A Cross Sectional analysis on the impact of COVID-19 pandemic on plastic surgery among plastic surgeons in India

Abstract

Background :The COVID-19 pandemic led to a drastic decline in the number of elective surgeries. As healthcare professionals, we are facing the imminent danger of exposure to COVID-19. It is therefore essential for plastic surgeons to keep ourselves safe while trying to resume standard practices in the due course of time.This study aims to provide some insights into plastic surgery practices during the time of the COVID-19 outbreak. We intend to offer our services to the maximum people while conserving the medical resources for further crisis

Objective : To study impact of COVID-19 pandemic on plastic surgery among plastic surgeons in India

Materials and Methods: A questionnaire-based cross sectional study was ~~undertaken study was undertaken~~.Various hospitals in India were chosen as the study area and 6 months is the duration of study and the study population is among the plastic surgeons.. A pre-tested, semi structured questionnaire consists of 27 questions was used and data was collected by using google forms by snow ball sampling method.Data analysed will be entered in excel spreadsheet and ~~will~~ be analysed using SPSS software version 16 and statistical analysis will be done using Fisher's exact test.

Results: A total of 61 participants were included in the study. Majority (60.7%) do not work in COVID-19 care in their hospital but majority of the participants who took part in this study work in a hospital which is recognised as a COVID-19 centre for treatment(65.6%). 31 participants in their working hospitals there are more than 100 COVID-19 patients are being treated currently in ICU and covid ward (50.8%) and but majority of the participants do not work in COVID-19 centre (60.7%).The Association between centre having separate wards for COVID and non-COVID patients and whether plastic surgeons working in COVID-19 centreon applying fishers exact test the p-value was found to be 0.215. The Association between centre having separate wards for COVID and non-COVID patients and practicing microsurgery during this pandemicon applying fishers exact test the p-value was found to be 0.884. The Association between screening patients for COVID during emergency and group of patients operated without waiting for COVID report during emergencyon applying fishers exact test the p-value was found to be 0.408

Conclusion: The present study shows the changes in plastic surgery department and restrictions due to COVID-19 pandemic. The plastic surgeons should be updated and trained with essential knowledge and care about this condition as well as infection prevention and control. During this period, use of online classes and webinars is fruitful in the continuation of education for young plastic surgery trainees.[9]

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INTRODUCTION

The COVID 19 outbreak has led to the pandemic that posed great challenges in the medical field. The COVID-19 has spread around the globe in an unprecedented manner . As a result, doctors around the world had and still have to face the largest medical challenge of the 21st century[1].Following the nationwide lockdown which was imposed by Government of India from March 24th the Center for Disease Control and Prevention(CDC) and the Ministry of Health and Family Welfare, Government of India issued guidelines which restrains from OPD and elective surgeries to all the hospitals in India during the pandemic. Many elective and nonessential surgeries were postponed worldwide in an effort to limit the spread of disease and to conserve resources.The current COVID-19 pandemic has a larger impact on the everyday life of people and also had affected the field of plastic surgery. As doctors, we have the responsibility to reduce the transmission of the SARS CoV-2 virus from person to person and thus to slow down the uncontrolled, exponential increase in new cases[3]. Our primary objective is to flatten the curve of exponential infections and not to overload the limited amount of hospital beds, intensive care beds, respirators and extracorporeal membrane oxygenation (ECMO) devices. At the same time, we have to use the disposable medical items that are mostly not sufficiently available sparingly and concentrate them on the hospitals in which they are most urgently needed[3]With elective surgery comprising the bulk of plastic surgery practice, major blow was to our speciality. Technology has taken over teaching and medical help via virtual teaching and telemedicine in times of physical distancing [4]. Therefore, we conducted a survey to assess the impact of COVID-19 on plastic surgery training and practice, with the intention of getting inputs from plastic surgeons themselves. The study protocol among various plastic surgeons all over India involved the circulation of an online survey, addressing the impact of COVID-19 pandemic on the professional and personal lives of plastic surgeons in India

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METHODOLOGY

With the above background, a questionnaire-based cross sectional study was ~~undertaken study was~~ undertaken. Ethical approval was sought from IRB of Saveetha Medical College and Hospital. Informed consent will be taken.Various hospitals in India were chosen as the study area and 6 months is the duration of study and the study population is among the plastic surgeons. A pre-tested, semi structured questionnaire consists of 27 questions was used and data was collected by using google forms by snow ball sampling method. The google forms which contains the questionnaire was sent to around 80 plastic surgeons. 61 plastic surgeons ~~have~~ responded to the questionnaire.Consultants practicing plastic surgery in Government or private colleges in India were included and unwilling participants were excluded in the study. Data analysed will be entered in excel spreadsheet and will be analysed using SPSS software version 16 and statistical analysis will be done using Fisher's exact test.

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RESULTS

A total of 61 participants were included in the study. Majority i.e 37/61 (60.7%) do not work in COVID-19 care in their hospital but majority of the participants who took part in this study work in a hospital which is recognised as a COVID-19 centre for treatment i.e 40/61(65.6%) hospitals recognised as COVID-19 centre.**(Table 1)**. Among 61 the participants who took

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part in this research, 31 participants in their working hospitals there are more than 100 COVID-19 patients are being treated currently in ICU and covid ward i.e 31/61 (50.8%) and but majority of the participants do not work in COVID-19 centre i.e 37/61 (60.7%). **(Table 2)**. Most of the participants working in their centres haves separate wards for COVID and Non-COVID patients i.e 48/61 (78.7%). Among those 48 participants 21 plastic surgeons (43.8%) work in COVID-19 centre whereas 27 plastic surgeons (56.3%) do not work in COVID-19 centre. But among 61 plastic surgeons majority of the participants do not work in COVID-19 centre i.e 37/61 (60.7%). The Association between centre having separate wards for COVID and non-COVID patients and whether plastic surgeons working in COVID-19 centreon applying fishers exact test the p-value was found to be 0.215**(Table 3)**Most of the participants working in their centres has separate wards for COVID and Non-COVID patients i.e 48/61 (78.7%). Among them practicing microsurgery during this pandemic to only COVID NEGATIVE patients are 20 plastic surgeons i.e 20/48 (41.7%) and out of 61 plastic surgeons 27 of them practice microsurgery in COVID NEGATIVE patients i.e 27/61 (44.3%). Plastic surgeons practicing microsurgery to both COVID POSITIVE and NEGATIVE patients are 19/61 (31.1%). 14 of 61 plastic surgeons do not practice microsurgery in this pandemic i.e 14/61 (23%). The Association between centre having separate wards for COVID and non-COVID patients and practicing microsurgery during this pandemicon applying fishers exact test the p-value was found to be 0.884**(Table 4)**48 plastic surgeons screen all their patients visiting emergency ward for COVID symptoms i.e 48/61 (78.7%). Out of 48 plastic surgeons 22 of them screen majorly for limb or digit threatening injuries i.e 22/48 (45.8%) and 19 of them screen for all acute injuries i.e 19/48 (39.6%).Most of the plastic surgeons operated limb or digit threatening injuries on group of patients without waiting for COVID report during emergency i.e 30/61 (49.2%) following all acute injuries have been operated on patients without waiting for COVID report during emergencyi.e 21/61 (34.4%). The Association between screening patients for COVID during emergency and group of patients operated without waiting for COVID report during emergencyon applying fishers exact test the p-value was found to be 0.408**(Table 5)**

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Table 1: Association between hospital recognized as a COVID-19 center and whether plastic surgeons working in COVID-19 center

Do plastic surgeons work in COVID-19 center	**Hospital recognized COVID-19 center**		**Total**	**Fisher's exact (p-value)**
	Yes N (%)	**No N (%)**		
Yes	22 (91.7)	2 (8.3)	24	<0.000*
No	18 (48.6)	19 (51.4)	37	
Total	**40 (65.6)**	**21 (34.4)**	**61**	

*Significant at 5% level of significance

Fig 1: chart of Association between hospital recognized as a COVID-19 center and whether plastic surgeons working in COVID-19 center

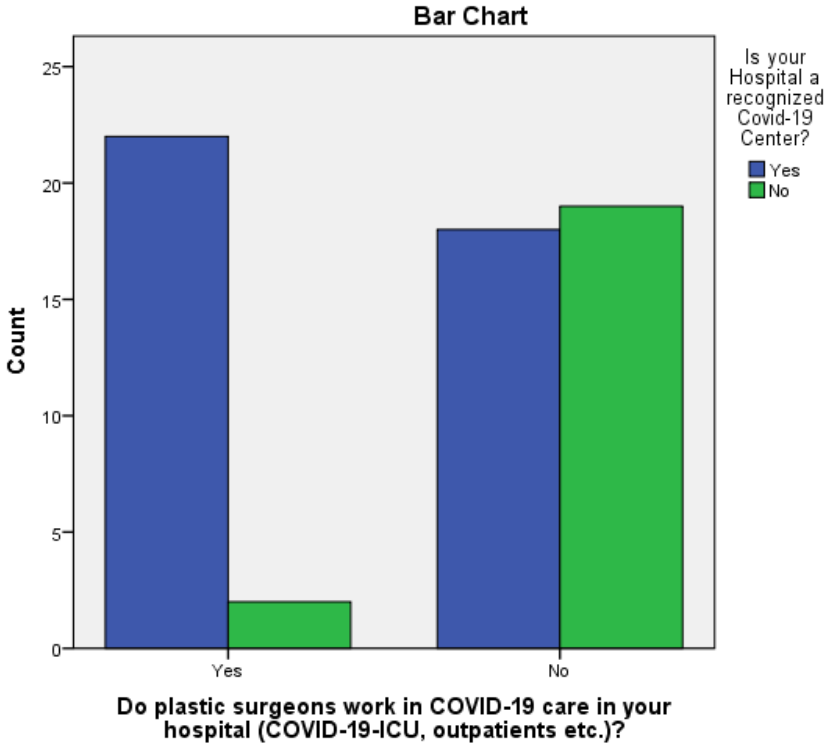

Table 2: Association between number of COVID-19 patients currently treated in your hospital and whether plastic surgeons working in COVID-19 center

Number of COVID-19 patients currently treated in your hospital	Do plastic surgeons work in COVID-19 center		Total	Fisher's exact (p-value)
	Yes N (%)	No N (%)		
<50	3 (50.0)	3 (50.0)	6	<0.000*
50-100	2 (50.0)	2 (50.0)	4	
>100	18 (58.1)	13 (41.9)	31	
Non-COVID setup	1 (5.0)	19 (95.0)	20	
Total	**24 (39.3)**	**37 (60.7)**	**61**	

*Significant at 5% level of significance

Fig 2: Chart of Association between number of COVID-19 patients currently treated in your hospital and whether plastic surgeons working in COVID-19 center

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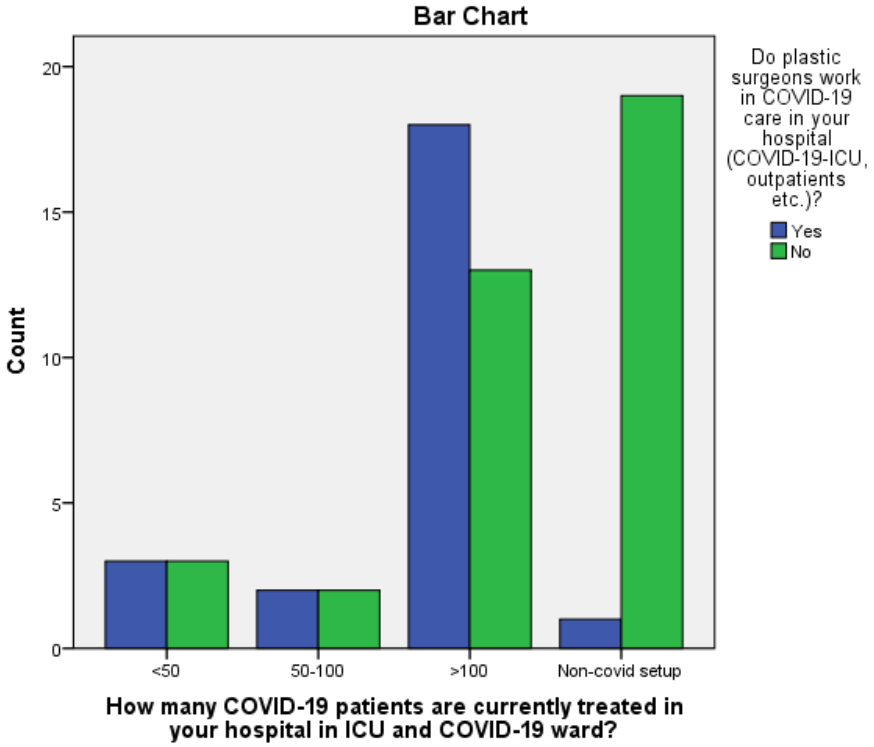

Table 3: Association between center having separate wards for COVID and non-COVID patients and whether plastic surgeons working in COVID-19 center

Whether center has separate wards for COVID and non-COVID patients	**Do plastic surgeons work in COVID-19 center**		**Total**	**Fisher's exact (p-value)**
	Yes N (%)	**No N (%)**		
Yes	21 (43.8)	27 (56.3)	48	0.215
No	3 (23.1)	10 (76.9)	13	
Total	**24 (39.3)**	**37 (60.7)**	**61**	

Fig 3: Chart of Association between center having separate wards for COVID and non-COVID patients and whether plastic surgeons working in COVID-19 center

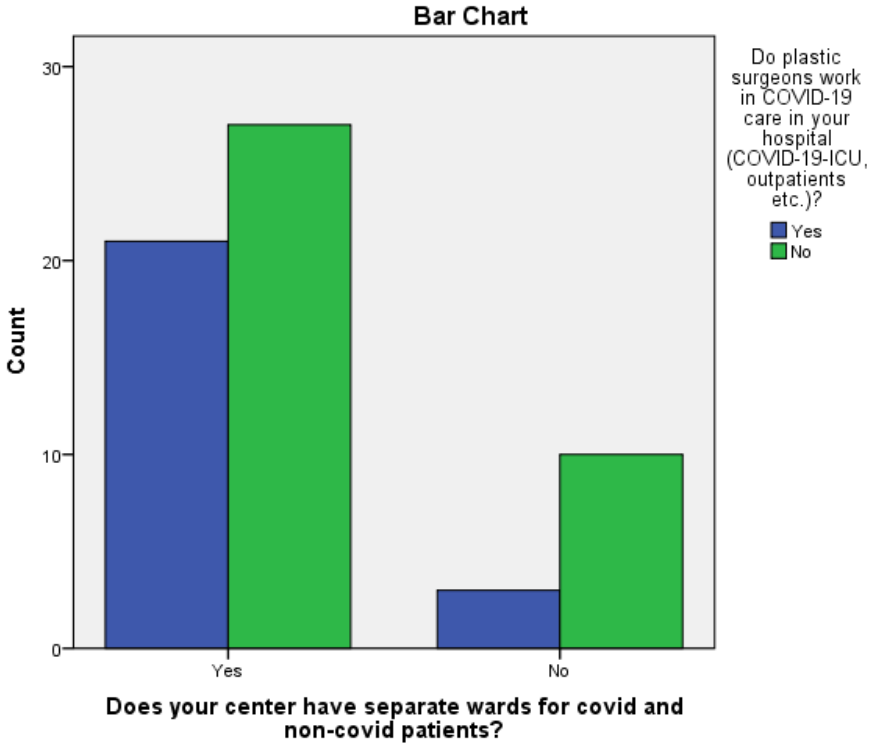

Table 4: Association between center having separate wards for COVID and non-COVID patients and practicing microsurgery during this pandemic

Whether center has separate wards for COVID and non-COVID patients	Practicing microsurgery during this pandemic				Total	Fisher's exact (p-value)
	Yes, COVID +ve& –ve patients N (%)	Only COVID –ve patients N (%)	No N (%)	NA N (%)		
Yes	16 (33.3)	20 (41.7)	11 (22.9)	1 (2.1)	48	0.884
No	3 (23.1)	7 (53.8)	3 (23.1)	0 (0.0)	13	
Total	**19 (31.1)**	**27 (44.3)**	**14 (23.0)**	**1 (1.6)**	**61**	

Fig 4: Chart of Association between center having separate wards for COVID and non-COVID patients and practicing microsurgery during this pandemic

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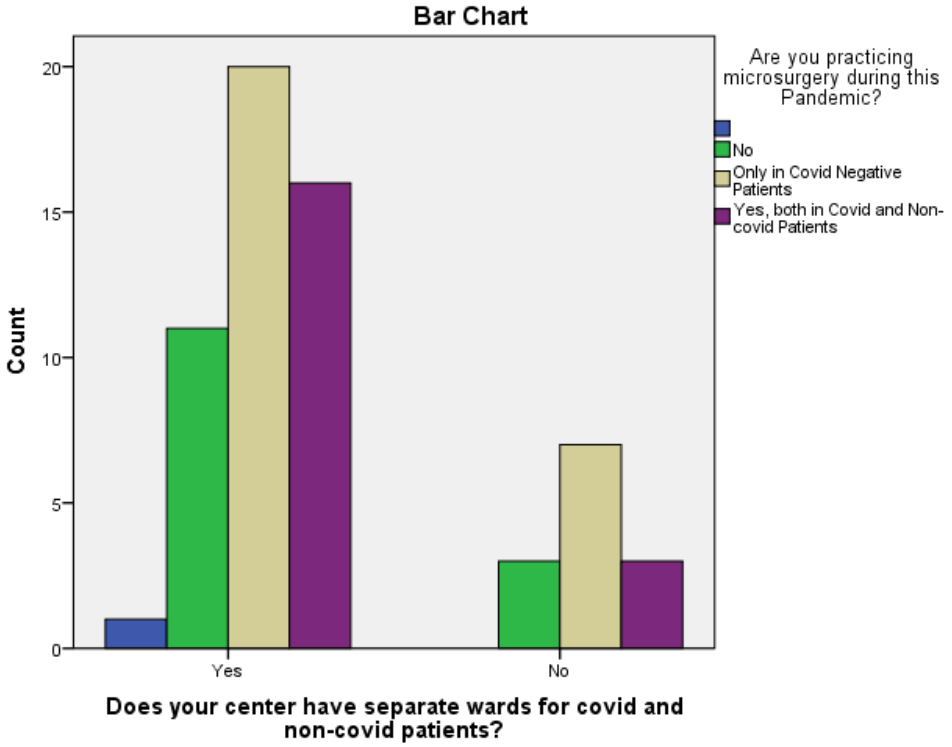

Table 5: Association between screening patients for COVID during emergency and group of patients operated without waiting for COVID report during emergency

Screening patients for COVID during emergency	Group of patients operated without waiting for COVID report during emergency					Total	Fisher's exact (p-value)
	All acute injuries N(%)	Operate necessary patients N (%)	Lim/digit threatening N (%)	Operate after testing N (%)	Not applicable N (%)		
Yes	19 (39.6)	1 (2.1)	22 (45.8)	2 (4.2)	4 (8.3)	48	0.408
No	2 (15.4)	0 (0.0)	8 (61.5)	1 (7.7)	2 (15.4)	13	
Total	**21 (34.4)**	**1 (1.6)**	**30 (49.2)**	**3 (4.9)**	**6 (9.8)**	**61**	

Fig 5: Chart of Association between screening patients for COVID during emergency and group of patients operated without waiting for COVID report during emergency

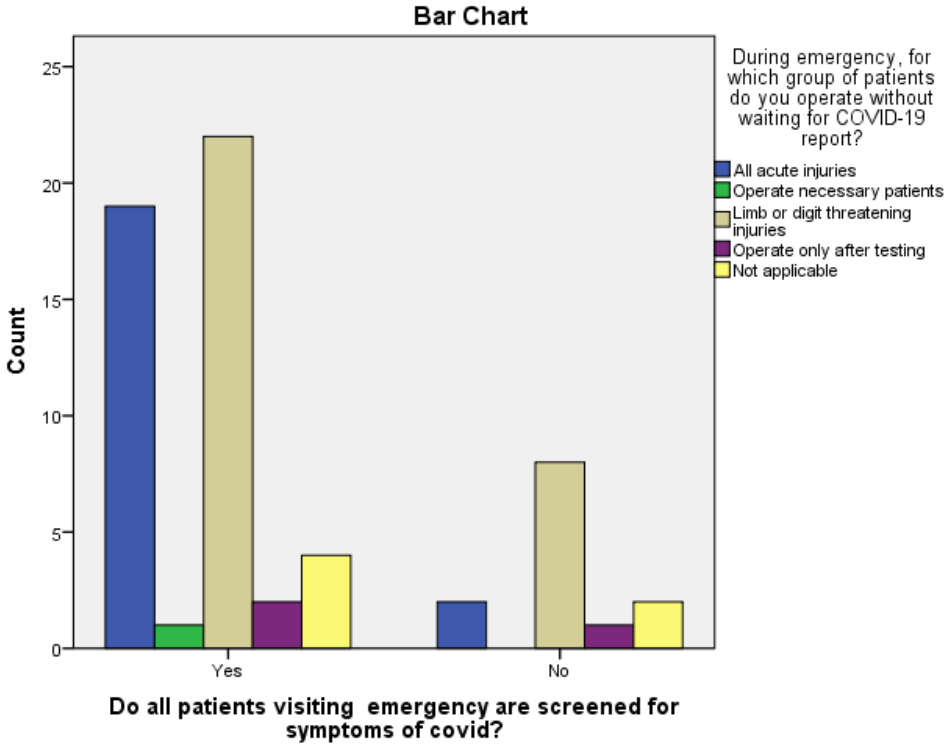

Figure 6: Pie-chart showing number of COVID-19 patients currently treated in the hospital

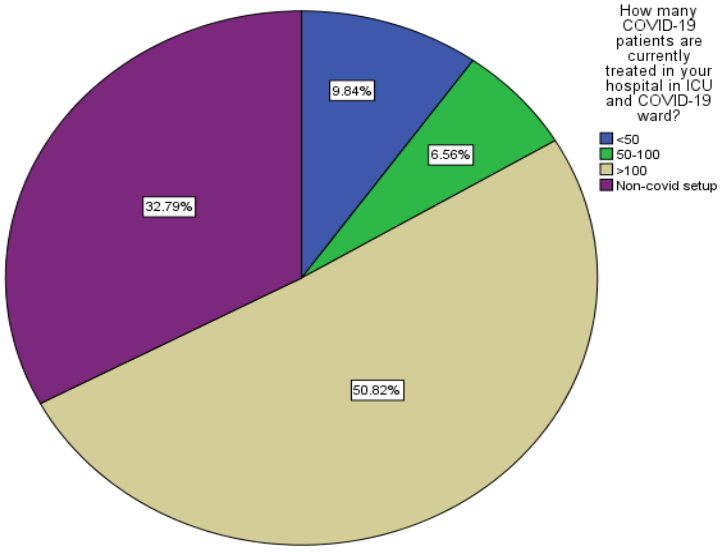

Figure 7: Pie-charts showing the turn-around-time for COVID-test currently in the hospital

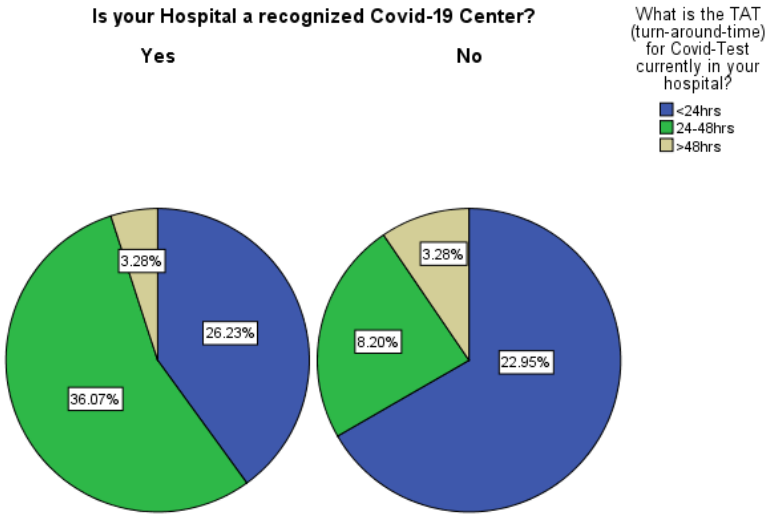

Figure 8: Bar chart showing how plastic surgeons are rotated for non-COVID duty during this pandemic

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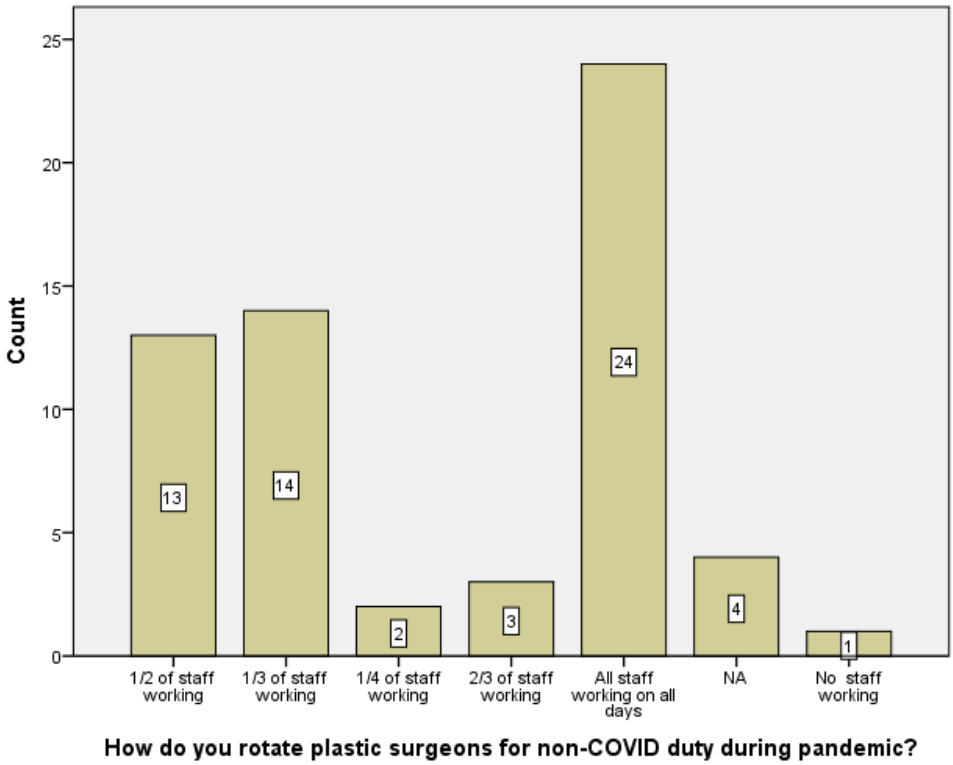

DISCUSSION

The COVID-19 pandemic has led the health care centre across the country to modify the way the health care is being delivered. It has become evident that the only way to protect against the rapid spread of COVID-19 and the inevitable oversaturation of hospital resources was to follow the strict social-distancing orders given by the government. After the commencement of nation-wide lockdown, it is important to study the effect on patients still requiring ER visits and intervention. A better understanding of patient demographics, injury patterns, and need for treatment for patients presenting during these times will help inform best treatment practices to ensure optimal patient care.

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There were responses from 61 plastic surgeons across various hospitals in India.There are more than 100 COVID-19 patients are being treated in their respective hospitals in ICU and Covid ward according to 31 plastic surgeons out 61 who took part in this study. This is in line with Gunta R et al., who reported 121 patients in Sweden and 114 patients in Estonia[(1)]. In this study most of the plastic surgeons do not work in COVID-19 ward (60.7%). This is in accordance to Dash et al[(2)].

Most of the hospitals across the country have separate wards for COVID and non COVID patients. This is in line with almost all the hospitals across the world. In this study it is reported to be 78.7%. the remaining 20% has not been established as a COVID-19 treating

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centre. In this study 41% undergo covid testing before admission and 34.4% undergo covid testing after testing. This is in contrast with the study of Gunta R et al.,in countries of Ireland, Sweden and Austria where the patients are tested only with symptoms whereas all other countries took part in that study undergoes covid testing for all the patients[(1)]. In this study 59% of plastic surgeons reported there are separate operating theatres of surgery. This is in accordance with Gunta R et al., where all the countries took part in that study have separate operating theatres for Covid-19 patients except Sweden and UK where they have no separate operating theatres for Covid and No Covid patients[(1)]
and it is in line with Dhariniet al.[(3)] As Covid infection can spread easily in a closed environment it is necessary to have separate operating theatres for covid and non covid patients.In this study 67.2% that is majority use telemedicine now due to Covid for consultation. This is in line with study of Dhariniet al.,[(3)] and Benjamin A. Sarac et al.,[(8)]67.2% have not used telemedicine before in this study and it is in accordance with all the other studies taken for references. It is essential for all of us to adapt to the current situation where meeting person to person is a sin. In this study 44.3% plastic surgeons practice microsurgery only in COVID-19 negative patients and 23% do not practice microsurgery in this pandemic. This is in contrast with Benjamin A. Saracet al.,[(8)]where only less than 10% plastic surgeons are practicing microsurgery.
We highlighted this as a public issue and following government orders making necessary precautions. However, there are certain limitations to our study.

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Conclusion

The present study shows the changes in plastic surgery department and restrictions due to COVID-19 pandemic. For us as plastic surgeons, it is of at most importance that we, as responsible doctors, work to limit the transmission of viruses and free up the resources to treat patients who are seriously ill with the disease[(1).] The plastic surgeons should be updated and trained with essential knowledge and care about this condition as well as infection prevention and control[(2)]. As such, we underline the importance of ongoing education by substitute means and encourage trainers and trainees to come together and discuss how the attainment of surgical skills can be ensured[(2).] Furthermore, through our communications, we must enthusiastically participate in the discussion on the proposal of criteria and regulations to ensure the care of patients with COVID-19, and in the development of exit strategies for surgery as a whole, and in particular our specialist area[(8)]During this period, use of online classes and webinars is fruitful in the continuation of education for young plastic surgery trainees.[(9)]

Comment [o27]: Not responding to the aim of the study

Comment [o28]: Conclusion should come from your own study and not from other people's work.

References

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