

## **A Study to Assess the Knowledge and Attitude Regarding DMAIC Methodology among Various Hospitals of Pune City, India**

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### **ABSTRACT**

Health care settings is a vital core of any nation. Talking about the IT industry, the perfection is recruited to establish a well reputed product, but in contrast with health care organization the probability of errors must be near to negligible. As health care deals with the human life. A small error in health care settings may results in death of an individual. Therefore, the Government has established many SOP with certain organization like NABH to minimize the errors as well to improve the quality of care. Six sigma DMAIC is one of the methods which was successfully implemented in IT industries so long but now health care organization is coming up with the same concept in order to improve the patient care. The present study focusses on to assess the level of knowledge and attitude of hospital, staff regarding DMAIC. Six sigma hand modules were implemented among the staff nurses of various hospital via online mode. The data was gathered through google meet and google form. One group pretest post-test research design was used with purposive sampling techniques to select sixty-two samples.

Results: Most of the nurse from had average knowledge level (Score 11-20) i.e. 35 %, 17 % were having good knowledge score but in private hospital majority i.e. 47 % had good knowledge score , Similarly, Most of the nurse administrators from Government hospitals had poor attitude score only 4 % were having good attitude score. In private hospital majority i.e. 60 % had poor attitude score 8 % had good attitude towards Six-sigma DMAIC approach and only 18 % had average attitude score respectively and there was very week between knowledge and attitude score of private and government hospitals.

### **Keywords**

Knowledge, Attitude, Six-sigma, DMAIC

### **Introduction**

Health care industry is growing very fast. New technologies and innovations are touching the sky. In the current scenario of COVID-19, many countries have adopted various methods to save the supply chains of hospital resources like PPE, sanitizers etc. but whole world was in dearth of resources as patient input is more than the output ratio<sup>1</sup>. Six-sigma is one of the tool in health care management, which focus on preventing errors in any system and helps in saving the resources by minimizing the resource wastage. If the organization choose Six-sigma DMAIC approach at early phases, it will results in better productivity and outcomes in term of patient satisfaction as well in recourse management<sup>2</sup>. Country like India the concept of Six-sigma is not very known<sup>3</sup>. Many corporate health care industries in all over the world have adopted DMAIC as a part of management tool and proven to be very effective in quality management process. Asian countries are still in dilemma to adopt such kind of process, but in India, many private sectors especially in health care sectors and IT have implemented the DMAIC approach and make it a part of their daily activities<sup>4</sup>. Many health care provider i.e. nurses; physicians etc. are not much familiar with the DMAIC methodology. Health care providers need to understand this concept and new pedagogies need to implement to understand the importance of Six-sigma DMAIC approach.

## Research Statement

A study to assess the knowledge and attitude regarding DMAIC methodology among various hospitals of Pune city, India

## Objectives

- To assess the knowledge regarding Six Sigma DMAIC among staff nurses.
- To assess the attitude regarding Six Sigma DMAIC among staff nurses.
- To compare the knowledge and attitude regarding Six Sigma DMAIC among staff nurses.

## Methodology

**Research Approach:** Quantitative approach

**Research Design:** One group pretest post-test research design

**Sampling Technique:** Purposive sampling

**Sample:** 62 (calculated by power analysis)

## Sampling Criteria

### Inclusive Criteria

- Participants who are involved in hospital administrative work, ward in charges, Nursing superintendents, Nurse educators, Hospital Management
- Participants who are available at the time of data collection
- Participants who can understand English.

### Exclusive Criteria

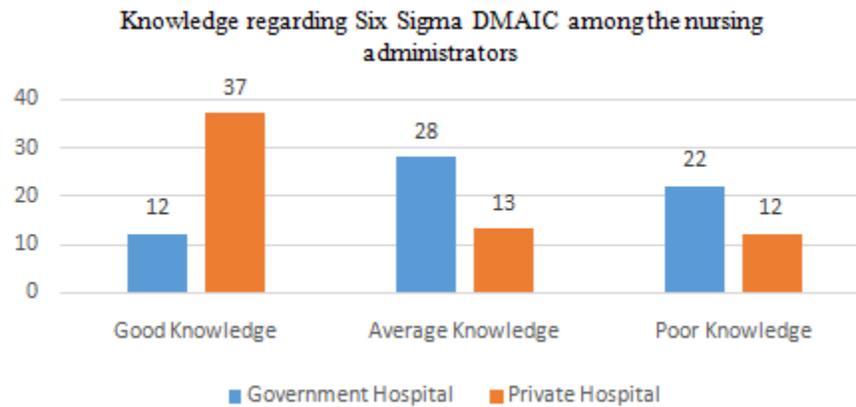
- Who have already done Six Sigma certification
- Who have attended any seminar or workshop on Six sigma

## Data Collection Procedure: The Data Collection is Divided in Three Sections

- **Section I:** Sociodemographic data
- **Section II:** Knowledge regarding Six Sigma DMAIC among the nursing administrators
- **Section III:** Attitude regarding Six Sigma DMAIC among the nursing administrators

## Results

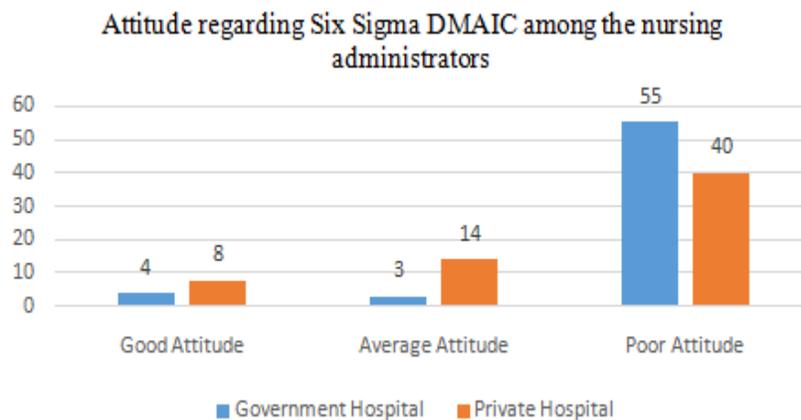
### Section I



**Figure 1.** Knowledge regarding Six Sigma DMAIC among the nursing administrators

**Figure 1** Shows the level of Knowledge regarding Six Sigma DMAIC among the nursing administrators. Most of the nurse administrators had average knowledge level i.e. 38 %, 12 % were having good knowledge score but in private hospital majority i.e. 57 % had good knowledge score , 17% had average knowledge level and only 10 % had poor knowledge score respectively.

### Section II

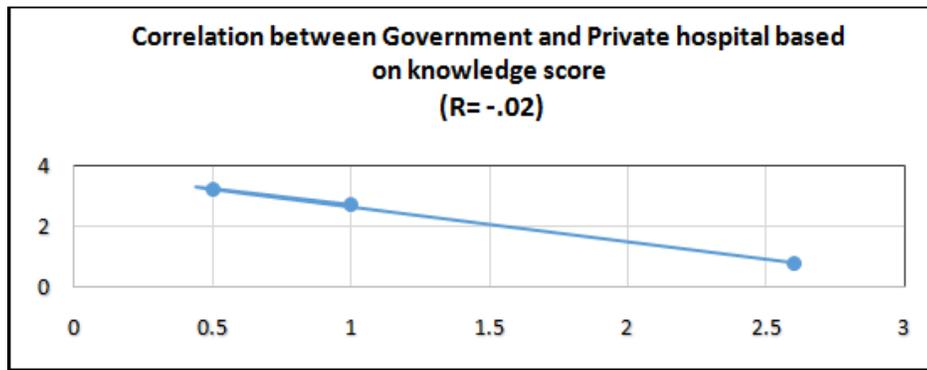


**Figure 2.** Attitude regarding Six Sigma DMAIC among the nursing administrators

**Figure 2** Shows the level of attitude regarding Six Sigma DMAIC among the nursing administrators. Most of the nurse administrators had poor attitude score i.e. 67 %, only 7 % were having good attitude score. In private hospital majority i.e. 59 % had poor attitude score 8 % had good attitude towards Six-sigma DMAIC approach and only 18 % had average attitude scores respectively.

### Section III (A)

#### Correlation between Government and Private Hospital based on Knowledge Score

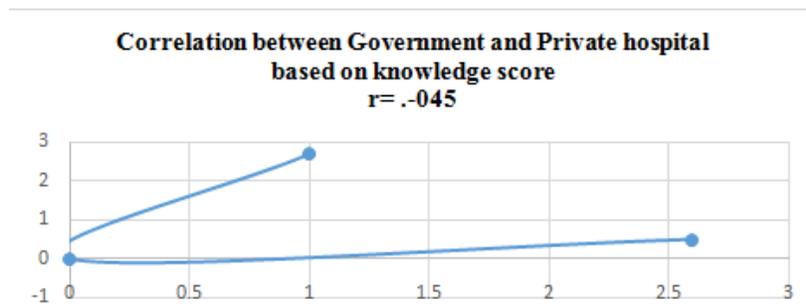


**Figure 3.** Correlation between Government and Private hospital based on knowledge score

Fig 3 depicts the Correlation between Government and Private hospital based on knowledge score. The value of product moment correlation is  $-.02$ , which is negative. This means the correlation between government and private hospital based on their knowledge score was negative. Therefore, there was no correlation in knowledge level of government and private hospital.

### Section III (B)

#### Correlation between Government and Private Hospital based on Attitude Score



**Figure 4.** Correlation between Government and Private hospital based on attitude Score

Fig 4 depicts the Correlation between Government and Private hospital based on attitude score. The value of product moment correlation is  $-.045$ , which is weak negative. This means the correlation between government and private hospital based on their attitude score was negative. However, there was weak correlation in attitude level of government and private hospital.

### Discussion

Similar results were shown by study conducted by **Critchley (2015)**, among the staff nurses of corporate hospitals in USA. Results revealed that the knowledge and attitude of staff nurses regarding Six sigma was higher. (**Torjesen, 2014**), revealed the similar results about the knowledge and practice adopted by missionary hospitals of California. The knowledge and attitude of health care providers were from average to good but the practice score was less as compare to knowledge.

### Ethical Clearance

Ethical clearance was obtained from the Institutional Ethical Committee of Symbiosis College of Nursing, Pune

**Conflict of interest:** There was no conflict of interest in this study.

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