Hospital Integration: A State of Evidence for Patient Satisfaction

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Abstract: BACKGROUND: Hospital integration boosts coordination of care and patient safety. This study aimed to assess the effect of the hospital integration of four domains; physicians, midwives, laboratory, and IT on patient/consumer satisfaction. MATERIAL AND METHOD: The samples were drawn from NABH Accredited hospitals in the western states of India. Nine integrated hospitals were compared with nine non-integrated hospitals. Patient satisfaction was considered the latent variable. NABH toolkit and a pre-designed, structured questionnaire were used to get the objective of the study. RESULT: Two sample paired t-test was performed to find a significant difference between integrated and non-integrated services relate to patient satisfaction. As an observed variables experience with a nurse (p= 0.00), support staff (p=0.08), discharge process (p=0.04), Final billing amount (p=0.00), and favorable outcome/length of stay (p=0.00) were found significantly associated. Mann-Whitney Wilcoxon was performed to find the reliability and validity of the data. CONCLUSION: Integration of allied services in Hospitals has the potential to influence the array of outcomes of the hospitals. The move from a non-integrated to an integrated hospital can accelerate access to care.

Keywords: Integration, Hospitals, India, Patient Satisfaction, Information Technology.

INTRODUCTION

As a part of competitive advantages and sustainable customer retention, every industry works on different domains, to improve processes and products; and the healthcare industry is no exception to this[1]. One of the prime challenges for the current healthcare sector is to organize high-quality, person-centered, comprehensive and integrated care for healthcare beneficiaries[2]. Henceforth, numerous studies were carried out in this field, trying to study the outcome of integration in different dimensions of the hospitals i.e. back office, outsourcing, health insurance, administrative services, nurses, midwives, and physicians[3]. Integrated health systems are measured to offer superior performance and outcomes in terms of quality [4]. In case of public health emergencies i.e. COVID-19, integrated health systems respond in better ways [5]. Hospital integration is a strategic task that demands positive and strong management support and also shared financial responsibilities [6]. To widen the scope and coverage of hospital integration, outcome analysis for existing integrated hospitals over nonintegrated hospitals seeks priority.

OBJECTIVE OF THE STUDY

The present study intended to assess the impact of integration in the ambit of physicians, midwifery services, IT, and laboratories in hospitals compared to nonintegrated hospitals in the western states of India.

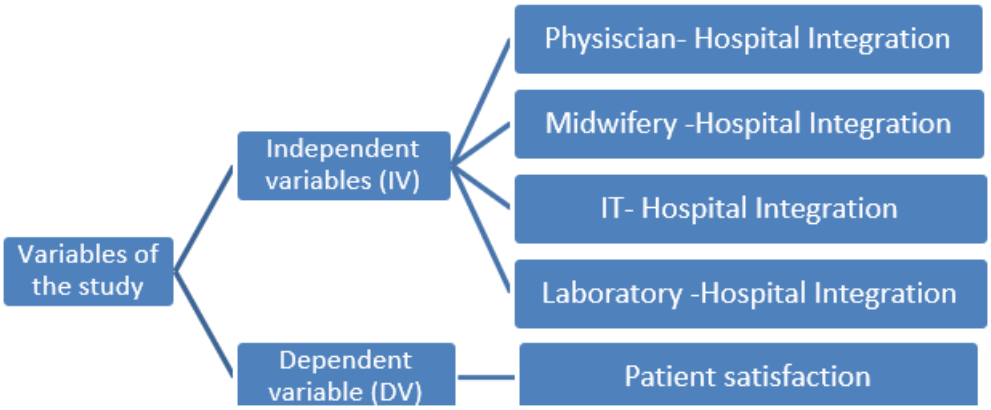
MATERIAL AND METHOD

18 NABH Accredited Hospitals were included in the study. A minimum beds criterion for inclusion in the study was the hospital with 100 beds. A comparison of 9 integrated hospitals with 9 non-integrated hospitals was done. Samples were drawn from the frame of the Western states of India. Data from three consecutive years were gathered Statistical Package of Social Science (SPSS) and MS EXCEL were used as a tool of study. Parametric and non-parametric tests were performed to find the significance between integrated and non-integrated hospitals on outcome variables.

VARIABLES OF THE STUDY

Integration was the core independent variable and patient satisfaction was the outcome variable of the study which is depicted in Figure 1.

Figure 1 Variables of the study



Cleanliness & maintenance, front office, admission to IPD, Experience with clinicians, and experience with nursing, midwifery, and support staff, discharge procedure, final billing amount, and favorable outcome were the observed variables for patient satisfaction.

Table 1 t-test analysis for patient satisfaction

Observed Variables		Mean	Observation	df	t-stat	p-value
Cleanliness & Maintenance	Integrated	93.81	108	214	0.45	0.66
	Non-Integrated	93.62	108	214		
Front Office	Integrated	83.73	108	214	0.46	0.65
	Non-Integrated	83.53	108	214		
Admission to IPD	Integrated	83.60	108	214	-0.20	0.84
	Non-Integrated	83.69	108	214		
Experience with Clinicians	Integrated	94.73	108	214	-1.66	0.10
	Non-Integrated	95.40	108	214		
Experience with Nursing	Integrated	91.42	108	214	-3.82	0.00
	Non-Integrated	93.22	108	214		
Experience with Midwifery	Integrated	95.83	12	214	-10.90	0.29
	Non-Integrated	96.58	12	214		
Experience with Support Staff	Integrated	83.18	108	214	-1.76	0.08
	Non-Integrated	84.03	108	214		
Discharge procedure	Integrated	81.50	108	214	-2.02	0.04
	Non-Integrated	82.44	108	214		
Final billing amount	Integrated	81.83	108	214	8.00	0.00
	Non-Integrated	78.50	108	214		
Favorable outcome/ Length of stay	Integrated	94.99	108	214	33.04	0.00
	Non-Integrated	84.15	108	214		

Paired two-sample t-Test was performed to ascertain if the H0 can be rejected or accepted. From table 1 it is evident that there were statistically significant differences in the nursing, support staff, discharge process, final billing amount, and favorable outcome between integrated and non-integrated hospitals at the significance level of 0.05.

During further analysis, an independent t-test was performed. Three assumptions of an independent t-test were made. Cleanliness and Maintenance that had violated the assumption of homogeneity of variance ($p = .028$). All the Dependent Variables have shown skewness. So far t- a test could be performed for all the variables as two assumptions out of three were followed except the cleanliness and maintenance. For that non-parametric Mann-Whitney test was performed to find a significant difference, and the result narrated that there was no significant difference for cleanliness and maintenance ($p=0.480$), and experience with the midwifery ($p=0.478$) for the categories of integrated and non-integrated hospitals.

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Front_Office_Registration is the same across categories of Integrated_or_nonintegrated.	Independent-Samples Mann-Whitney U Test	.594	Retain the null hypothesis.
2	The distribution of Admission_IPD is the same across categories of Integrated_or_nonintegrated.	Independent-Samples Mann-Whitney U Test	.857	Retain the null hypothesis.
3	The distribution of Experience_with_Clinicians is the same across categories of Integrated_or_nonintegrated.	Independent-Samples Mann-Whitney U Test	.039	Reject the null hypothesis.
4	The distribution of Experience_with_Nursing is the same across categories of Integrated_or_nonintegrated.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.
5	The distribution of Experience_with_Mid_wifery is the same across categories of Integrated_or_nonintegrated.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.
6	The distribution of Experience_with_Support_Staff is the same across categories of Integrated_or_nonintegrated.	Independent-Samples Mann-Whitney U Test	.102	Retain the null hypothesis.
7	The distribution of Discharge_Time_Taken is the same across categories of Integrated_or_nonintegrated.	Independent-Samples Mann-Whitney U Test	.082	Retain the null hypothesis.
8	The distribution of Final_Billing_Amount is the same across categories of Integrated_or_nonintegrated.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.
9	The distribution of Favourable_Outcome is the same across categories of Integrated_or_nonintegrated.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 2 Mann Whitney Wilcoxon Test

To assess the reliability and validity of the study, the non-parametric test Mann-Whitney U test was performed for the comparison and the result was compared. The parametric test narrated a significant difference in the experience with clinicians, support staff, discharge time, final billing, and favorable outcomes whereas the non-parametric test narrated a significant difference in the experience with clinicians, nursing, mid-wives, final billing, and favorable outcomes.

DISCUSSION

Since yesteryears, the concept of the customer–specific synergies [7] is applied in the healthcare industry in the form of integration. It is also known as economies of scope in consumption that offers combined products that during the time of purchase, consumption, or consumed together by the same consumer, assist either in the reduction of cost and/or serve better outcomes[8]. Improved quality of treatment brings beneficiaries to the hospital more often and eventually leads to patient satisfaction [9]. The study also supported the previous studies that significant dimensions of integrations differentiate the outcomes of patient satisfaction from a non-integrated hospital[10].

The present study found that there is a significant and direct correlation between integrated and non-integrated hospitals related to patient satisfaction. It is indeed a benefitted to go for integration and it demands step-wise strategies for interventions. Integration of laboratory services excels the efficiency of hospital services by reducing the time between diagnosis and the start tithe of treatment [11]. Midwifery services provide complete care in healthcare incorporating obstetric-gynecology, pediatric, etc [3]. Physicians with their adequate

availability ensure the most favorable care. Integration of IT assists to reduce the discharge processing time, and patient billing process. It also enables one to take evidence-based decisions.

CONCLUSION

Integrated health systems along with feasible health plans accelerate access to care in terms of patient satisfaction. Increased availability of resources enhances the patient experience of healthcare. Due to swift global development in technology and science, the integration of the healthcare industry is indeed inevitable. Hospital integration is the need of the hour, to deal with external and internal environmental changes. Expanded and integrated healthcare for allied services such as medical practitioners, midwives, laboratories, and technology will surely assist to reach new heights in terms of outcomes.

SOURCE OF SUPPORT: No

CONFLICT OF INTEREST: No

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DOI: https://doi.org/10.15379/ijmst.v10i1.3652