopted from Bass & Riggo [18]. 1 for strongly disagree to 5strongly agree. On

other hand scale of efficiency, effectiveness and safety are adopted from Almutair [3] and Almutairi & Shamsi [1]. It has 15 items. It is measured on five point scale.

### 3.3 Data Analysis Techniques

Data is analyzed in SPSS and PLS-SEM. measurement models and structural models are developed, validated using criteria given by Hair et al. [19]. For measurement model loadings must be >0.5 to 0.7 and AVE >0.5, CR >0.7 and cronbach alpha higher than 0.70, for structural model bootstrapping was used to test hypotheses. Beta values, t-stat>1.96, BCILL and BCIUL lower and upper limit confidence intervals were used.

## 4. RESULTS

From Table 1 and Fig. 1 it is evident from the results that all factor loadings, composite reliability (CR), and cronbach alpha ( $\alpha$ ) values are higher than threshold values given by Hair et al. [19]. Furthermore, AVE values of all the latent variables and constructs are higher than 0.5.  $R^2$  for efficiency is 0.380 implies that leadership explained 38% variance upon improvising the efficiency of quality services furthermore for effectiveness 38.5% and for safety measures

and management 30.4% variance is explained by hospital management. Discriminant validity is assessed by hetero trait and mono trait ratios. See Table-2 Fig. 2. All the values are in the range i.e. less than  $\geq 0.85$  [20,19]. It is assumed that on the basis of measurement model our scales are reliable and valid.

Bootstrapping was run in PLS-SEM to test hypotheses. Leadership has significant role in improving upon efficiency  $\beta=0.621$ ,  $t=18.086$ ,  $p<0.05$  BCILL=0.541, BCIUL=0.672, there is no zero between two confidence intervals and one unit change in leadership could bring 62.1% change in improving the efficiency of quality services if health care organizations. Furthermore, leadership has explained significant impact on effectiveness of hospitals' quality services  $\beta=0.622$ ,  $t=16.849$ ,  $p<0.05$ , BCILL=0.546, BCIUL=0.674, 62.2% change in effectiveness of quality services of health care organization is possible due to leadership. Moreover, leadership has significant influence upon safety of health care organizations  $\beta=0.553$ ,  $t=14.113$ ,  $p<0.05$  BCILL=0.473, BCIUL=0.624 respectively. It means that 55.3% change is possible due to one unit change in leadership of healthcare organizations. So all the three hypotheses are substantiated and accepted. See Fig. 3.

**Table 1. Measurement model**

Variables	Items	Loadings	AVE	CR	$\alpha$
Leadership	L1	0.74	0.575	0.871	0.815
	L2	0.700			
	L3	0.778			
	L4	0.790			
	L5	0.780			
Efficiency	Efficiency 1	0.833	0.647	0.846	0.730
	Efficiency 2	0.816			
	Efficiency 3	0.777			
Effectiveness	Effectiveness1	0.730	0.654	0.850	0.735
	Effectiveness2	0.831			
	Effectiveness3	0.848			
Safety	Safety 1	0.831	0.717	0.884	0.803
	Safety 2	0.874			
	Safety 3	0.836			
$R^2$ Efficiency	0.38				
$R^2$ Effectiveness	0.385				
$R^2$ safety	0.304				

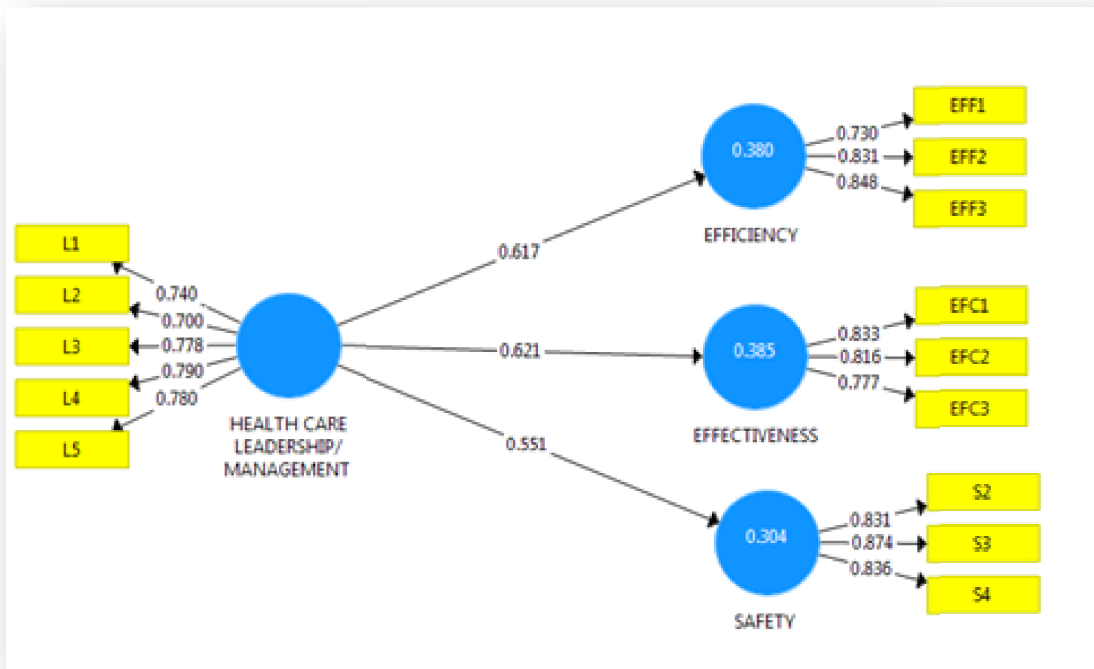


Fig. 1. Measurement model

Table 2. TMT Ratios (Discriminant Validity)

	1	2	3
Effectiveness			
Efficiency	0.602		
Health care leadership/management	0.800	0.785	
Safety	0.835	0.61	0.678

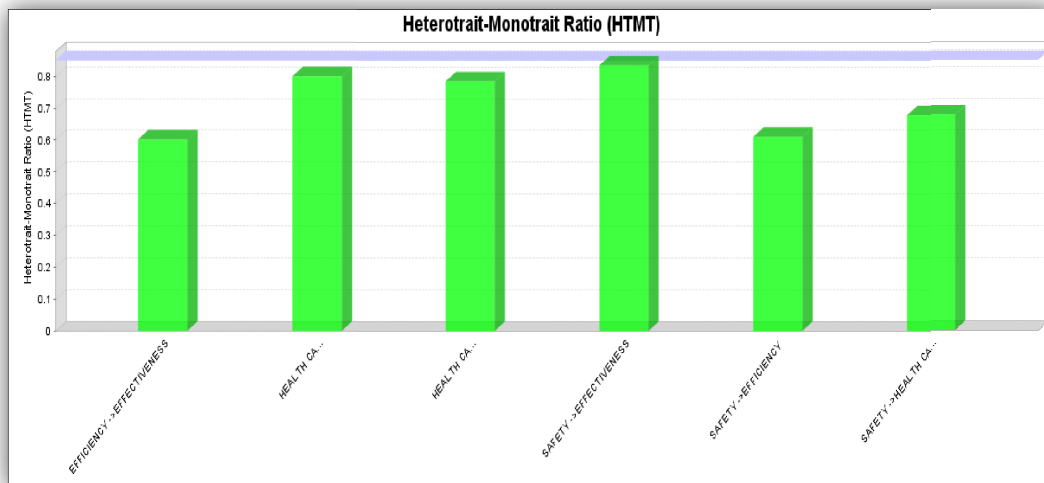
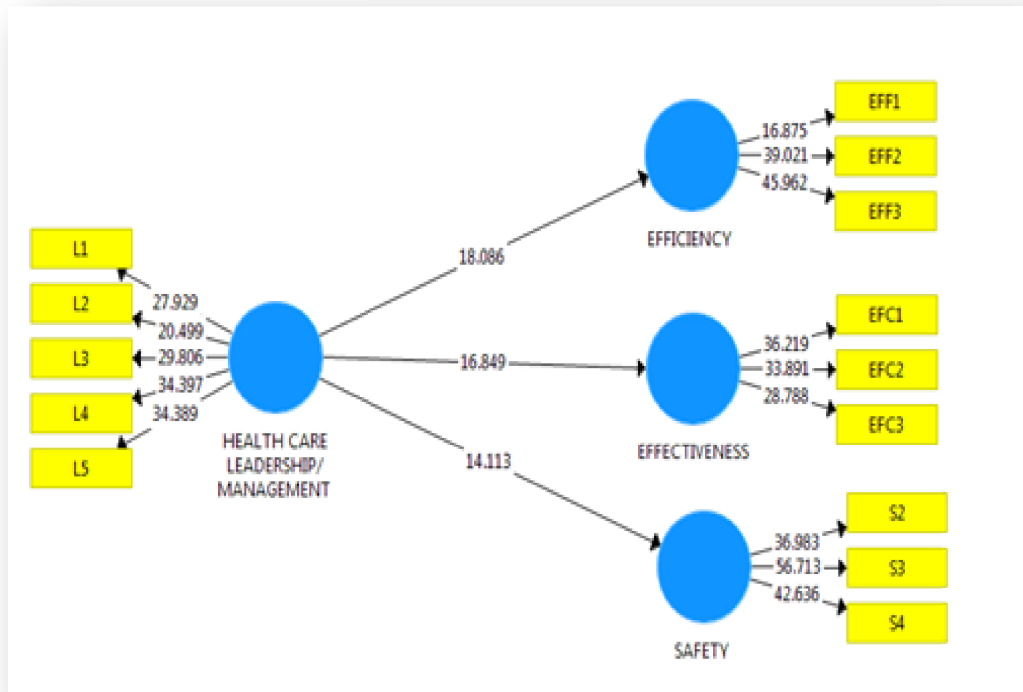


Fig. 2. HTMT Ratios

**Table 3. Hypotheses testing direct effects**

	$\beta$	S.E	T Stat	p	BCILL	BCIUL	Support
Leadership → Efficiency	0.621	0.034	18.086	0.000	0.541	0.672	Yes
Leadership → Effectiveness	0.622	0.037	16.849	0.000	0.546	0.684	Yes
Leadership → Safety	0.553	0.039	14.113	0.000	0.473	0.624	Yes



**Fig. 3. Structural model**

## 5. DISCUSSION

The aim of the current study is to investigate the role of leadership in healthcare organizations' to improve the efficiency, effectiveness and safety in the organizations.. For this purpose data was collected from health care managers, directors of PHCs and hospitals of Saudi Arabia. Total 372 completed questionnaires were received and analyzed in the study. Among those respondents 208 (55.9%) belong to public sector organizations and 164 (44.1%) belong to private sector health organizations, number of assistant managers were 111(29.8%), deputy managers 115(30.9%), managers 78(21%) and directors of the hospitals are 68 (18.3%) respectively. Measurement and structural models were developed. In measurement model 2 items from efficiency, effectiveness and safety were deleted due to low factor loadings, all the values met the threshold level furthermore in structural model

leadership has significant role upon improving efficiency, effectiveness and safety of the quality program of health care organizations. These studies are in line with findings of Almutair [3] also reported the significant results , moreover, Almutairi & Shamsi [1] also reported the significant impact of hospital management and organizations' leadership upon enhancing the efficiency, effectiveness and safety measures and standards of healthcare organizations [17] (Busari et al., 2019). Therefore, all three hypotheses are substantiated and accepted.

## 6. CONCLUSION

It is concluded that leadership of public and private hospitals could focus on improving the quality of their services, provide adequate facilities to their patients, their patients should be satisfied and their expectations must be fulfilled. The needs and requirements of the health care

organizations staff must also be fulfilled so that they may carry on their duties efficiently and effectively. Leadership is responsible to manage inside and outside stakeholders and resources. Leadership has to arrange financial, non financial, human and non human resources and make it available for their employees, patients, and staff so that they may use these resources and perform their jobs, duties and responsibilities efficiently and effectively to make their patients and stakeholder satisfy. Leadership make sure that proper training to employees is also provided for safety purpose so that employees must know the precautions before they go into the triage, or operation theatre, or using some specific equipments and take care of themselves from hazardous material. By doing so leadership can improvise the efficiency and effectiveness of their team members as well as by raising awareness and providing training to employees about safety measures it could reduce the number of accidents, errors and mistakes. Therefore leadership is very important factor in healthcare organizations for improving the performance of their team.

### **6.1 Policy Implications/Implications for Practitioners**

The importance of the leadership and quality and safety culture could be raised by policy makers in seminars, workshops, conferences, and training program. Training should be provided to managers so that they may be able to increase their efficiency, effectiveness and safety. With minimum use of human and financial resources they might be able to get maximum output. Hospitals and PHCs are more complex organizations. The staffs of these organizations work under great stress. Therefore, managers should provide benefits and facilities to their staff especially nurses, doctors, physicians, pharmacists, technicians, and other specialists so that their staff get motivation, satisfied form their working conditions and became loyal and committed with their organizations for long time.

### **7. LIMITATIONS AND FUTURE DIRECTIONS**

In spite of several contributions this study has several limitations. The data used in the study is small data so it is recommended that future studies may use big sample size to have better understanding of the subject matter, in the current study cross-sectional data is used and

analyzed. It is recommended that longitudinal and mix method research must be conducted to have in depth knowledge and understanding of the subject. This model has open doors for the new researchers they may apply and add the same model with adding mediators and moderators such as leader member exchange, trust in management, independent critical thinking and active engagement of the employees in improving quality management of healthcare organizations. One must be careful while generalizing the findings of the current study to other sector as this study is conducted in healthcare organizations.

### **CONSENT**

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

### **ETHICAL APPROVAL**

It is not applicable.

### **COMPETING INTERESTS**

Author has declared that no competing interests exist.

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