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Title: "Satisfaction of the Non-COVID patients in pandemic at the hospitals which run both COVID and Non-COVID services: A Multicentric Study in Nepal"

Author 1A (Principal and Corresponding author*):

Dr. Mukesh Kumar Sah

Resident (MD)

Department of Emergency Medicine and General Practice

Patan Academy of Health Sciences, Lalitpur, Bagmati Province, Nepal

Email: sahmukeshkumar88@gmail.com

ORCID: 0000-0002-4363-9678

Author 2A. Mr. Raj Kumar Sangroula

Lecturer

Little Buddha College of Health Sciences

New Baneshwor, Kathmandu, Nepal

Email: raj.sang18@gmail.com

ORCID: 0000-0002-3841-7819

Author 3A. Dr. Tarakant Bhagat

Associate Professor

Department of Public Health Dentistry

B.P Koirala Institute of Health Sciences, Dharan, Nepal

Email: drtarakant@gmail.com

ORCID: 0000-0001-5322-0419

Author 4A. Dr. Nuwadatta Subedi

Associate Professor

Dept of Forensic Medicine, Gandaki Medical College, Pokhara

Email: drndsubedi@gmail.com

ORCID: 0000-0003-2233-1196

Author 5A. Dr. Abanish Singh

Assistant Professor

M.B. Kedia Dental College, Birgunj, Parsa, Nepal

Email: dr.abanishsingh@gmail.com

ORCID: 0000-0001-5659-9807

Author 6A. Dr. Randip Raut

Resident

Department of Emergency Medicine and General Practice

Patan Academy of Health Sciences, Lalitpur, Bagmati Province, Nepal

Email: res.randipraut@pahs.edu.np

ORCID: 0000-0003-1399-0405

Author 7A. Dr. Prerit Devkota

Resident

Department of Emergency Medicine and General Practice

Patan Academy of Health Sciences, Lalitpur, Bagmati Province, Nepal

Email: res.preritdevkota@pahs.edu.np

ORCID: 0000-0003-3138-3211

Author 8A. Dr. Sunil Kumar Daha

Medical Officer

Bardibas Hospital, Bardibaas, Mahottari, Province 2, Nepal

Email: sunildaha@pahs.edu.np

ORCID: 0000-0001-6543-1424

Author 9A. Dr. Ujwal Gautam

Lecturer

Department of Public Health Dentistry

B.P Koirala Institute of Health Sciences, Dharan, NEPAL

Email: ujwal.gautam@gmail.com

ORCID: 0000-0001-9936-1524

Author 10A. Dr. Amit Upreti

Coordinator

Special School for Disabled and Rehabilitation Center

Email: upretiarim@gmail.com

ORCID: 0000-0003-2397-146X

Author 11A. Dr. Rimmy Barakoti

Technical Officer (Consultant)

Nepal Health Research Council, Ramshah Path, Kathmandu

Email: rimmybarakoti@gmail.com

ORCID: 0000-0002-3365-3185

Author 12A. Dr. Sudhira Kumari Yadav

BDS, MPH

Louisiana State University in Shreveport

Louisiana State, US

Email: sudhiyadav4@gmail.com

ORCID: 0000-0001-9568-6903

13A. Dr. Annu Kumari Sah

Dental Surgeon

Tikapur Hospital, Kailali, Sudurpaschim Province, Nepal

Email: sah.annu1234@gmail.com

ORCID: 0000-0002-9968-2229

14A. Mr. Rajiv Kumar Sah

Lecturer

Tribhuvan Multiple Campus, Tansen, Palpa, Lumbini Province, Nepal

Tribhuvan University

Email: rajivks2071@gmail.com

ORCID: 0000-0001-8590-6060

Abstract

Background

COVID-19 pandemic has impacted every sector, and health care sector is not an exception. This pandemic has strained the existing health care system. Currently in Nepal, most of the health centres are providing services to both COVID-19 and non-COVID patients. This might be concern for the patient due to fear of cross infection of COVID-19 when treated at the centres where both the COVID-19 patients and non-COVID patients are being cared for. Patient satisfaction is regarded as one of the indicators of quality health care performance. Hence, this study was conducted to assess the satisfaction level of non-COVID patients visiting a hospital that provides services to both COVID and non-COVID patients.

Methods

A quantitative analytical cross-sectional study was carried at five different hospitals in five provinces of Nepal. For assessment of satisfaction, a validated tool with 15 domains of patient satisfactions was prepared related to COVID-19 pandemic. The tool included questions related to different hospital-service-variables. Each question was scored from 1 to 5, based on Likert scale. The data collection was done from 325 outpatients. Ethical approval was obtained from Ethical Review Board (ERB), Nepal Health Research Council. Systematic random sampling was done to enroll the patient into the study after taking consent. Descriptive analysis was performed using frequency, mean and standard deviation (SD). Independent t-test and ANOVA were used to compare the difference of satisfaction level among socio-demographic and other variables. The significance level (p-value) was set at 0.05.

Results

Majority of the participants were female (57%). Mean age of the participants was 39.42±16.05 years. Most of the participants (91.6%) felt that the hospitals were providing better treatment during the COVID-19 pandemic. Over two third of the participants (74.3%) were either satisfied or highly satisfied by the service outcomes of the hospital during pandemic. The overall satisfaction score was 53.8±9.76. There was a statistically significant difference among the participants on bivariate analysis on satisfaction scores for providing better treatment during COVID-19 pandemic ($p<0.001$); opinion on proper information given ($p<0.001$); health personal punctuality ($p<0.001$); easily accessibility of the hospital services ($p<0.001$).

Conclusions

The study concluded that most of the non-COVID patients were satisfied by the services provided by the hospitals that run both COVID-19 and non-COVID services. The participants also emphasized on availability of separate health care facility for treatment of COVID-19 and non-COVID patients.

Keywords: *COVID-19; hospital services; Nepal; pandemic; patient satisfaction*

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Background:

In December 2019, a cluster of pneumonia cases was seen in Wuhan, China which was caused by the 2019 novel coronavirus severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The disease spread progressively worldwide, resulting in a declaration as a pandemic on 11 March 2020 by the World Health Organization (1–4). Many vaccines have been developed for the prevention of the COVID-19 and are being used in several countries, but the demand is still unfulfilled (5). The strategies such as hand hygiene, social distancing and lockdown have been recommended as acceptable preventive measures worldwide (6-8). Though the number of cases of COVID-19 are decreasing day by day, the deaths are still occurring. Until 5 June, 2021, more than 173 million people have been infected with novel coronavirus and 3.71 million deaths have occurred worldwide (9). In Nepal, 601 k cases of novel coronavirus infecton have been identified till date with 8238 reported deaths. (10). Throughout the pandemic, there have been many restrictions and prohibitions along with lockdowns to control the number of cases.

Nepal, being a low-middle income developing country, has limited resources and hospitals which have posed a difficulty for the government to develop well-equipped dedicated COVID-19 hospitals. Though many hospitals are assigned for COVID related services, until now, no COVID dedicated hospital has been established here. Since healthcare services should be easily accessible to every citizen at any time and situation many hospitals are running both COVID and non-COVID services at the same hospital. Majority of the multidisciplinary public, semi-government and private hospitals all over Nepal such as BP Koirala Institute of Health Sciences (BPKIHS), Patan Academy of Health Sciences (PAHS), Bardibas Hospital, Nepal Korea Friendship Municipality

Hospital, Kapilbastu Hospital and Salyan Hospital have recently added admission and treatment services for COVID-19 in the existing set-up under the name of fever clinics, COVID isolation wards and COVID ICU.

The surge in COVID-19 cases in Nepal has raised the question whether patients are treated with adequate care at the hospitals treating both COVID and non-COVID patients. Satisfaction on service quality and other hospital services is the main issue for the patients and patient parties who visit the hospitals during a pandemic. Patient satisfaction helps in measuring the health system performance (11). Client or Service users' satisfaction manifests itself in the distribution, access, and utilization of service and it is the same in health services also. At any situation at any time, healthcare services should be easily accessible to the people in a country (12).

Since most of the hospitals are treating both COVID and non-COVID patients, the non-COVID patients with their health issues have an obligation to visit the hospitals risking the transmission of COVID-19. Though vaccines are now being made available, the majority of the population are yet to be fully vaccinated. Furthermore, mortality due to COVID-19 has added fear among the non-COVID patient. This raises question whether the non-COVID patient are satisfied with the overall quality and various services provided by the hospital which is treating both COVID and non-COVID patients.

There are no published literature regarding patient satisfaction of non-COVID patient during COVID-19 pandemic at the hospital with both COVID and non-COVID services. A study conducted at Patan Hospital (monocentric study) has concluded that patient other than COIVD-19

were satisfied during COVID-19 pandemic at Patan Hospital but it may not represent the status of the entire country. Thus, the aim of this study was to assess the satisfaction level of non-COVID patients during pandemic on different services provided by the hospital, and to measure the overall quality of hospitals all over Nepal to draw a conclusion on patient satisfaction in Nepal during COVID-19 pandemic.

Methods

Study design, study population and sample size

A hospital based quantitative analytical cross-sectional study was carried out from June 2020 - May 2022. The hospitals providing services for both COVID-19 and non-COVID were purposively selected from five provinces in Nepal. The selected hospitals were: BP Koirala Institute of Health Sciences, Dharan (Province-1), Bardibas Hospital, Bardibas, Mohatari, (Province-2), Nepal Korea Friendship Municipality Hospital, Bhaktapur (Bagmati Province), Kapilbastu Hospital (Gandaki Province) and Health Service Office (Health Service Directorate), Salyan (Karnali Province).

Registered non-COVID patients visiting the different departments of the hospitals were chosen randomly for the study. The sample size was calculated using the formula, $n = Z^2 (pq/d^2)$ (where Z = 1.96 at 95% confidence; p = prevalence of patient satisfaction, q = 1-p; d = absolute allowable error.) For this study, prevalence was taken to be 0.75 (13); q = 0.25; d =5%. The calculated sample size was 288. Considering 10% of non-response and for equal distribution of the study population among all the hospitals, the final sample size was calculated to be 325. All outpatient department (OPD) patients from the selected hospitals were taken into consideration, except the department of pediatrics and fever clinic (which had been allocated for COVID-19 suspects). Every third patient, aged 18 or above from different departments, were selected for the interview.

Data collection tools, technique and ethical approval

Face-to-face interview were taken with the respondents to fill a valid pre-tested questionnaire. The digital questionnaire form was filled using a digital gadget. Questions to match the context of

hospitals in Nepal during COVID-19 pandemic period were prepared by the researchers with reference to some validated tools of patient satisfaction PSQ 18 and extensive literature review. The final tool in English was translated to Nepali and then again back-translated to English. Content validity was done by a team of subject experts and there was no alteration of concept by translation and back-translation. The translated questionnaire was pretested with 25 patients other than those diagnosed with COVID-19 at Obstetrics and Gynecology department of Patan Hospital and they were excluded from the study.

The data collection was done after obtaining permission from each hospital and getting the ethical clearance from NHRC (Ref. no.: 2576). Every third adult (over 18 years) patient visiting the outpatient department of the hospital was approached for consent at the exit door. The patients from pediatrics department were not included in the study. Informed consent was obtained from all participants. Confidentiality of for each patient was maintained.

Study Variables

Independent variables

Socio-demographic variables:

The socio-demographic variables included: age of the participants, which was categorized as 15-30, 31-45, 46-65 and >65 years. The gender of the participants was categorized as male and female. The education level of respondents was categorized based on a national survey report of Nepal. Other variables evaluated were accessibility and responsiveness, accountability, fairness and equity of the hospital during COVID pandemic.

Dependent Variable

Patient Satisfaction:

For assessment of satisfaction, a validated tool with 15 domains of patient satisfaction was prepared related to COVID-19 pandemic. The tool included questions related to different hospital-service-variables. The score of each question ranged from 1 to 5 based on Likert scale: 1=Strongly Dissatisfied; 2=Dissatisfied; 3=Neutral; 4=Satisfied; 5=strongly satisfied. The over-all score of the satisfaction related questions ranged from 15 to 75.

Data management and analysis

All the responses on digital gadget were exported to Microsoft Excel 2016 and were exported to SPSS version 23 (SPSS, Inc., Chicago, IL, USA) software. Descriptive analysis was performed using frequency, percentage, mean and standard deviation. After the normality test of the satisfaction score, it was found that the overall satisfaction score among the respondents was normally distributed. Independent t-test (for variables with two categories) and ANOVA test (for variables with over two categories) were carried to find the association or difference in overall satisfaction with different socio-demographic and other variables. P-value < 0.05 was considered statistically significant.

Result

This study included 65 patients from each hospital with a total of 325 patients, Majority (57%) of the participants were female. The mean age of the participants was 39.42±16.05 years. Most of the participants (80%) belonged to the age group 20-39 and 40-59 years. Most of the participants had visited Internal Medicine department (25.7%) followed by Emergency Medicine and GP (21.8%) and Surgery 15.1%). One hundred and three (51.1%) patients reported to have reached hospital within 30 minutes (Table 1).

About 23.5% of the participants reported having attracted to that hospital because of the quality of services provided by the hospitals. Most of the patients (91.6%) felt that the hospitals were providing better treatment during the COVID-19 pandemic but almost half of the participants (48.0%) also cited fear of visiting the hospitals with COVID-19 patients. Those patients (26.5%) who did not agree on running normal OPD services for non-Covid patients at a hospital with COVID-19 patients, majority suggested establishing a separate hospital for COVID-19 patients. Majority of the patients (87.4%) felt that health personals were punctual regarding patient visit and hospital services were easily accessible with proper information on COVID-19 pandemic. Over two third of the patients (74.3%) were either satisfied or highly satisfied by the outcome of the hospital during pandemic. (Table 2)

When asked about the satisfaction of different services provided by the hospital treating both COVID-19 and non-COVID patients, it was seen that, 9.1% patients were satisfied or highly satisfied, with doctors' service and 66.2% were satisfied or highly satisfied with nurses' service. Nearly half of the patients (45.5%) were dissatisfied or highly dissatisfied by the service to

maintain social distance. About 57.9% were satisfied with the cost of treatment provided by the hospitals. The overall satisfaction score was 53.8±9.76. (Table 3)

There was a statistically significant difference in satisfaction score among the patients with different levels of education ($p<0.001$) and among the patients classified based on their time taken to reach the hospital ($p=0.046$). (Table 4)

The association of hospital characteristics with overall satisfaction of hospital services is shown in table 5. There was a statistically significant difference in satisfaction level among the patients visiting different departments ($p=0.013$). Similar statistically significant difference was seen on bivariate analysis on satisfaction scores for providing better treatment during COVID-19 pandemic ($p<0.001$); opinion on proper information given ($p<0.001$); health personal punctuality ($p<0.001$); easily accessibility of the hospital services ($p<0.001$).

Discussion

COVID-19 pandemic has affected every sector with health systems being a major target. The over burden of this pandemic has strained the health care system to its maximum limits. In lower middle-income developing countries like Nepal, providing basic emergency health facilities through these strained infrastructures is already difficult, and further it becomes a herculean task for the government to set a separate dedicated COVID-19 centers with its limited resources. Most of the health centers, now, are providing services to both COVID-19 and non-COVID patients (14). This raises the issue of patient satisfaction due to fear of cross infection of COVID-19 when treated at the centers where both the COVID-19 patients and non-COVID patients are being treated. Patient satisfaction is regarded as one of the indicators for quality health care performance (15,16).

This multicentric study assessed the satisfaction level of the non-COVID patients visiting the hospitals that provided care to both COVID-19 and non-COVID patients. Female patients (57.0%) tended to visit the hospitals more compared to male patients. Similar findings were seen in the study conducted by Poudel et al. and Aldana JM et al., where female patients were 66% and 88% respectively (17,13). More than half of the patients were of adult age group population (20-39 years). This might be because many of the female patients visiting the Department of Obstetrics and Gynaecology were included in this study. Majority of the patients were literate (84.6%) which is way above the national literacy rate (65%) of Nepal (18). It was interesting to know that 51.15% of the patients reached the health care facility within 30 minutes. Everyone prefers to reach the health care facility at earliest. In this pandemic situation, it is evident that less time to reach the hospitals will definitely reduce the chances of exposure to the SARS-CoV-2.

Quality of the hospital services is reflected by the level of satisfaction of patients visiting the hospital (15). When asked about the different domains of hospital services, most of the patients had good satisfaction for physical facilities provided by the hospital, registration service, doctor services, nurse's/OPD assistant's service, pharmacy service, quality of services in OPD, way of communication by health professional, waiting time for doctor's consultation, health information/explanation by a doctor, and availability of the doctor as per patient's appointment. Very few patients had dissatisfaction. The overall mean satisfaction score was 53.8±9.76. The good level of patients' satisfaction might be due to the decrease in overall number of patients at the hospitals because of lockdown and fear of cross infection of COVID-19 when visiting the hospitals. Less the number of patients more efficient and effective delivery of services at hospitals can be achieved. There has been a dramatic decrease in the number of patients visiting the hospitals during the lockdown to seek for health services other than COVID-19 (18). Similar trend was seen in a study conducted by Traiki et al. and Leggett J et al. where they observed decreasing patients' flow and increasing patient satisfaction (19,20).

Bivariate and multivariate analysis revealed that there was no statistically significant difference in satisfaction of male and female patients ($p=0.671$) whereas there was statistically significant difference in satisfaction of patients based on their level of education ($p<0.001$) and time to reach the health facility ($p=0.046$). Education improves the communication and understanding of patients with the health care professionals. A study by Yeh MY et al. showed that sufficiency of patient education increases patients' cognitive empowerment, resulting in better patient satisfaction (21).

This study showed that fairness of healthcare worker, accessibility of health services, health personal punctuality, proper communication, and provision of better treatment have statistically significant impact on patient satisfaction. Similar findings were reported by Kumar R et al., Poudel

et al., and Leggett J et al. (15,17,20). In contrast to the finding of this study, Deriba BS et al. reported that level of patient satisfaction was very low during COVID-19 pandemic (22).

Only five hospitals from five provinces with a sample of 325 were included in the study. This limits the generalizability of the study nationwide. As most of the patients were literate, the information gathered can be trustworthy. This study is first of its kind conducted at different provinces of Nepal and the finding of this study can be used by the policy makers to improve the quality of hospital services focusing on patient satisfaction.

Conclusion

The study concluded that most of the non-COVID patients were satisfied by the services provided by the hospitals that run both COVID-19 and non-COVID services. Availability of separate health care facility for treatment of COVID-19 and non-COVID patients was emphasized by the participants. The patients were satisfied with services provided by doctors and nurses but had some dissatisfaction with administrative services of the hospital.

Abbreviation

COVID-19: Coronavirus Disease of 2019

NHRC: National Health Research Council

OPD: Out Patient Department

PSQ: Patient Satisfaction Questionnaire

WHO: Word Health Organization

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Legends

Table1: Socio-demographic and accessibility

Characteristics	Frequency (n)	Percentage (%)
Departments		
Dental	21	5.9
Dermatology	14	3.9
Emergency medicine and GP	78	21.8
ENT/Otorhinolaryngology	11	3.1
Internal medicine	92	25.7
Obstetrics/Gynaecology	50	14.0
Ophthalmology	9	2.5
Orthopedics	20	5.6
Pediatrics/Psychiatry	9	2.5
Surgery	54	15.1
Age in years (mean: 39.42, SD: 16.05)		
Less than 20	18	5.0
20-39	184	51.4
40-59	107	29.9
60 and above	49	13.7
Sex		
Male	154	43.0
Female	204	57.0

Education Level		
No education	55	15.4
Primary incomplete	74	20.7
Primary complete	67	18.7
Secondary incomplete	48	13.4
Secondary complete	52	14.5
More than secondary	62	17.3
Time taken to reach the hospital		
Less than 30 minutes	183	51.1
30-59 minutes	62	17.3
60 minutes and more	113	31.6

Table 2: Hospital related Characteristics

Characteristics	Frequency (n)	Percentage (%)
Main attraction to visit the hospital		
Good health personnel	62	17.3
Health insurance	58	16.2
Higher level of treatment	37	10.3
Location	56	15.6
Low price/service charge	61	17.0
Service quality	84	23.5
Good health personnel	62	17.3
Providing better treatment during this COVID-19 pandemic		
Yes	328	91.6
No	30	8.4
Fear of visiting the hospital which is the centre for COVID-19 also		
Yes	172	48.0
No	186	52.0
Agreed with the running OPD services in the hospital with COVID-19 center as well		
Yes	263	73.5
No	95	26.5
Recommendations given by those who did not agreed for running OPD services in the hospital (n=263)		
Building for COVID-19 should be	29	8.1

separated in this premises		
Establishment of hospital for communicable disease	6	1.7
Establishment of separate hospital for COVID-19	55	15.4
Very difficult to reach out to the doctors	5	1.4
Opinion on proper information given by health person including doctor in this COVID-19 pandemic		
Yes	314	87.7
No	44	12.3
Health personal punctuality regarding patient Visit		
Yes	313	87.4
No	45	12.6
Properly availability of the hospital service for the patient		
Yes	338	94.4
No	20	5.6
Health person trying to solve the problems of the patient		
Yes	316	88.3
No	42	11.7
Easily accessibility of hospital services		
Yes	325	90.8
No	33	9.2
Fairness of health person is fair towards respondents while providing health services		

Yes	339	94.7
No	19	5.3
Satisfaction with the outcomes of this hospital during this pandemic		
Dissatisfied	9	2.5
Neutral	83	23.2
Satisfied	197	55.0
Highly satisfied	69	19.3

Table 3: Satisfaction of different Hospital Services in the Hospital that runs both COVID and non-COVID clinic during Pandemic

Hospital Services	**Frequency (n)**	**Percentage (%)**
Registration		
Dissatisfied	9	2.5
Neutral	72	20.1
Satisfied	138	38.5
Highly satisfied	139	38.8
Doctors' services		
Dissatisfied	5	1.4
Neutral	70	19.6
Satisfied	165	46.1
Highly satisfied	118	33.0
Nurses' services		
Dissatisfied	16	4.5

Neutral	105	29.3
Satisfied	150	41.9
Highly satisfied	87	24.3
Laboratory services		
Highly dissatisfied	2	.6
Dissatisfied	22	6.1
Neutral	146	40.8
Satisfied	113	31.6
Highly satisfied	75	20.9
Pharmacy services		
Highly dissatisfied	3	0.8
Dissatisfied	39	10.9
Neutral	147	41.1
Satisfied	100	27.9
Highly satisfied	69	19.3
Quality of services		
Dissatisfied	17	4.7
Neutral	122	34.1
Satisfied	141	39.4
Highly satisfied	78	21.8
Way of communication		
Highly dissatisfied	2	.6
Dissatisfied	28	7.8

Neutral	119	33.2
Satisfied	140	39.1
Highly satisfied	69	19.3
Waiting time		
Highly dissatisfied	16	4.5
Dissatisfied	64	17.9
Neutral	105	29.3
Satisfied	128	35.8
highly satisfied	45	12.6
Health information/explanation		
Highly dissatisfied	1	.3
Dissatisfied	52	14.5
Neutral	119	33.2
Satisfied	136	38.0
Highly satisfied	50	14.0
Maintain social distance		
Highly dissatisfied	37	10.3
Dissatisfied	126	35.2
Neutral	124	34.6
Satisfied	51	14.2
Highly satisfied	20	5.6
Availability of hand washing and sanitization services		
Highly dissatisfied	15	4.2

Dissatisfied	141	39.4
Neutral	118	33.0
Satisfied	58	16.2
Highly satisfied	26	7.3
Cleanliness		
Highly dissatisfied	5	1.4
Dissatisfied	68	19.0
Neutral	148	41.3
Satisfied	90	25.1
Highly satisfied	47	13.1
Availability of doctors of your choice		
Highly dissatisfied	4	1.1
Dissatisfied	60	16.8
Neutral	98	27.4
Satisfied	123	34.4
Highly satisfied	73	20.4
Cost of treatment		
Highly dissatisfied	2	0.6
Dissatisfied	50	14.0
Neutral	99	27.7
Satisfied	103	28.8
Highly satisfied	104	29.1
Overall satisfaction (Median= 54, mean=53.8, SD= 9.76)		

Table 4: Association of demographic characteristics with overall satisfaction of hospital services

Characteristics	Mean satisfaction score ± SD	P-value
Age		
Less than 20	54.38±5.52	0.502**
20-39	53.79±9.34	
40-59	54.55±10.71	
60 and above	52.0±10.32	
Sex		
Male	53.55±9.61	0.671*
Female	53.99±9.89	
Education		
No education	55.7±9.1	**<0.001****
Primary incomplete	55.27±11.73	
Primary complete	56.28±9.62	
Some secondary	55.5±7.83	
Secondary complete	51.28±8.91	
More than secondary	48.48±7.51	
Time taken to reach the facility		
Less than 30 minutes	52.66±10.27	**0.046****
30-59 minutes	56.01±10.46	
60 minutes and more	54.43±8.20	

*Indicates test applied is t-test

** indicates test applied is ANOVA

Bold signifies statistically significant ($p<0.05$)

Table5: Association of hospital characteristics with overall satisfaction of hospital services

Characteristics	Mean satisfaction score ± SD	P-value
Department		
Dental	55.14±7.90	**0.013****
Dermatology	58.85±10.73	
Emergency medicine and GP	55.02±7.64	
ENT/Otorhinolaryngology	54.45±7.35	
Internal medicine	50.66±10.71	
Obstetrics/Gynaecology	56.24±8.31	
Ophthalmology	52.0±9.73	
Orthopedics	52.95±9.86	
Pediatrics/Psychiatry	49.44±10.94	
Surgery	54.51±11.37	
Main attraction to visit the hospital		
Good health personnel	57.16±8.45	**<0.001****
Health insurance	43.89±8.08	
Higher level of treatment	54.81±8.06	
Location	53.44±10.78	
Low price/service charge	56.42±8.88	
Service quality	56.05±7.89	
Providing better treatment during this COVID-19 pandemic		
Yes	54.80±9.32	**<0.001***

No	42.9±7.62	
Fear of visiting the hospital which is the centre for COVID-19 also		
Yes	50.28±8.96	**<0.001***
No	57.05±9.34	
Opinion on proper information given by health person including doctor in this COVID-19 pandemic		
Yes	54.82±9.25	**<0.001***
No	46.54±10.28	
Health personal punctuality regarding patient Visit		
Yes	55.38±8.98	**<0.001***
No	42.8±7.67	
Properly availability of the hospital service for the patient		
Yes	54.61±9.25	**<0.001***
No	40.15±7.94	
Health person trying to solve the problems of the patient		
Yes	55.26±8.84	**<0.001***
No	42.83±9.41	
Easily accessibility of hospital services		
Yes	54.79±9.25	**<0.001***
No	44.06±9.42	
Fairness of health person is fair towards respondents while providing health services		
Yes	54.17±9.34	**0.002***
No	47.21±14.25	

*Indicates test applied is t-test

** indicates test applied is ANOVA

Bold signifies statistically significant ($p<0.05$)