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### RESEARCH ARTICLE

#### EMPLOYEE'S KNOWLEDGE AND ATTITUDE TOWARDS THE IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEMS WITH SPECIAL REFERENCE TO SIX SIGMA.

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#### Abstract

Healthcare delivery system is one of the most dynamic areas where the professional growth takes place on everyday basis. In the country's present scenario, where health services is made available to the community in a variety of forms, by way of Government health centres, Trust hospitals, Religious sponsored small and big hospitals, Private and Corporate hospitals, the expectations of the patient has increased towards the quality of health services offered. The present study was conducted between private and government health care organization in order to assess the current scenario of six sigma. Total 60 samples were selected by using convenience sampling. At the first phase of the study, data were collected to assess the time spent by the patient at various departments of hospital i.e. to get blood reports, radiology department etc. During the second phase of study the current knowledge and attitude towards six sigma was assessed among the employees of both government and private hospital. Results showed that the maximum time spent by the patient at OPD for registration was 16-20 minutes. According to the reviews this is appropriate time taken by any health care organization to do OPD registration. Very few respond to took more than 25 min i.e. 03%. Maximum patient spent 21-25 minutes at laboratory and only 05% spent less than 20 minutes. Time taken by the subject in pharmacy indicates, maximum participants i.e. 37% took 16-20 minutes to get the drugs and 23% participants took more than 25 minutes. Regarding the knowledge towards six sigma, 22% health care workers in private sector have good knowledge score as compare to government organization i.e. 10%. 07% health care workers have average knowledge score in private organization and 08% participants have average knowledge score in government health sector. Regarding the attitude towards six sigma Private health care organization workers (53%) have good attitude score as compare to government organization (18%).

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#### Introduction:-

Patients have expectations which includes the immediate attention to the health needs/problems of the patient, reduction in the waiting period, be it in the Emergency unit, Out Patient Department (OPD), in the Laboratory for an

investigation or in the Consultant's room. This is a well-known fact that one of the most important indexes of the health care quality is patient's satisfaction and it takes place only when there is a process based on management, especially the one like **management of waiting time process**. Managing healthcare based on the effective use of six sigma concepts using the **Define, Measure, Analysis, Improve and Control (DMAIC)** approach, could result in a decrease in the patient's waiting time especially at the OPDs. The techniques from the lean six sigma plays an important role in assisting healthcare deliver high quality service within its current budget constraints.

Although containing many supremacy and exhibiting outstanding advances in technology and management the healthcare sector is widespread with inabilities and errors<sup>1</sup>. Over the past decade the world financial pressures on healthcare system raised, throughout the world. While an ageing population and increased cost of medical treatments with new and advance technology are the most common culprits for these financial pressures<sup>2</sup>. Managing healthcare and effective use of six sigma concepts could result in a decrease proportion of citizens in industrialized societies being able to afford high-quality healthcare<sup>2</sup>.

One way to improve this situation is for the healthcare sector to continue evaluation of quality processes and to deliver health care more efficiently and effectively within available budgets. The techniques from the lean six sigma plays an important role in assisting healthcare deliver high quality service within its current budget constraints.

Six Sigma is a data driven process improvement methodology used to achieve stable and predictable process results, reducing process variation and defects. **Snee (1999)** defined it as: 'a business strategy that seeks to identify and eliminate causes of errors or defects or failures in business processes by focusing on outputs that are critical to customers. While both lean and six sigma have been used for many years, they were not integrated until the late 1990s and early 2000s<sup>3</sup> and today lean six sigma is recognized as: 'a business strategy and methodology that increases process performance resulting in enhanced customer satisfaction and improved bottom line results'<sup>4</sup>. Lean Six Sigma uses tools from both toolboxes, in order to get the best from the two methodologies, increasing speed while also increasing accuracy.

Lean Six Sigma is a process which improves business methodology and aims to maximize shareholder value by improving quality, speed, customer satisfaction, and costs. It has been widely adopted in health care delivery system and service industries. Six Sigma principles are well suited to the healthcare sector due to its zero tolerance for errors and focused on potentially reducing medical errors<sup>5</sup>. At the same hand, six sigma tools are applicable to an endless variety of processes in healthcare, addressing critical challenges such as medical errors, escalating costs and staffing shortages<sup>6</sup>. Lean and Six Sigma have the potential to contribute to the healthcare industry as much as they have contributed to the automotive industry<sup>7</sup>

In Indian scenario, any multi-specialty hospital with a bed capacity of 200 and above has a tendency to get a continuous in-flow of patients despite whatever is the time of the day. One way to improve this situation is for the healthcare sector to examine its processes and to deliver care more efficiently and effectively within available time and budget. The philosophy of continuous improvement and the techniques, which is the motto of every hospital, from the lean six sigma stable have a role to play in assisting healthcare deliver high quality service within its current budget constraints.

Lean and six sigma have followed independent paths since the 1980s, when the terms were first hard coded and defined: the first applications of lean were recorded in the Michigan plants of Ford in 1913, and were then developed to mastery in Japan (within the Toyota Production System), while six sigma saw the light in the United States (within the Motorola Research Centre). *Lean* is a process improvement methodology used to deliver products and services better, faster, and at a lower cost.

For this study the source of idea and motivation came in from the personal experience of the Researcher. During the clinical postings at a Corporation hospital in Pune a Clinical Supervisor for the Undergraduate and Postgraduate students of the nursing college, the investigator/ Researcher identified that the workload of the hospital OPD was immense due to the continuous inflow of patients by way of referrals, both from urban as well rural community as it was one of the largest multi-specialty hospital offering services of expert Doctors and nurses.

The observations made on everyday basis and an informal interaction with the patients who were waiting at the OPDs made the Researcher rethink about this as an area to be pondered upon and researched with a view to identify

the existence of the problem as experienced by the patients and perceived by the staff and concerned management members and the attitude towards bringing in modifications to reduce the waiting period of patients at the OPDs.

**Research Statement:-**

Employees' knowledge and attitude towards implementation of quality management systems with special reference to Six Sigma.

**Aim:-**

To assess the knowledge and attitude of the employees towards implementation of quality management system with special reference to Six Sigma

**Objectives:-**

1. To assess the current status of waiting period at various departments of the selected hospitals
2. To assess the knowledge regarding Six Sigma
3. To assess the attitude regarding Six Sigma
4. To compare the knowledge and attitude of private and government health care organization.

**Methodology:-**

1. **Research approach:-** Quantitative approach
2. **Research design:-** Pre- Experimental
3. **Sampling technique:-** Convenience sampling
4. **Sample size:-** 60 ( Calculated by power analysis)

**Sampling criteria:-**

**Inclusive criteria:-**

1. Those who are involved in hospital administrative work.
2. Those who are available at the time of data collection.
3. Those who can understand English

**Exclusive criteria:-**

Who have already done six sigma certification

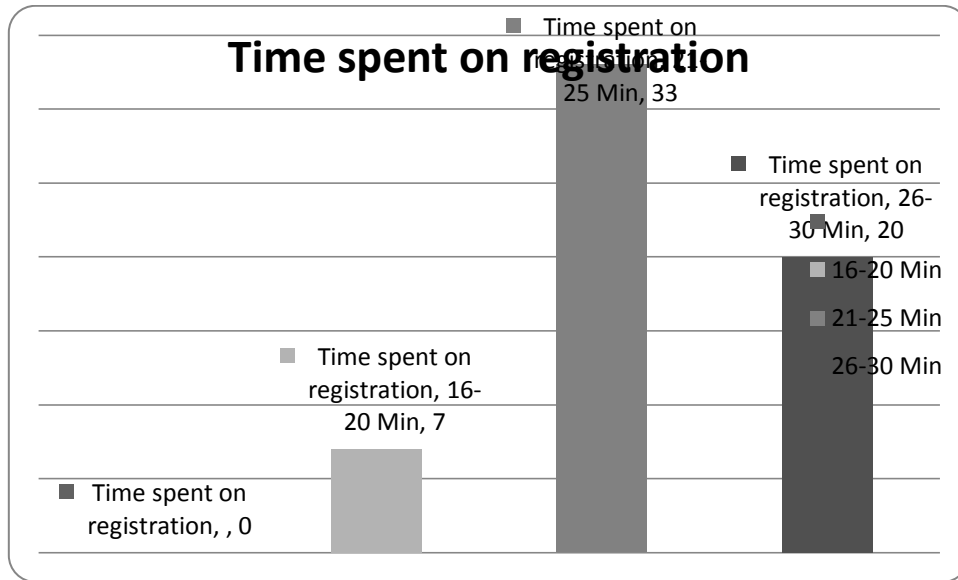
**Data collection procedure: The data collection was done in 3 phases:-**

**Section I:-** Socio demographical data and time duration taken up by various departments of hospital like, radiology dept. laboratory, etc.

**Section II:-** Knowledge regarding lean six sigma among the health care workers

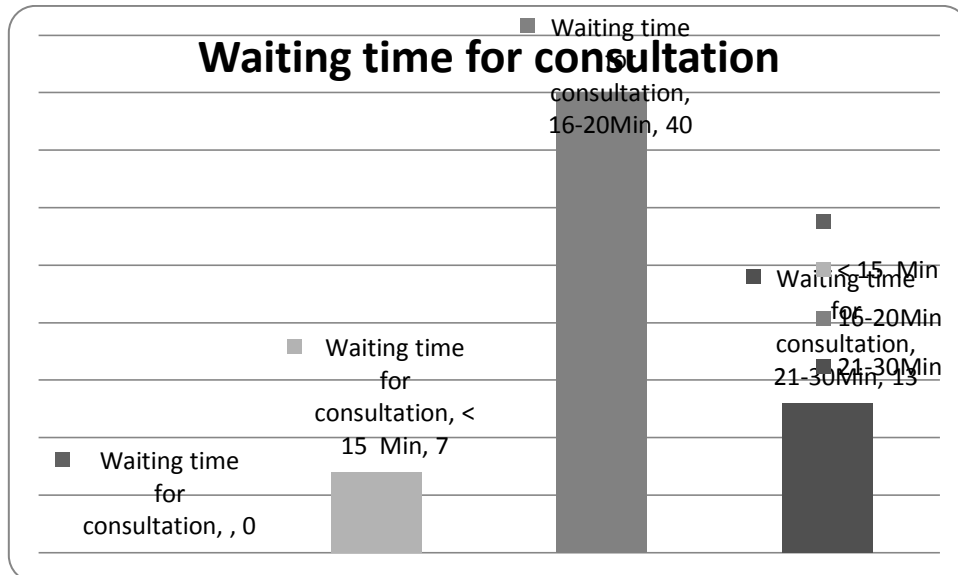
**Section III:-** Attitude towards lean six sigma among the health care workers

**Results:-**



**Figure 1:-**Waiting time for registration at OPD.

**Figure 1** indicates the waiting time for registration at OPD. It shows that the maximum time spent by the patient at OPD for registration was 16-20 minutes. According to the reviews this is appropriate time taken by any health care organization to do OPD registration. Very few respond to took more than 25 min i.e. 03%.



**Figure 2:-**Waiting time for consultation

**Figure 2**, indicates the waiting time for consultation. Maximum time taken by the patients for consultation was 16-20 minutes. Only 07% took less than 15 minutes for consultation.

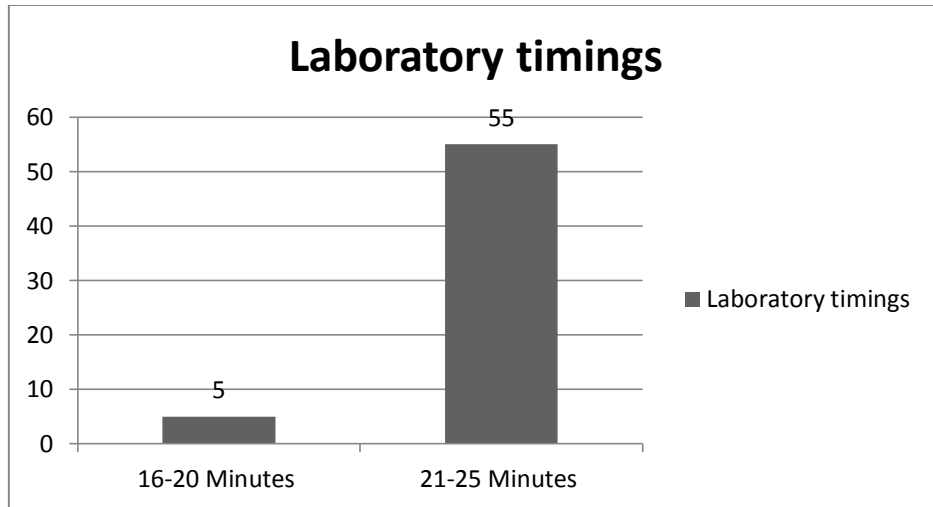


Figure 3:-Time taken by the patient to collect the report from laboratory

Figure 3:-depicts that maximum patient spent 21-25 minutes at laboratory and only 05% spent less than 20 minutes.

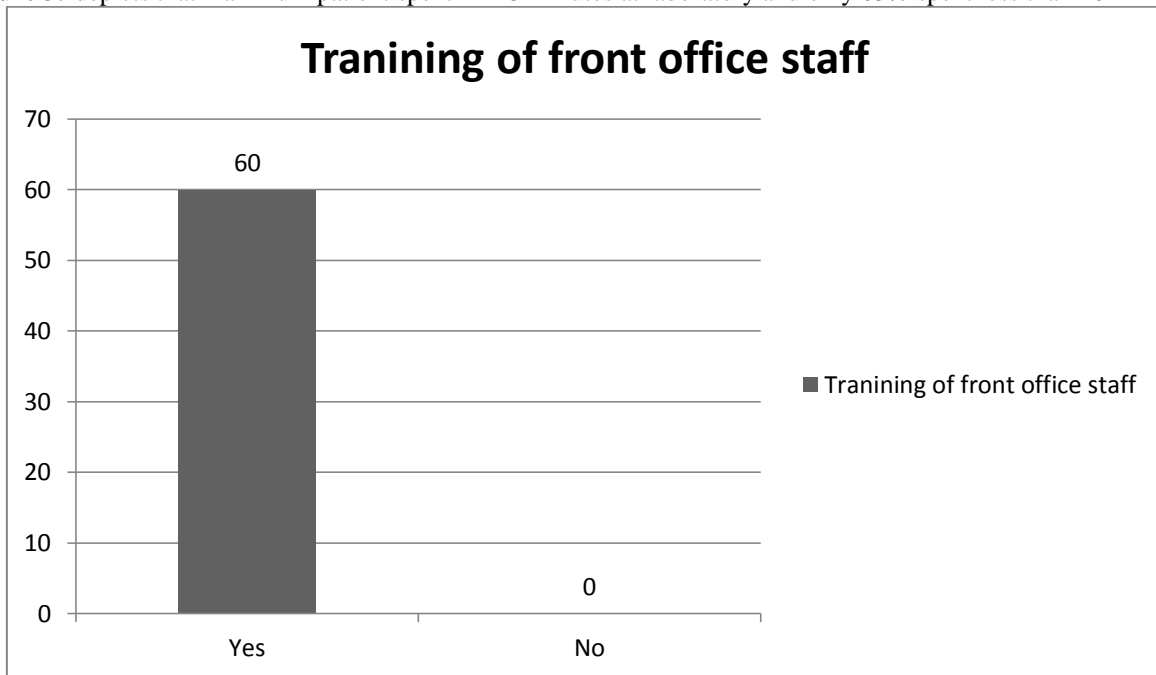
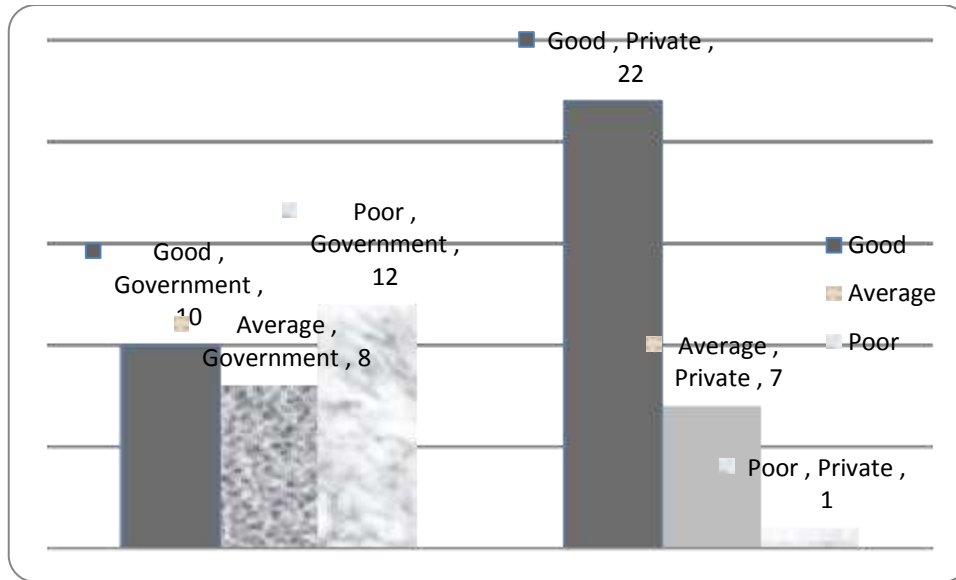


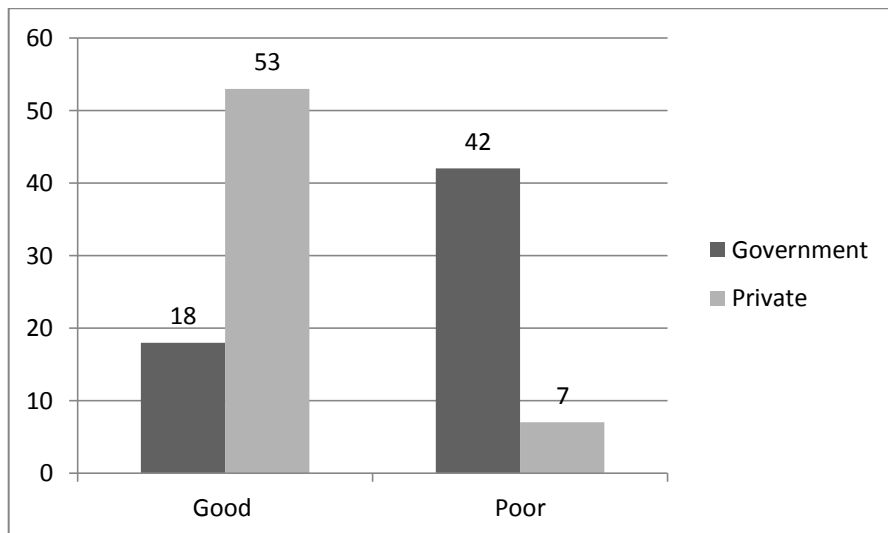
Figure 4:-Training of staff related to quality management process

Figure 4:-shows the data regarding training of staff related to quality management process. All (100%) staff got training form the hospital during the induction period, regarding maintenance of quality management process.



**Figure 5:-**Knowledge level of government and private health organization towards six sigma as a quality management process

**Figure 5** shows the knowledge level of private and government health organization regarding six sigma. 22% health care workers in private sector have good knoweldge score as compare to government organization i.e. 10%. 07% health care workers have average knoweledge score in private organization and 08% participants have average knowledge score in government health sector.



**Figure 6:-**Attitude score of private and government organization towards six sigma as a quality management process.

**Figure 6:-**shows the attitude score of private and government organization towards six sigma as a quality management process. Private health care organization worker (53%) have good attitude score as compare to government organization (18%).

**Conclusion:-**

Six Sigma principles are well suited to the healthcare sector due to its zero tolerance for mistakes and Six Sigma’s potential for reducing medical errors. Lean Six Sigma projects in healthcare have largely focused on direct care delivery, administrative support and financial administration. The aim has been to improve clinical processes, to identify and eliminate waste from patient pathways, to enable staff to examine their own workplace, and to increase

quality, safety and efficiency. The concept of six sigma is purely corporate in nature. There is lots of difference between the knowledge and attitude regarding six sigma among private and government organization and this study proves the same.

**Conflict of interest:-**There is no conflict of interest in the present study.

**Source of funding:-** Self

**Ethical clearance:-**

The present has cleared the Institutional Ethical Committee and informed consent was taken from the participation.

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