Impact of Information Technology-A Study on Employee Responses in Public and Private Hospitals of Hyderabad

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Abstract: - Health service is one of the industries that provide continuous service around the clock for the benefit of the all citizens of the country. Health service personal like senior doctors, nurses, administrative non-administrative service personal are responsible for provision of health care through medical science of knowledge. Therefore it is expected that healthy and psychologically balanced work force in private and government hospitals provides efficient health care. Health care organizations today operate turbulent and challenging environment characterized by intense competition and escalating costs. In the recent times many hospitals have vastly increased their use of information technology and other technologies for monitoring of resource consumption and introduced performance measurement and incentive system for encouraging increased efficiency. All of these measures confer benefits ultimately effectiveness and efficiency depend upon the decisions and actions of individual medical practitioners like doctors and nurses.This study was initiated to know the extent to which the employees of healthcare have used information technology. Results reveal quite enthusiastic response of employees from both medical and administrative departments of setting. Implications are drawn for broader usage of IT in health care sector.

Keywords: Health care, Information technology, Health service personal, Performance measurement.

I. Introduction

Organizations of all types are seeking to improve their effectiveness and efficiency by using information systems. According to [1] considerable amounts of time and money are spent to develop and implement information systems within an organization. Information technology (IT) has made a significant positive impact on the healthcare sector [2]. Hospitals are extremely complex institutions with large departments and units coordinate care for patients [3] and Hospitals are becoming more reliant on the ability of Information Technology to assist in the diagnosis, management and education for better and improved services and practices. The IT provides the required information to each level of the management at the right time, in the right form, and in the right place, so that the decisions to be made effectively and efficiently. The (Hospital Information System) HIS plays a vital role in planning, initiating, organizing, and controlling the operations of the subsystems of the hospital and thus provides a synergistic organization in the process. It improves patient care by assessing data and making recommendations for care and enables a hospital to move from retrospective to a concurrent review quality and appropriateness of care. The aim of IT in hospitals is to achieve the best possible to support patient care and administration by electronic data processing, to improve the quality and reduce the cost, to efficient delivery of high quality health services, to support health care services [3]. In health management systems, information has a special role in planning, evaluation, training, legal aspects and research [4]. The impact of information technology in Public and Private hospitals has been a subject of dissertation in the early part of 21st century. Information technology acts as a machine for critical environments. It helps immediate access to the information they need, safe guarding patient care by way of minimizing disruptions.

II. Literature Review

Implementing IS successfully is especially important in health care organizations (HCO) or Hospitals. The use of IT in healthcare is ten to fifteen years behind such industries as banking, manufacturing, and the airline industry [5]. However, today the health care delivery industry is on the verge of applying various information technologies to assist with everyday activities [6]. This change is characterized by a highly competitive environment in which Health Care Officer HCO find themselves and the hope is that new technologies will increase efficiency, reduce costs, reengineer work processes, and most importantly improve quality of care [7]. [8] reported that Having Electronic Medical Records (EMR) will influence various aspects of health care activities. The challenge is not only to design systems that will integrate a range of technologies to support execution of diverse array of tasks such as scheduling, communication, clinic documentation systems, labs management, reporting, databases, but also to make them fit and be used by a number of different user group – administrators, physicians, nurses, ancillary services specialists from areas such as labs, radiology, pharmacy, materials management, etc. To-day health care computing or medical informatics is one of the fastest growing areas of information and communication technology application [9]. It is multifaceted application concerned with Electronic Patient Record (EPR) performance indicators, paramedical support, emergency services like 108, computer aided diagnosis, clinical governance and hospital management. [10] reported that EPR shown more complete clinical documentation than the paper record leading to more appropriate clinical decisions. Proper and correct adoption of IT can significantly affect the quality and performance of medical services provided by the hospitals either private or public [11]. In some hospitals files are still kept paper based and the system which are computerized are only the administration of the patient and financial affairs. [12] in the study titled from paper to computerized entry creating a culture shift highlighted that making the transition from using paper to computerized provider order entry often fear or nervousness among the physicians and staff members. To accomplish this change, it is necessary that the informatics team in hospitals worked closely with the facility's professional staff to overcome obstacles.

III. Objectives and Hypotheses

Based on the above review of literature the following objectives and hypothesis are formulated.

1) To measure the impact of information technology in various public and private hospitals in the twin cities of Hyderabad and Secunderabad as perceived by the hospital staff in using the IT.
2) To assess the effectiveness of the IT in the hospitals of twin cities as perceived by the administrative staff of the hospitals of Hyderabad and Secunderabad.

It was hypothesized that

1) The Information Technology orientation among the staff and IT effectiveness as perceived by the hospital staff will not vary according to the type of hospital and type of the unit care of the hospitals.
2) There is no significant variation in the usage of IT with regard to the type of hospital and type of unit care of hospitals.

IV. Present Study

In the present study there is an emphasis on three components of Information Technology utilization has been taken into the consideration 1) Patient focus 2) Focus on quality service 3) Inter functional coordination in providing the qualitative service. Further responses of the hospitals staffs with regard to these components have been taken into account for the present study. Ingredients of Information Technology effectiveness which have been taken into account in the study include a) Behavioral intentions of employees b) Integrated communication among the hospital staff c) Patient information d) Strategic orientation e) Operational efficiency by using information technology.

V. Methodology

A descriptive analytic research design is used to obtain information concerning the current status of information technology utilization in the selected hospitals of Hyderabad and Secunderabad. Using stratified disproportionate stratified random sampling 37 from private and 43 government have been selected and structured questionnaire has been administered them. Reliability of the questionnaire is tested by using Cronbach alpha. The Cronbach alpha value is .89 which clearly shows that the questions are reliable for the study.

VI. Results and Discussion

Analysis of data concerning IT utilization in the hospitals performance is based on the responses of hospitals staff on the components like 1) Patient focus 2) Focus on quality service 3) Inter functional coordination in providing the qualitative service. It was hypothesized that "The Information Technology orientation among the staff and IT effectiveness as perceived by the hospital staff will not vary according to the type of hospital and type of the unit care of the hospitals".

Table 1: Information Technology utilization by the type of Hospital

		Mean	SD	DF	F	sig
Patient focus	Private hospitals	22.55	1.77	1,79	49.201	.001
	Public hospitals	18.78	2.77			
Quality of service	Private hospitals	16.51	2.23	1,79	11.255	.000
	Public hospitals	15.01	2.12			
Inter functional co ordination	Private hospitals	18.91	3.91	1,79	12.42	.002
	Public hospitals	16.35	2.68			

Table 1 shows that with regard to patient orientation private hospitals administrative staff perceived it better (mean= 22.55) than their admin staff in public hospitals (mean = 18.78). The variation has statistical level of significance which is evident from the f value 49.201. This means that the executives in private hospitals have more IT orientation than the executives of the public hospitals. Similarly with regard to quality of service the executives in private hospitals obtained mean score 16.51 than executives of public hospitals mean score 15.01the f value 11.255 and significance value p = .000 supports such variation in the mean scores which is statistically significant. This indicates that provision in private hospitals perceived that they are more conscious about the quality of service than public hospital personal. As regards inter functional coordination the executives in private hospitals perceived to be better mean score is 18.91 than their public hospitals mean 16.35. The f value 12.42 also suggests that such variation in their mean scores is statistically significant which is indicated by the p value .002 which is less than .05. Inter functional coordinationin private hospitals is more IT than the public hospitals.

Table .2: Information technological orientation by the Unit care staff

		Mean	SD	DF	F	sig
Patient focus	Special ward	20.09	2.64	1,79	2.291	.128
	General ward	19.78	2.98			
Quality of service	Special ward	14.48	2.17	1,79	.470	.398
	General ward	14.83	2.18			
Inter functional co ordination	Special ward	17.31	3.46	1,79	.159	.673
	General ward	17.35	2.42			

It is clear from the table 2 that with regard to patient orientation the executives from the special ward is better mean= 20.09 than their counter part in General ward mean = 19.78. But the variation in their mean scores has not reached statistical level of significance. With regard to quality service in special ward mean= 14.48 than their counter part in General ward mean 14.83. The variation in mean scores has not reached statistical significance. With regard to inter functional coordination among the staff of special ward and general ward mean scores 17. 31 in special ward and mean score in general ward 17.35. The variation in mean scores has not reached statistical significance.

IT effectiveness in Public and Private hospitals in twin cities has been analyzed based on the a) Behavioral intentions of employees b) Integrated communication among the hospital staff c) Patient information d) Strategic orientation e) Operational efficiency by the staff.

Table 3: IT Effectiveness in Public and Private Hospitals

		Mean	SD	DF	F	sig
Behavioral intentions of employees	Private hospitals	7.69	1.13	1,79	77.57	.001
	Public hospitals	4.99	1.29			
Integrated communication among the hospital staff	Private hospitals	7.72	.798	1,79	110.29	.000
	Public hospitals	5.21	1.18			
Patient information	Private hospitals	6.88	1.19	1,79	25.79	.002
	Public hospitals	5.49	1.31			
Strategic orientation	Private hospitals	6.89	1.42	1,79	18.99	.000
	Public hospitals	5.51	1.38			
Operational efficiency by the staff	Private hospitals	6.69	1.26	1,79	26.69	.000
	Public hospitals	5.56	1.41			

It is clear from the table from 3 that behavioral intentions of the employees from private hospitals perceived it better (mean= 7.69) than their counterpart in public hospitals (mean = 4.99) the f value also supports such invariance in their mean scores.   With regard to integrated communication among the hospital staff a similar trend is observed in private hospitals (mean = 7.22) than their counterpart in public hospitals (mean = 4.99) the f value also supports such invariance and p value indicates the variance is statistically significant. As regards to maintaining the patient information in private hospitals (mean= 6.88) and in the public hospitals (mean = 5.49) the f value also supports such invariance and p values indicates the variance is statistically significant. In strategic orientation in private hospitals (mean = 6.89) and in the public hospitals (mean= 5.51) the f value also supports such variance and p values indicates the variance is statistically significant. Finally in the operational efficiency in utilization of computer by the staff in private hospitals (mean = 6.69) in public hospitals (mean = 5.56) the f value supports such variance and the p value indicates that variance is statistically significant which is indicated by the p value. Thus it could be said that the executives in private hospitals perceived utilization of computers is more than their counter parts in public hospitals.

Table 4: IT Effectiveness in Public and Private Hospitals according to unit wise

		Mean	SD	DF	F	sig

		n				
Behavioral intentions of employees	Special ward	6.61	1.67	1.79	.059	.823
	General ward	6.59	1.58			
Integrated communication among the hospital staff	Special ward	6.72	1.68	1.79	1.49	.332
	General ward	6.66	1.57			
Patient information	Special ward	6.23	1.32	1.79	1.198	.287
	General ward	6.19	1.42			
Strategic orientation	Special ward	6.12	1.49	1.79	.97	1.02
	General ward	6.09	1.58			
Operational efficiency by the staff	Special ward	6.28	1.53	1.79	.547	.398
	General ward	6.19	1.58			

It is clear from the table 4 that the executives from the hospitals understudy have not varied at all on all dimensions of IT effectiveness in the units like special ward and general ward with regard to a) Behavioral intentions of employees b) Integrated communication among the hospital staff c) Patient information d) Strategic orientation e) Operational efficiency by the staff. The f values presented in the table also support such invariance in their mean scores. This shows that executives need not vary in their IT effectiveness perceptions according to the type of unit for which they work.

VII. Conclusion

Today, one of the most significant barriers to the adoption of information technology is the lack of appropriate incentives in public and private hospitals. The entities most likely to benefit from HIT (insurers and patients) are not the ones most likely to bear the cost of these systems. By and large, providers (doctors and hospitals) are being asked to invest in systems that are likely to reduce their revenue. Hospitals earn significant revenue from performing diagnostic tests, and thus have little incentive to reduce this number. A government mandate to institute HIT systems is unlikely to succeed if providers expect added costs and few benefits. [13] advocates for health information systems argue that they would reduce redundant medical imaging and laboratory tests. Various estimates indicate that about 30 percent of medical care in the hospitals is wasteful [14]. However, the amount of waste that would be prevented by using more HIT is unknown. According to [13] nearly one-third of the information a physician needs is not available during an office visit due to missing records and laboratory reports. Proponents believe electronic record-keeping could improve quality [15]. A small but growing number of health care providers and independent services offer patients the ability to store and manage their own records securely online, so that they are accessible to the patient and his physicians. Private records management services are already used. by people with complex medical conditions. Because most patients see a number of physicians, remotely accessible medical histories could help facilitate coordination of care among different providers. They are also useful for the rapidly expanding area of telemedicine the remote monitoring of patients with chronic diseases [16]. Electronic medical records (EMR) will enhance safety by allowing providers to easily spot adverse drug interactions and to compare a particular patient's treatment against standard protocols using specially designed software. This type of software already exists and many retail pharmacies use HIT to check for contraindicated drugs. EMRs and the Internet could improve doctor/patient communication and patient compliance [17]. When medical records are accessible online, 1) distance will become irrelevant. 2) Physicians will be able to consult with patients online while accessing patients' complete medical records. 3) Specialists

can consult with emergency room doctors when needed. To ensure IT effectiveness in addition to the environment the hospitals might consider how to design the service delivery process by using latest technology. To bring IT effectiveness in the hospitals could be that of empowering employees and giving them freedom to learn. The flattening of organizations and employees ready access to data base information is better enabling this empowerment. Employees of the hospitals need to be trained to develop their skills and to equip with the latest technologies. Patients also need to be rewarded for developing interpersonal communication with exact information. Though both public and private hospital executives have been aware of the fact that they are more technical oriented in providing qualitative service to the patient but it was found that hospital executives significantly varied on utilization of HIS according to the type of service like special ward and General ward.

VIII. References

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