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EFFICIENT MANAGEMENT PRACTICES FOR IMPROVING CARE & SANITATION FACILITIES OF PUBLIC HEALTHCARE DELIVERY SYSTEM: A CASE STUDY IN INDIA

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Abstract

In spite of being one of the fastest growing economies of the world, and having taken steps to improve the country's health status after independence, India still has a long way to go. The healthcare system is challenging in India, particularly because of huge population size, economic and social factors coupled with the rising burden of both communicable and non-communicable diseases. Capital and technology perhaps are the most necessary conditions for achieving health gains, but experience in many countries confirms that they are not sufficient. Organizations must combine financial, physical and human resources for better performance. Public hospitals are heavily utilized by lower income groups of the society, up to ninety percent in case of free patients. While this is a good indication of the level of access of people to public

health facilities, this also casts an obligation on the Government to improve their infrastructure and systems. Reports of numerous patients dying due to lack of oxygen supply in wards or wrong sterilization procedures, patients delayed admission and treatment due to shortage of medical staff or unavailability of necessary drugs and equipments in the hospital is prevalent. The primary objective of this paper is to investigate the quality of sanitation and care of a tertiary level public healthcare facility in India. Data was collected from the inpatients and support staff of the hospital by using standard instruments. All ethical guidelines were fulfilled. Infrastructural scarcity and manpower allocation were a major issue. Staffs were significantly more negative in rating many aspects of hospital services. The researcher recommends accountability based work environment, periodic training modules for health workers, policy and infrastructural changes for improvement of the healthcare facilities.

Keywords

Healthcare, Satisfaction, Patient, Health Worker, Service

1. Introduction

As India competes with rest of the world to become a global power, there is perhaps nothing more important than the health and welfare of its own countrymen. Many reforms have been initiated by the Government recently for the growth of public healthcare in India which includes National Rural Health Mission (NRHM) and the National Urban Health Mission (NUHM). NRHM aims to provide accessible, affordable and quality healthcare to the rural population, especially the vulnerable groups. The Empowered Action Group (EAG) States as well as North Eastern States, Jammu and Kashmir and Himachal Pradesh have been given special focus. In addition, thrust has been given for fortifying the healthcare infrastructure as per Indian Public Health Standards (IPHS), by expansion of human resources and finances, involvement of the community in healthcare planning and utilization of services. The main concern is to ensure access, availability, and utilization of primary healthcare to all including urban slum population. (NFHS-4, DLHS-4, NHM Annual Report, Ministry of Health & Family Welfare)

India's healthcare system is challenging, particularly because of its huge population size, economic and social factors coupled with the increasing burden of both communicable and non-communicable diseases (Chauhan, 2011). The country has taken big steps to improve its health status after independence; however, records suggest that there is still a long way to go. While

some of the states have better health indicators than the national average, some others are lagging far behind. In addition, there are large intra-state variations in health outcomes between districts and regions. Some examples given below illustrate such gaps in the delivery system. (NFHS-4, DLHS-4, MOHFW)

1.1. Coverage of Basic Immunization Status

Immunization program in India is mainly financed by the national government at analogous levels across the states. Immunizing children is significant as it can prevent many communicable diseases and greatly reduce the childhood mortality and morbidity. As per the basic immunization schedule, a child must receive at least:

- One dose of BCG vaccine, which prevents tuberculosis
- Three doses of DPT, which protects against diphtheria, pertussis, and tetanus
- Three doses of polio vaccine and
- A single dose of measles vaccine

Information related to childhood health, disease and survival can help policymakers assess the efficiency of existing strategies and formulate suitable interventions to prevent further deaths. National Family Health Survey, NFHS-4, published on December 2017, reports that there has been a noteworthy increase in the percentage of children aged 12-23 months who received all the vaccinations from 44 percent in 2005-06 to 62 percent in 2015-16. However, the coverage was found to be significantly varied among the states. (Refer Fig. 1)

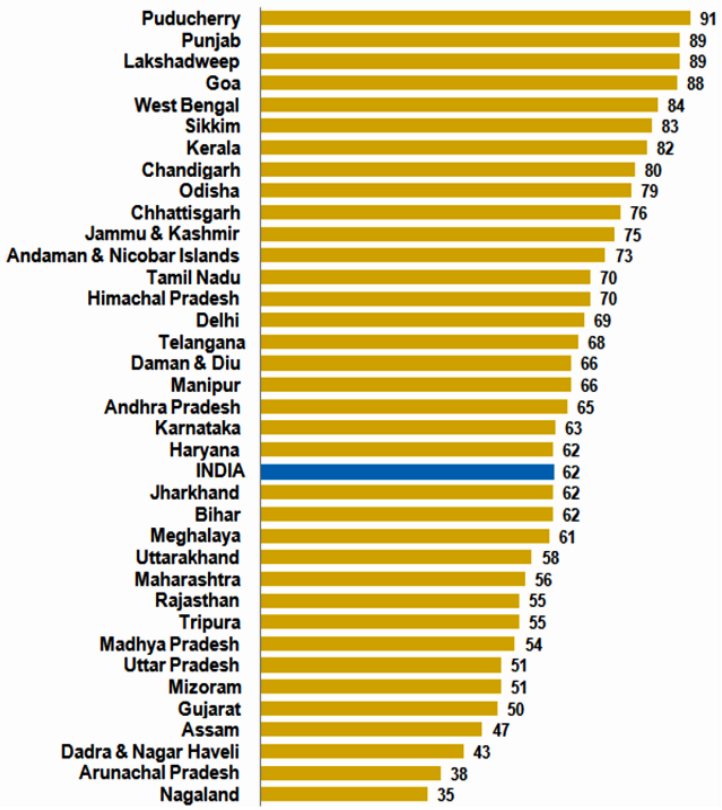

Figure 1: *Coverage of Basic Vaccinations by State/UT's, NFHS-4*

The coverage was highest in Puducherry (91%), Punjab (89%), Lakshadweep (89%), Goa (81%) and West Bengal (84%). In Nagaland and Arunachal Pradesh coverage was below 40%. Surprisingly, for some larger states like Gujarat, Uttar Pradesh, Maharashtra, Madhya Pradesh and Rajasthan, the coverage was found to be below the national average. (NFHS-4, MOHFW)

1.2. Childhood Mortality Rates

Information on infant & child mortality facilitates assessment of a country's economic development and quality of life. Neonatal mortality is defined as the probability of a newborn dying within the first month of his life. Infant mortality is the probability of the child dying between his birth and the first birthday. Under-five mortality refers to the probability of the child dying between birth and his fifth birthday. To augment the existing plans, the Govt. remodified the National Maternity Benefit Scheme and implemented Janani Suraksha Yojana (JSY) in 2005 under the National Rural Health Mission. The objective was to reduce maternal and neonatal mortality by encouraging institutional delivery among pregnant women, particularly belonging to the rural districts of the country. Neonatal mortality rate reduced from 49 deaths per 1000 live

births in the five years before the 1992-93 NFHS-1 survey to 30 deaths per 1000 live births in the five years before the 2015-16 NFHS-4 survey. Infant mortality rate (IMR) also showed a significant decline from 79 deaths to 41 deaths per 1000 live births in the five years before the respective NFHS survey. Similarly, during the same period, under-five mortality rate (U5MR) lowered from 109 deaths per1000 live births to 50 deaths per 1000 live births. (Refer Figure 2)

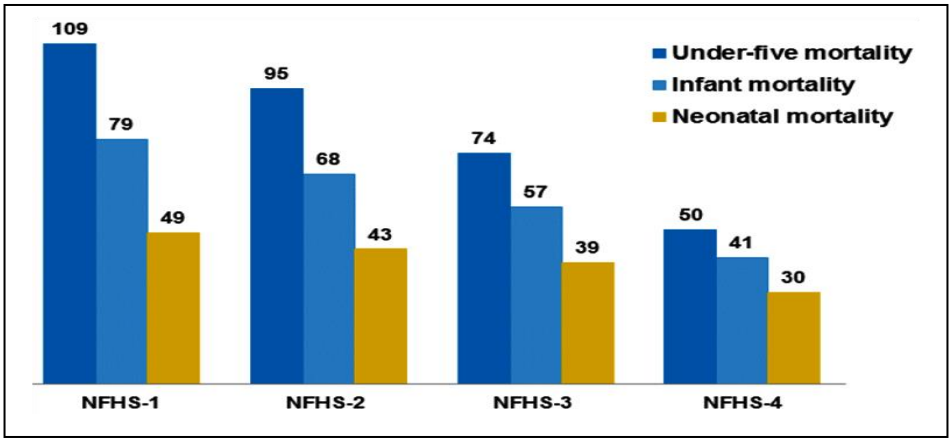

Figure 2: *Trend in Childhood Mortality Rates*, NFHS-4*

(*Deaths per 1,000 live births for the five-year period before the survey)

However, a wide disparity in mortality rates exists, region-wise as well as state-wise. U5MR in rural areas was 56 deaths per 1000 live births as compared to 34 deaths per 1000 live births in urban areas (NFHS-4, MOHFW). Kerala recorded lowest infant and under-five mortality rates. Both IMR and U5MR were reported to be higher than the national average in Uttar Pradesh, Odisha, Uttarakhand, Chhattisgarh, Madhya Pradesh, Bihar, Assam and Rajasthan (Refer Fig. 3 & 4). IMR and U5MR were found to be high in rural regions than in urban districts of the states. For India, Infant mortality rate in rural areas was 38 deaths per 1000 live births as compared to 23 deaths per 1000 live births in urban areas (Sample Registration System 2017, RGI).

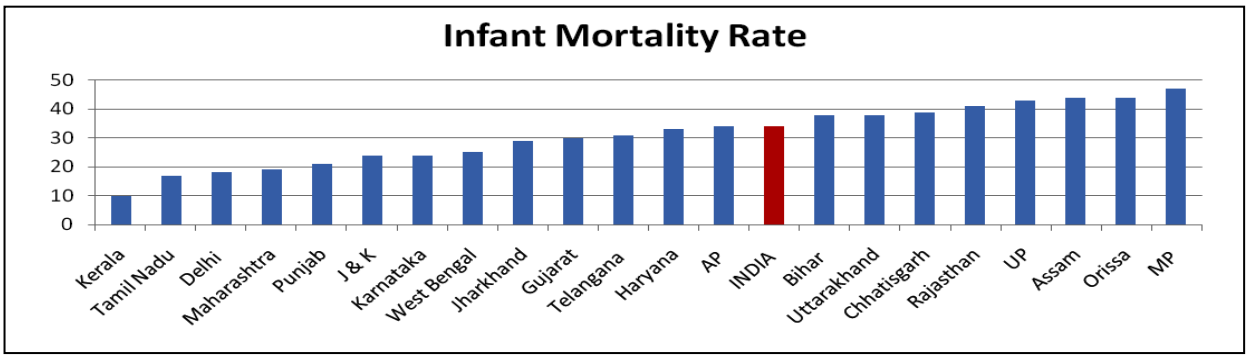

Figure 3: *Infant Mortality Rate for Bigger States, SRS Bulletin, September 2017*

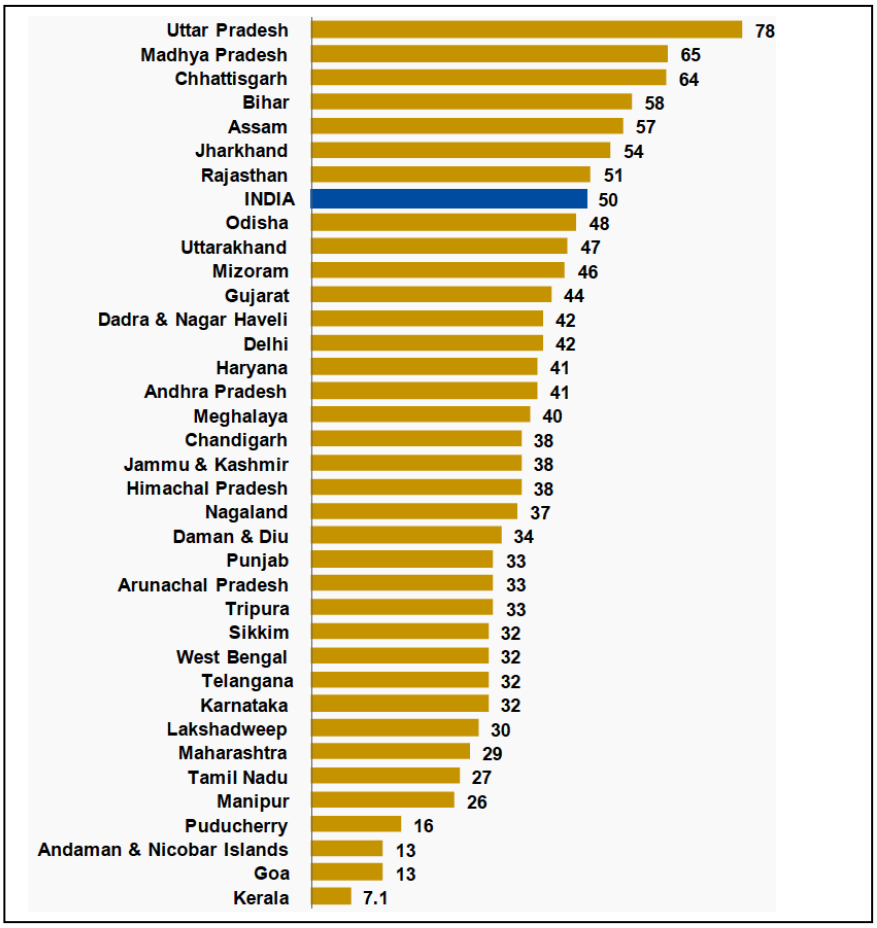

Figure 4: *Comparison of Under-five Mortality Rate**, NFHS-4*

(**Deaths per 1,000 live births for the five-year period before the survey)

2. Literature Review

Health-care delivery is the prime responsibility of States; while the Centre provides financial and policy support. In India, public hospitals are heavily utilized by lower income groups of the society, up to more than 90 percent in case of free patients. While this is an indication of level of access of people to public healthcare facilities, this also creates an obligation on the Government to improve its healthcare infrastructure and service delivery mechanisms. In an interesting study conducted by Chabbra S. et. al, to find out why reproductive healthcare seekers sought admission to tertiary level healthcare facilities in rural central India, the obvious reasons for seeking treatment irrespective of the nature of the case, locality, age etc. were economic, referrals, fame of the health facility and expertise of doctors. They also found that poor people and illiterates went to public tertiary healthcare institutions because of economic reasons (Chabbra and Saraf, 1997). Another study by Sodani et.al in the outpatient department of public health facilities of Madhya Pradesh confirms that the major reasons for choosing the

facility was inexpensiveness, infrastructure, and proximity of the facility (Sodani et.al, 2010). However, a study conducted by Kitreerawutiwo et.al in Thailand also confirms the importance of education level, social support, being a member in community as the variables that play a role in the health behaviors of elderly among the rural population of the country (Kitreerawutiwo and Mekrungrongwong, 2015).

Health has now become a matter of debate and a burning topic to discuss. Reports of numerous patients dying because of lack of oxygen supply or wrong sterilization procedures or patients delayed admission and treatment due to shortage of medical staff or unavailability of necessary drugs and equipments in the hospital is prevalent (Burke, 2014, Gowen, 2017, Srivastava, 2017, Pati, 2018). Organizations must combine financial, physical, and human resources for better performance of health services. Better performance of healthcare services means that the services have been properly accessed and used by the people who need them; quality of care is maintained and resources are optimally utilized. This would be indicated by more numbers of mother & infant lives saved, more number of children cured or protected from disability and disease and lowering of morbidity rates (Berman, et.al, 2011). Many a times, when potential benefits are not realized, service delivery underperforms. Hence, it is crucial that healthcare institutions initiate reforms, advance their medical technologies and optimize their resources, for improving the delivery of services and health outcomes.

3. Objective

The primary objective of this research is to investigate the quality of sanitation and care of a tertiary level public healthcare facility in India. Data was collected both from inpatients and support staff of the facility. The researcher feels that staff s too can be a good source of information about factors that enable or hinder them from providing high quality care. Staff remarks can complement data gathered from patients, since they receive inputs and complaints from patients and their family members regularly. Hence, they could highlight unmanageable organizational policies and procedures, staffing issues, managerial reporting requirements, and other processes which hinder quality service.

4. Methodology

The study was conducted at a very renowned Medical College & Hospital located in the heart of the city, Kolkata, West Bengal. The hospital with 1000 beds and state-of-art infrastructure is a major referral centre for a diverse population coming from different socio-

economic and cultural backgrounds. The hospital receives a number of referral patients from nearby district hospitals. The employees working in the hospital have been trained from different institutions across India and hence are a mix of different educational and cultural background. Only those inpatients were selected for this study who stayed in the hospital for at least three days and availed the services of the hospital. The hospital staff included doctors, nurses and ward managers/facility managers working in the Indoor Wards of Department of Gynaecology & Obstetrics, Department of Surgery, Department of General Medicine & Cardiology of the hospital. Inpatients and hospital staffs were explained in details about the study, its objective and implications. They were also given a consent form to willingly sign and participate in the study. All the inpatients and the hospital staffs were assured of confidentiality and given the questionnaires individually with clear instructions for answering the questions. Their participation was voluntary. Since many inpatients did not understand English, the questionnaire was translated into local languages for better understanding. Survey questionnaires were given to 120 inpatients of which 100 inpatients willingly agreed to participate in the study. 150 questionnaires were given to hospital staff, of which 100 completely filled up questionnaires, were considered for this study.

The researcher followed the steps in securing permission for undergoing the study from the Ethical Committee of the hospital. The identity of respondents from whom information was obtained in the course of the study was kept strictly confidential. No information revealing the identity of any respondent was included in the final report or in other communication prepared during the study. Standard instruments (Hospital Satisfaction Questionnaire, Hospital Community Questionnaire, Pareek, 2002) were used in this study. 3-point Likert scale was used to rate each aspect of healthcare service. Responses 2, 1 and 0 scores were rated as “very good”, “average” and “poor” respectively. Questionnaires which were completed in all respects were used for data compilation and analysis. Results are explained using descriptive statistics with relevant tests of significance. The significance level was set at 0.05 for the tests. SPSS version 20 and MINITAB 14 were used in this study.

5. Results & Findings

Table 1 and 2, details the socio- demographic characteristics of the inpatients and healthcare providers respectively. It is clearly evident from the table that majority of the inpatients (72%) in this study were females. With regard to age distribution of the inpatients, it

was found that highest number of them (30%) belonged to the age group of 21 – 30 years followed by 21% and 15% patients in the age category 31 – 40 years and 51 – 60 years respectively.

55% of the inpatients were Hindus and the remaining 45% were Muslims. 80% of inpatients seeking medical care at the public facility had completed only primary level of schooling, and 7% of respondents were illiterate. Overall, the literacy level of inpatients was very low. 68% of them came from the nearby villages, 20% came from lower middle class areas and 12% from middle class localities. None of the inpatients came from upper middle or upper class localities.

12% of inpatients were service holders, and were working in small private firms with a meager monthly salary ranging between six thousand to twelve thousand Indian rupees, 26% run their own business e.g. a tea stall, vegetable shop or grocery shop, 22% were employed as domestic helps, maids, cleaners, or engaged in their own farm lands, 20% were doing odd jobs as daily wage earners while 20% were unemployed and fully dependent on their family members. 74% of respondents had a household monthly income of less than eight thousand Indian rupees. Strikingly, 92% inpatients' did not have any healthcare insurance facility, out of them, 78% of them had never heard about any healthcare insurance scheme.

India's health-related out-of-pocket expenditure, which pushes families into indebtedness and deeper poverty, is among the world's highest. The Rashtriya Swasthya Bima Yojana (RSBY), launched in April 2008, offers medical insurance up to Rs 30,000 for a family of five living below the poverty line (Hindustan Times, New Delhi, Oct 17th, 2017). However, one of the main reasons for low enrolment under the scheme is that not enough people eligible for it know about them (Reshmi et.al, 2012, Ahmed, 2013).

Table 1: *Demographic Characteristics of In-Patients*

In-Patient Characteristics	**Frequency (%) (N =100)**
Age (years)	
≤ 20	11
21-30	30
31-40	21
41-50	13
51-60	15
≥ 61	10
Sex	
Male	28
Female	72

Religion	
Hindu	55
Muslim	45
Sikh	0
Christian	0
Education	
Illiterate	7
Primary school	80
Junior High school	7
High school	4
Graduate/ post graduate	2
Area of residence	
Village Colony	68
Lower middle class area	20
Middle class area	12
Upper middle class area	0
Occupation	
Service	12
Business	26
Self-employed	22
Unemployed	20
Others (daily wage earners)	20
Household Monthly Income	
$\leq$ 2000	2
2001- 8000	72
8001-20,000	26
20,000-40,000	0
> 40,000	0
No. of dependents in the family	
0-2	72
3-5	24
6-8	2
$\leq$ 9	2
Healthcare Insurance Facility	
Available	8
Not- available (Not aware about health insurance -78)	92

Among the healthcare providers, all the doctors and nurses in the public facility were recruited through Department of Health and Family Welfare. Doctors had a MBBS and/or a MD degree. All the nurses were registered and possessed a GNM, B.Sc and/or a master degree. The facility managers were graduates and employed as both permanent and contractual. All the staff were working in the hospital for more than six months.

Table 2: *Demographic Characteristics of Healthcare Providers*

Healthcare Provider's Characteristics	Frequency (%) (N=100)
Designation	
Doctors	13
Nurses	81
Ward Managers /Facility managers	6
Age of the provider (years)	
21-30	36
31-40	23
41-50	23
51-60	18
Sex	
Male	14
Female	86
Education	
GNM	62
B. Sc (Nursing)	16
M. Sc. (Nursing)	3
MBBS/BHMS/AYUSH	8
MD	5
Any other Qualification (B.Sc/B.Com/B.A)	6
Professional experience in years	
< 10	52
11-20	16
21-30	27
31-40	05
No. of beds in the department	
< 10	0
11-20	11
21-30	05
31-40	11
41-50	45
51 and above	28

19 aspects of hospital care and sanitation facilities were selected in this study. Table 3 represents the satisfaction score of the inpatient & provider individually for each item of the questionnaire. The mean and mode was calculated for both the patient as well as the provider separately as well as collectively to find out their overall satisfaction score with all the nineteen aspects of the services. On statistical analysis, consensus in the perception and satisfaction level of both the groups was observed for only eight items of the questionnaire. These were item number 7, 8, 10, 11, 15, 16, 18 and 19. High degree of disagreement was observed in the rest

eleven items. These were item number 1, 2, 3, 4, 5, 6, 9, 12, 13, 14 and 17. Statistically, conflict in any item between the two groups was indicated by significant p-value for all the responses ($p < 0.05$)

Table 3: *Mean of Patient & Provider Score for Each Item of Satisfaction Questionnaire*

S. No	INTERVIEW QUESTIONS	Patient Score Mean ± SD [MODE]	Provider Score Mean ± SD [MODE]	Total Score Mean ± SD [MODE]	P-Value
1.	Time taken for Admission in the hospital	1.59 ± 0.49 [2]	1.76 ± 0.43 [2]	1.68 ± 0.47 [2]	0.01
2.	Courtesy and willingness of staff to help during admission and discharge	1.71 ± 0.44 [2]	2 ± 0 [2]	1.85 ± 0.50 [2]	< 0.001
3.	Cleanliness of the wards	1.47 ± 0.58 [2]	1.29 ± 0.62 [1]	1.38 ± 0.59 [1]	0.04
4.	Cleanliness of the bed and linen	1.66 ± 0.48 [2]	1.30 ± 0.52 [1]	1.48 ± 0.53 [2]	< 0.001
5.	Cleanliness of the toilets	1.47 ± 0.55 [2]	1.23± 0.58 [1]	1.35 ± 0.56 [1]	0.03
6.	Availability of Beds	1.58 ± 0.56 [2]	1.01 ± 0.99 [2]	1.29 ± 0.94 [2]	< 0.001
7.	Availability of Medicines	1.81 ± 0.37 [2]	1.76 ± 0.55 [2]	1.78 ± 0.56 [2]	0.45
8.	Availability of Equipments	2 ± 0 [2]	1.88 ± 0.41 [2]	1.94 ± 0.29 [2]	0.04
9.	Timely delivery of reports from other depts. (Radiology, X-ray, pathology)	1.77 ± 0.47 [2]	1.82 ± 0.46 [2]	1.79 ± 0.34 [2]	0.45
10.	Quality of Hospital Food	1.06 ± 0.37 [1]	0.97 ± 0.30 [1]	1.02 ± 0.34 [1]	0.06
11.	Availability of Nursing staff for answering patient queries	1.64 ± 0.48 [2]	1.74 ± 0.44 [2]	1.69 ± 0.43 [2]	0.13
12.	Promptness & Cooperation of Nursing staff towards patients	1.71 ± 0.46 [2]	1.95 ±0.22 [2]	1.83 ± 0.29 [2]	< 0.001
13.	Cooperation of General Duty Attendants towards patients	1.84 ± 0.42 [2]	1.2 ± 0.94 [2]	1.52 ± 0.79 [2]	< 0.001
14.	Cooperation of housekeeping staff (scavengers, sweepers)	1.96 ± 0.19 [2]	1.26 ± 0.93 [2]	1.61 ± 0.755 [2]	< 0.001
15.	Care given by Doctors	1.98 ± 0.14 [2]	2 ± 0 [2]	1.99 ± 0.09 [2]	0.16
16.	Information about Patient's Illness	1.88 ± 0.51 [2]	1.98 ± 0.14 [2]	1.93 ± 0.35 [2]	0.06
17.	Maintenance of Visiting Hours	1.95 ± 0.22 [2]	0.95 ± 0.99 [0]	1.45 ± 0.87 [2]	< 0.001
18.	Satisfaction with Treatment and Medical Care	1.90 ± 0.24 [2]	1.82 ± 0.52 [2]	1.86 ± 0.41 [2]	0.17
19.	Overall Satisfaction with Hygiene, Care & Medical Facilities of Hospital	1.88 ± 0.51 [2]	1.87 ± 0.23 [2]	1.88 ± 0.25 [2]	0.86
	Total Mean Score	1.73	1.57	1.65	

The mean score for inpatients (1.73) was surprisingly found to be higher than the mean score for providers (1.57). This implies that the inpatients were more satisfied with the services provided by the healthcare facility. Most patients coming to Govt. Hospitals are mainly from low income background and illiterate as compared to those availing private healthcare facilities (Debnath, 2017). Hence, it can be presumed that they may not have much knowledge about the efficacy of medical treatment and care. There is need to study the relationship between socioeconomic status, level of education and knowledge about treatment and care among patients visiting public hospitals. Moreover, services provided at Government hospitals is totally free of cost or at a minimal cost and hence it can be said that whenever there is not expected outcome from treatment procedure, it causes less hurt to them with respect to the financial damage (Yadav et. al 2015).

Staff members perceived more about the lack of services or resources that impede their way of delivery of quality services in the healthcare facility. Figure 5 and 6 gives a graphical comparison of patient and provider mean scores for each item of the questionnaire.

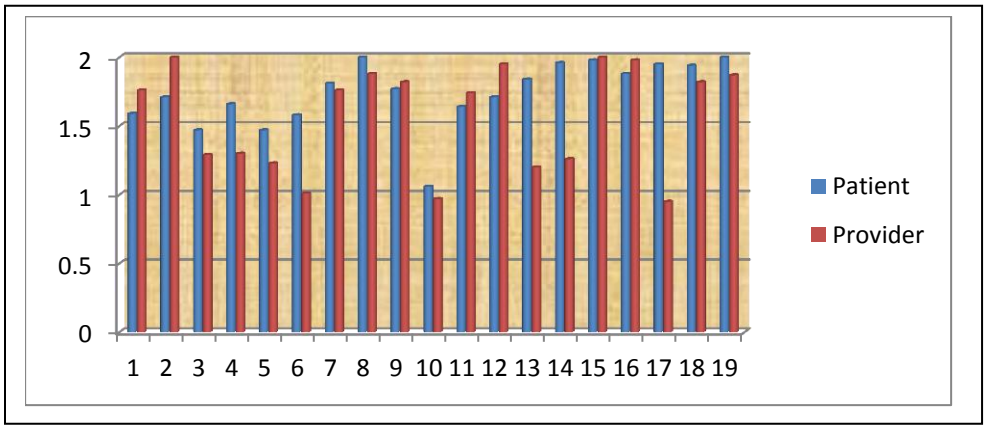

Figure 5: *Bar- Graph of Patient & Provider Mean Score for each item of Satisfaction Questionnaire*

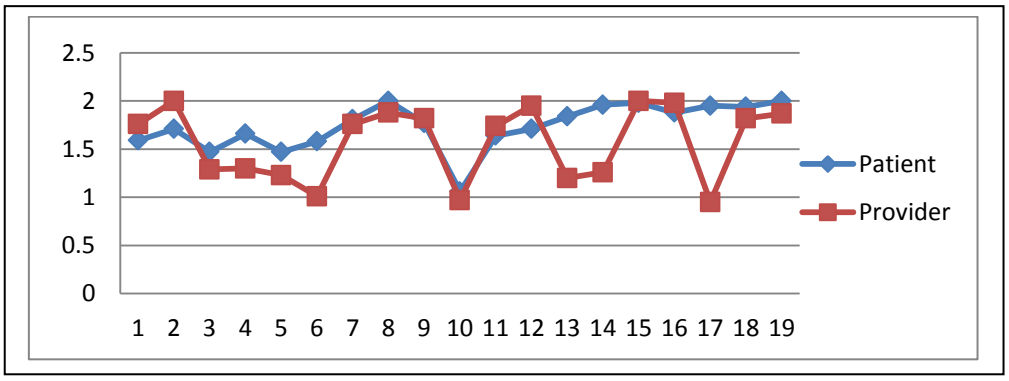

Figure 6: Line-Graph of Patient & Provider Mean Score for each item of Satisfaction Questionnaire

Some of the most satisfying aspects about the hospital as rated by the inpatients were:

- Availability of free medicines and equipments in the hospital
- Cooperation & promptness of nursing staff to answer patients queries
- Information given by doctors about their diagnosis, treatment & care
- Visiting time of meeting the patients
- Satisfaction with their treatment and medical care
- Overall Satisfaction with Hygiene, Care & Medical Facilities of the Hospital

Some of the most satisfying aspects about the hospital as rated by the providers were:

- Cooperation between departments for admission and timely delivery of reports
- Information given to the patients about diagnosis, treatment & care
- Satisfaction with treatment and medical care
- Overall Satisfaction with Hygiene, Care & Medical Facilities of the Hospital

The least satisfying aspects about the hospital as reported by the patients were:

- Time taken for getting the OPD ticket, consulting and finally admitting the patient in the hospital
- Cleanliness of the toilets and the wards
- Unavailability of bed for each patient in the hospital
- Quality of hospital food

The least satisfying aspects about the hospital as reported by the providers were:

- Cleanliness of the toilets and the wards
- Unavailability of bed for each patient in the hospital
- Quality of hospital food
- Visiting hours not being strictly adhered to
- Unresponsive and behavioural attitude of the GDA's to staff and patient needs.

6. Conclusion

This study suggests that providers were more negative in terms of their perception of various aspects of hospital services than the inpatients. The findings of the study, thus shares similar views in its conclusion with that of Fottler et. al who did a study regarding hospital staff and patient perceptions of customer service using survey and focus group data. He found that there is a high degree of correlation between staff and patient perceptions of customer service.

However, the staff and patient subgroups also provided complementary information regarding patient perceptions of their service experience (Fottler, et.al, 2006). The study can also be correlated with another research conducted by Sharma et.al to determine the satisfaction level and perception of quality in cancer care by patients and providers. Physician's ability to give information to patients, helping attitude and concern of the staff for the patients was the most satisfying features of the department (Sharma, et. al, 2014).

In this study, providers identified infrastructural issues, like staff and bed shortage, overburden of writing non-clinical reports, insecurity at workplace as some of the established problems in the facility. One major reason for these problems could be the excessive patient flow at public hospitals, compared to the doctor-patient or nurse- patient ratio. There is an immediate need to strengthen the healthcare infrastructure and train the existing health workforce. The researcher lays a strong emphasis on accountability based work environment and soft-skill development to improve the delivery of services in the public healthcare system. Key changes to be introduced in the healthcare system include periodic training modules and recognition for health workers at all levels of the healthcare facility to increase their knowledge and motivation towards work (Siddiqui & Kleiner, 1998).

This study also shares similar views with a study conducted by Goel and Khera in the state of Rajasthan. They found out that provision of free medicine and diagnostics have impacted positively on the patient utilization rate in the state (Goel & Khera, 2015). In its mission to improve the health status of the underprivileged in West Bengal, the Department of Health and Family Welfare issued an order that patients will get free diagnostics, pathology, therapeutic and surgeries along with free beds in all government hospitals and health centers across the State (Times of India, Kolkata, Oct 22nd, 2014). In this study too, it is concluded that patients were highly satisfied with the hospital services, for supplying most of medicines and diagnostic facilities free of cost. The Government's initiative of opening of fair price medicine shops and diagnostics centres operating with PPP model, within the premises of public healthcare facilities has noticeably improved the satisfaction level of poor patients. (Times of India, Kolkata, June 26th, 2015). Even, food is supplied free of cost to each patient three times a day; however many-a-times it was observed by the researcher that patients preferred to consume home-made food particularly, for lunch and discarded the hospital food into the bins. It is very true that, hospital food cannot be tasty and appealing; however, the manner of serving and quality can definitely be improved, so that it is actually consumed by the patient. Unauthorized entry of patient party

beyond visiting hours, for providing home-made food to the patient should be monitored. Due to huge patient load, particularly in the gynecology, maternity, emergency and medicine wards of the hospital, bed is not available for each patient. Many patients, pregnant mothers, and newborn babies were also found to occupy the ward floors, or sharing beds, which could lead to spread of infection to both mother and the child. The government's directive of adding more beds and setting up 42 super specialty hospitals across the state in the future would certainly improve the quality of treatment, hygiene and care in the healthcare facilities (Millenium Post, Kolkata, June 23rd, 2017)

Quoting Laurie Garrett, world famous journalist and science writer, I would like to end saying that "Focusing on clinical services while neglecting services that reduces exposure to disease is like mopping up the floor continuously while leaving the tap running" and it will be an unending exercise. (Paraphrased from Laurie Garrett, "Betrayal of Trust")

7. Acknowledgement

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