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Vaccination against COVID-19 during Pregnancy and Lactation : An Overview

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Pandemic of SARS2- COVID-19 has caused disastrous impact globally in terms of sickness, deaths, and overburden on heath infrastructure, employment, economy and psychological health. All countries are affected, to greater or lesser degree; be it from developed, developing or under-developed region.

Pregnancy has been identified as one of the risk factor for severe COVID-19 illness by Centre for Disease Control (CDC). About two-thirds of women who test positive for COVID-19 have no symptoms. But the data suggest that symptomatic pregnant patient with COVID-19 are at increased risk of more severe illness as well as have increased risk for ICU admission, ventilator support and deaths in comparison to their symptomatic non-pregnant peers. [1] Pregnant patients with co-morbidities such as obesity and diabetes, hypertension, heart disease and asthma are further at higher risk of getting serious illness. Pregnant woman's Age above 35 years and pregnancy above 28 weeks makes women more at risk of severe COVID illness. Stillbirths and pre-term births are twice high in pregnant women with COVID - 19 sickness as compared to pregnant women without COVID-19 infection. [2] Ethnicity has also been found to affect the severity of COVID-19 illness. It has been found that Black and Hispanic pregnant women had disproportionately higher rates of COVID-19 infection and death. Further risk of ICU admission were higher in pregnant Asian, and Native Hawaiian/Pacific Islander women. [1]

Looking to seriousness of COVID-19 illness among pregnant women and possibility of untoward outcome of pregnancy, it is imperative that in addition to COVID appropriate behavior – use of mask, social distancing, hand hygiene etc., Vaccination of Pregnant and lactating women should be given priority attention.

CDC outlines that pregnant individuals are eligible for and can receive a COVID-19 vaccine. A discussion with their healthcare professional can help the patient make informed decision but is not precondition for getting vaccinated. Further, CDC states that lactating individuals can be vaccinated. [1]

U.S. Food and Drug administration (FDA) has issued Emergency Use Authorization (EUA) for Pfizer-BioNtech mRNA vaccine, Moderna mRNA-1273 vaccine and Janssen Biotech Inc. Monovalent vaccine. According to EUA Fact Sheet for Health care Professionals for above mentioned three vaccines, available data on COVID-19 vaccine administered to pregnant women are insufficient to inform vaccine associated risks in pregnancy. EUA Fact Sheet for Recipients and Health care givers for these three vaccines states "If you are pregnant or breast -feeding discuss your options with your Care Provider". [1]

Recommendations by American College of Obstetrics and Gynecologists (ACOG) related to the use of COVID-19 vaccines in Pregnancy states that pregnant women were not included in vaccine clinical trials, however observational data from vaccinated pregnant individuals is being collected by CDC and manufacturer and to date no safety signals have been identified. Based on limited self reported information, and early data from CDC, no specific safety signals, or side effects or adverse events have been observed in pregnant people enrolled in v-safe pregnancy registry, however longitudinal follow up is needed. Animal model studies for all three vaccines

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have also not demonstrated any safety concerns in pregnancy. Based on the mechanism of action of these vaccines and demonstrated safety and efficacy in Phase II and Phase III clinical trials, it is expected that the safety and efficacy profile of vaccine for pregnant individuals would be similar to that observed in non-pregnant individuals. As of June 7, 2021, there have been over 123000 pregnancies reported in CDC's V. Safe after vaccination health checker. There is limited data on efficacy of COVID-19 vaccine in pregnancy, but so far vaccine appears to be equally effective in pregnant individuals and non-pregnant individuals. All currently available COVID-19 vaccines have demonstrated high efficacy among their respective clinical trials end points. COVID-19 vaccine may prevent severe COVID-19 disease. [1]

As per information sheet and decision aid updated 28 May 2021 brought out by Royal College of Obstetrician & Gynecologists, UK , Pregnant women should be offered Pfizer BioNtech or Moderna vaccine as most of safety data from United States relates to these two vaccines. Also it states that Government of UK, has advised that individuals under age of 40 should be offered alternative vaccine to the AstraZeneca vaccine, based on the risk / benefit ratio for that age group. [2]

As per FOGSI Position Statement 2021–COVID vaccination for Pregnant and Breastfeeding women there is no data on immunization of pregnant or lactating women with Covishield or Covaxin of April 2021. FOGSI recommends protection through COVID-19 Vaccine to pregnant and lactating women, stating that the very real benefits of vaccinating pregnant and lactating women far outweigh any theoretical and remote risks of vaccination. There is no potential risk to newborn of vaccinated women who breastfeed their baby, also there is passage of maternal antibody to baby through breast-milk. Additionally, protective antibodies were also isolated in umbilical cord blood and breast milk, implying protection to the fetus and newborn. FOGSI through its above-stated document has recommended to Ministry of Health& Family Welfare, GOI , that Obstetricians and Gynecologists and Women's Health care Providers should be allowed to administer COVID vaccines in Pregnant and breastfeeding women with preparation to manage adverse events. [3]

Ministry of Health and Family welfare, Government of India, through its notification dated 19th May 2021; has recommended COVID-19 Vaccination for lactating women. [4] It is a welcome and much needed decision.

Notification of COVID-19 vaccination to pregnant women in many countries is awaited. Limitation being, non availability of data relating to administration of vaccine. As per FAQ on Covishield vaccine on Website of Serum Institute of India Private Limited , updated till 21st May 2021 , Covishield vaccine carries a serious but rare risk of arterial and venous thrombosis and ; incidence of it being less than 1 per 100,000 cases who got Covishield vaccine.[5] During pregnancy a hypercoagulable state is developed which aggravates possibility of thrombosis. All these facts cause dilemma to arrive at clear cut decision. But data for use of mRNA vaccine during pregnancy has shown no adverse concerns. And same mRNA vaccines (Pfizer BioNtech and Moderna mRNA vaccine) if made available for administration to pregnant woman in our country, it will protect this high risk group against COVID-19. Although issues relating to cold chain and issues of storage at -70 degree Celsius remains with these mRNA vaccines but ways have to be found out.

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Original Article *Healthline Journal Volume 12 Issue 2 (April - June 2021)*

Determinants of Inpatient Satisfaction on Hospital Services in a Government Tertiary Care Center

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Abstract:

Introduction: Patient satisfaction is a psychological concept which is considered as a judgment of individuals regarding any object or event after gathering some experiences over time. It is one of the established yardsticks to measure the success of the services. **Objectives:** 1. To assess the level of inpatient satisfaction on hospital services. 2. To find out the determinants of inpatient satisfaction on hospital services. **Method:** It was a cross-sectional study conducted over a period of four months at one of the, a tertiary care hospital in Odisha in eastern India. A total of 164 patients were enrolled in the study from the five most occupied indoor departments who were administered a pre-tested semi-structured standardised questionnaire by face to face interview method. **Results:** Majority (77.44%) of respondents were in the age group of 21-60 years. The sample consisted of 65.24 % males and 43.9% were from lower socio-economic class. Patient satisfaction level was found to be relatively low (~80%) for the service domains like housekeeping, general services and ancillary services. Fields like front desk services, medical care, nursing care and laboratory services enjoyed a better satisfaction score (~90%). Binary logistic regression analysis reflected age and socio-economic class to be the negative determinants of the level of satisfaction. **Conclusion:** About two thirds of the inpatients were satisfied with the services availed at the tertiary care hospital in the five specialities. There is scope of improvement in the areas like housekeeping, ancillary care and general care. Socio-demographic characteristics like age and socioeconomic class inversely related to inpatient satisfaction on hospital services.

Key words: Hospital Services, Patient Satisfaction, Quality of Health Care

Introduction:

The patient is the ultimate consumer of hospital services. The primary goal of the tertiary care hospital as a highest level of health care provision is to provide best possible health care to the patients.[1] The patient satisfaction level is the real testimony to know the efficiency of hospital administration and is one of the yard stick to measure the success of service it delivers.

Patient satisfaction is multifaceted and a very challenging outcome to define as every individual carries different set of thoughts, feelings and needs. Satisfaction is an important element in the evaluation stage. Patient satisfaction denotes the extent to which health care needs of the clients are met to their requirements. Patients carry certain expectations before their visit to the health facility and the resultant satisfaction or dissatisfaction is the

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outcome of their actual experience.[2] The expectation from healthcare institutions are increasing and level of satisfaction is decreasing, leading to increased number of legal suits and assault on medical professionals. So it is very important to find out the determinants affecting patient satisfaction.

Objectives

The present study was designed in a tertiary care set up with the objectives, namely:

1. To assess the level of inpatient satisfaction with hospital services.
2. To find out the determinants of inpatient satisfaction with hospital services.

Method:

Study setting and Design

It was an institutional based cross sectional study conducted over a period of four months from October-2018 to January-2019 carried out at Veer Surendra Sai Institute of Medical Sciences and Research (VIMSAR) Hospital, a tertiary care academic hospital managed by the state government. The hospital has about eleven hundred beds in sixteen specialities and super speciality departments. It is located at Burla Township in the Sambalpur Municipal Corporation and caters to the ten adjoining districts of the state.

Study population

As reflected form the hospital records, bed occupancy of the hospital is mainly (76%) contributed by the departments of General Medicine, General Surgery, Obstetrics & Gynaecology, Paediatrics and Orthopaedics. The inpatients of these five speciality departments constituted the study population. Only indoor services were evaluated to have a focussed objectivity of the study.

Sample size

The sample size was determined using the formula for a single population proportion based on the assumptions of 95% confidence level, 5% degree of precision and 89% the proportion of patient satisfaction.[4] Thus the calculated 'n' was 149 and with a 10% non-response rate the final sample size was 164. The estimated sample was pooled through equal contributions from each of the five departments and the constituent clinical units.

Sampling technique

A team of five interns were the investigators who were oriented about the tool and survey in advance. The survey team scheduled their visit to the department indoors twice a week. On any survey day, each of the members of the team visited a selected department and selected unit. Within the unit, out of all the available indoor patients who satisfied the inclusion and exclusion criteria, two patients were enrolled for survey through simple random sampling by lot. The treating doctor and staff were largely kept unaware of the survey to avoid bias towards the patients.

Inclusion criteria: The patients who had completed a minimum hospital stay of 24 hours and were listed to be discharged the next day were included for the study.

Exclusion criteria: Seriously ill, unconscious and mentally incapacitated patients were excluded from the study.

Study tool & Data collection

The survey was conducted during the initial two months followed by data compilation, analysis and project writing during the next two months. A semi-structured questionnaire was used which was validated by a pilot study on fifty patients. It was administered by the research staff by face to face interview.

The questionnaire had 31 items covering the fields of 'front desk services' (4 items), 'medical care' (4 items), 'nursing care' (4 items), 'laboratory services' (4 items), 'housekeeping services' (4 items), 'general services and care'(4 items), ancillary services (7 items). Each of the item had 4 responses in Likert type scale categorised as 'poor (score of 3 or less)', 'fair (score of 4 or 5)', 'good (score of 6 or 7)' and 'excellent (score of 8 to 10)' defined on the basis of the satisfaction score of the respondent in a scale of 1 to 10 (minimum to maximum) assessed by the surveyer.

Socio-demographic characteristics of the participants were collected. Those included age, gender, occupation, education and income.[3] The following components of hospital services and care were assessed in the survey items.

1. Front desk services included ease of registration, friendliness, efficiency (time) and responsive to needs.
2. Medical care included quality of care, frequency of visits by doctors, explanation of procedures and disease and empathy & understanding by the staff.
3. Nursing care included professional appearance, availability of nursing staff in the wards, their communication & behaviour towards patients and timely dispensing of medications.
4. Laboratory services included availability of facilities, behaviour, transit time from bed to laboratory and timely release of lab reports.
5. Housekeeping services included cleanliness of ward, cleanliness of bathroom, cleanliness of public area and condition of linen.
6. General services and care included availability of wheel chair/stretchers, presence of ward attendant/security staff for assistance at entrance/wards, presence of signage and time taken between admission and initiation of treatment.
7. Ancillary services included availability of drinking water in the premises, toilet facilities, hand-wash facility, fans and lights in the wards, availability and quality of hospital diet and waiting space facility for relatives & attendants.
8. Overall services and care included the average of score of the respondents on the seven determinants as listed above.

Ethical approval

Prior approval of the institutional ethical committee was obtained for the study. Informed written consent was ensured from the respondents. Minors and incapacitated patients were represented by the accompanying attendants.

Data management and statistical Analysis

The data collected was analysed by using SPSS statistical package (version 17.0). Descriptive statistics were performed on the socio-demographic data and Pearson's chi-square test was used to find out the association of satisfaction level among patients with services of various specialities. Furthermore, binary logistic regression model with 95% Confidence Interval (CI) was used to identify the various determinants of satisfaction for health care services among the patients.

Results:

Out of the 164 respondents most were in the age group of 21-60 years (Table 1). Males constituted 65.24% of the respondents. Occupation wise, 35.97% were unskilled workers, 28.05 % were home-makers and 9.76% were unemployed. A sizable segment (43.90%) was illiterate. 43.90% of the subjects belonged to lower socio-economic class according to modified Kuppuswamy scale-2016.[3]

The patient satisfaction score in the eight enumerated fields were further categorised as 'satisfied' and 'less satisfied'; the former included responses like 'excellent' and ' good' where as the later included 'poor' and 'fair'.

Table 2 reflected the proportion of 'satisfied' and 'less satisfied' in each of the seven fields of assessment. Determinants like front desk services, medical care, nursing care & laboratory services had a 'satisfied' percentage of 93.89%, 91.45%, 87.8% & 95.11% respectively. Determinants in housekeeping services, general services & care and ancillary services demonstrated a lower 'satisfied' percentage of 80.5%, 81.08% and 82.31% respectively. In total, 78.05% of the inpatients were 'satisfied' as regard the 'overall services and care' availed in the five departments (Table 4).

In terms of 'medical care' received, as high as 75.6% of the respondents (Figure 1) were 'satisfied' with the frequency of doctor's visits whereas 63.41% were 'satisfied' with the empathy and understanding of the health care providers.

Table 1: Socio-demographic determinants (n=164)

Socio-demographic variables	Number	Percentage
Respondent category		
Patient	145	88.41
Attendant	19	11.59
Age of patient in years		
Below 20	15	9.15
21-40	79	48.17
41-60	48	29.27
Above 60	22	13.41
Gender		
Male	107	65.24
Female	57	34.76
Education of patient		
Illiterate	72	43.90
Primary	33	20.12
Middle	36	21.95
Secondary	15	9.15
Higher Secondary & Graduation	8	4.88
Occupation of patient		
Unemployed	16	9.76
Skilled	38	23.17
Unskilled	59	35.97
Home-maker	46	28.05
Student	5	3.05
Socio-economic status of patient*		
Upper	38	23.17
Middle (upper-middle & lower-middle)	54	32. 93
Lower (upper-lower & lower)	72	43.90

[*modified Kuppuswamy scale-2016]

Figure 1: Determinants of satisfaction in Medical Care (n=164)

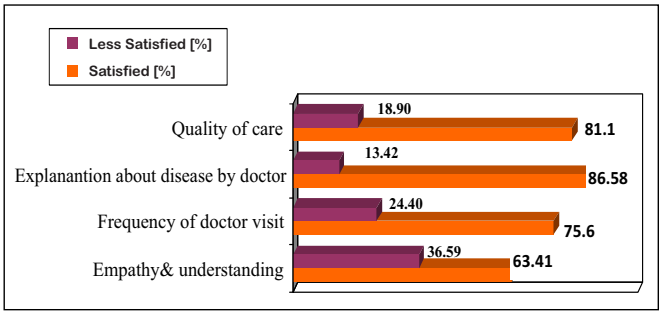

Table 3 highlighted the survey results on laboratory services. 98.17 % of inpatients were 'satisfied' with the availability of laboratory services, 93.3% with its timeliness (bed to laboratory transit time up to 30 minutes) whereas 31.7 % complained of some delay in getting laboratory reports.

The level of inpatient satisfaction on 'overall services and care' across the five high bed occupancy speciality departments surveyed was tabulated in Table 4. The 'satisfied' proportion ranged between 93.94% (for Paediatrics) to 54.54% (for Medicine). In General Surgery, Obstetrics & Gynaecology and Orthopaedics, 84.85%, 78.79 % and 78.12% of the inpatients were 'satisfied' in that order.

Univariate logistic regression model was applied to interpret age and socio-economic class as determinants of inpatient satisfaction. Those inversely correlated with increasing age ($p<0.05$). In the age group of 21-40 years 'less satisfied' level was found to be 1.667 times whereas in 41-60 years & beyond 60 years groups, the 'less satisfied' level increased to 4.653 times and 4.881 times respectively. The impact of 'socio-economic status' as a determinant of inpatient satisfaction demonstrated an inverse trend which was statistically significant (Table 5).Variables like gender and education failed to have a statistically significant impact on the satisfaction level.

By adjusting with various other factors it was found on binary logistic regression that age and socio-economic class were the determinants of level of satisfaction among the patients and found to be significant with p value of less than 0.05 (Table 5).

Discussion:

Patient satisfaction is an important quality outcome indicator to measure success of the services delivery system. Evaluation of care by patients is important to provide opportunity for improvement such as structural reforms, strategic framing of health plans, moulding the human face of the service and investments priorities in order to match the patient expectations.

Table 2: Determinants in hospital services (n=164)

Services	Excellent*	Good*	Fair*	Poor*
Front desk services	102 (62.2 %)	52 (31.7 %)	7 (4.3 %)	3 (1.8 %)
Medical care	89 (54.3%)	61 (37.2 %)	14 (8.5 %)	0
Nursing care	76 (46.3%)	68 (41.5 %)	20 (12.2%)	0
Laboratory services	92 (56.1%)	64 (39.0%)	8 (4.9 %)	0
Housekeeping services	53 (32.3%)	79 (48.2%)	32 (19.5%)	0
General services & care	44 (26.8%)	89 (54.3%)	31 (18.9%)	0
Ancillary services	61 (37.2%)	74 (45.1%)	29 (17.7%)	0

*[*Figure in bracket indicates percentage]*

Table 3: Determinants in laboratory services (n=164)

Laboratory services variables	Number (%)
Availability of laboratory services	
Yes	161 (98.17%)
No	3 (1.83%)
Bed-to-Lab transit time	
Below 10 minutes	37 (22.56%)
10-30 minutes	116 (70.74%)
Beyond 30 minutes	11 (6.70%)
Release time of laboratory reports	
Available within scheduled time	112 (68.29%)
Delayed	52 (31.71)
Quality of care	
Satisfactory	123 (75.0%)
Less satisfactory	41 (25.0%)

*[*Figure in bracket indicates percentage]*

Table 4: Association of satisfaction level with speciality services

Department [sample size]	Satisfaction level*		Chi-square & p-value
	Satisfied	Less satisfied	
Medicine [33]	18 (54.54%)	15 (45.46%)	χ^2=17.872 p=0.001**
Orthopaedics [32]	25 (78.12%)	7 (21.88%)	
Obstetrics & Gynaecology [33]	26 (78.79%)	7 (21.21%)	
General Surgery [33]	28 (84.85%)	5 (15.15 %)	
Paediatrics [33]	31 (93.94%)	2 (6.06%)	
Total [164]	128 (78.05%)	36 (21.95%)	

*[*figure in bracket indicate percentage; **where p is significant with a value below 0.05]*

Table 5:Binary logistic regression model of determinants of inpatient satisfaction level

Determinants	Adjusted Odds Ratio (95% CI)	p-value	Crude Odds Ratio (95 % CI)	p-value
Age				
Below 20 years	Reference (1)		Reference (1)	
21-40 years	1.667 (0.427-6.511)	0.462	2.242 (0.456-11.032)	0.321
41-60 years	4.653 (1.644-13.165)	0.004**	2.170 (0.673-6.997)	0.195
Beyond 60 years	4.881(1.529-15.578)	0.007**	4.242 (1.233-14.588)	0.022**
Socioeconomic status*				
Upper	0.190 (0.063-0.577)	0.003**	0.179 (0.046-0.699)	0.013**
Middle (upper-middle & lower-middle)	0.211 (0.071-0.628)	0.005**	0.264 (0.078-0.897)	0.033**
Lower (upper-lower & lower)	Reference (1)		Reference (1)	

*[*modified kuppuswamy scale-2016 ;**where p is significant with a value below 0.05]*

The observations reflected that, 43.90% of the inpatients were from the lower socio-economic class, 32.93% were from middle class and 23.17% belonged to upper class. Most of the patients (43.90%) were illiterate while 14.03% were having education of secondary level and beyond.

The subject profile in the study in Punjab by Sumeet et al echoed a similar figure (more than half) for education level. Among the respondents there were 10 % unemployed and 90% belonged to lower socio-economic status group (including lower, upper lower and lower middle class).[1,3]

Front desk services, medical care, nursing care & laboratory services were the most satisfactory services as per the survey with a 'satisfied' proportion between 87.8% to 93.89%. Determinants like housekeeping services, general services & care and ancillary services demonstrated a little lower satisfaction percentage of around 80% (80.5%-82.31%) leaving some scope of attention and improvement.

Kulkarni et al reported that, 87.8% patients were 'satisfied' with behaviours of doctors whereas a sizable proportion were 'unsatisfied' with quality of food (51.93%) and availability of drinking water (16.98%). There, inpatients' feedback was somehow better as regard cleanliness in patients' area, wards and hospital campus (68.13%, 61.85% and 65.93% respectively).[5]

Bhattacharya et al had reported 98.2% patients to be satisfied with behaviour of doctors.[6] In our study in terms of 'medical services ' experienced, 75.61% of the respondents were 'satisfied' with the frequency of visits given by doctors and 64.02% were 'satisfied' with the empathy and understanding of the staff.

Sharma et al, in their study had concluded that the overall satisfaction regarding the doctor-patient professional and behavioural communication was more than 80% at almost all the levels of health care facilities. The laboratory staff received a satisfaction level beyond 70% and more than 80% were satisfied with basic amenities.[7] These figures somehow matched with the results of our study where 76% of patients were 'satisfied' with the frequency of doctor's visits and 98.17% of patients were 'satisfied' with availability of laboratory services. However there was a lower satisfaction level for the ancillary services of the hospital which covered basic amenities.

Goshist et al in Malwa region of Punjab reported about the patients' assessment of the cleanliness of

the ward areas in a hospital and graded it as poor (38%), satisfactory (30%), good (24%) and excellent (8%).[2] The present survey reported 'excellent' response regarding housekeeping services by about one third (32.31%) of the participants.

So far the overall impression by the inpatients as regard hospital services in a comprehensive manner is concerned, Kulkarni et al reported a figure of 75.08% , Waseem Qureshi et al reported a figure of 93.3%, Kaushal et al reported 94.45%, Jawahar et al 90-95% ,Goel et al 77.3% and Kumari et al 81.6% in different hospitals across the North Indian States. [5, 8-12] The present study in Odisha is in agreement with them with 78.05 % satisfaction level. The subtle difference may be attributed to the differences in the socio-demographic and the socio-cultural differences of the study population and variations in the services delivered.

Males and females as such demonstrated no significant difference in the satisfaction level in our study. Vinod et al had reported a comparable satisfaction level in males(92%) and females(90%).

The level of inpatient satisfaction on 'overall services and care' across the five high bed occupancy speciality departments surveyed (Table 4) ranged between 93.94% (for Paediatrics) to 54.54% (for Medicine). In General Surgery 84.8% were 'satisfied' against 78.1% each in Orthopaedics and Obstetrics & Gynaecology. With a significant group difference (chi-square value =17.872 and p=0.001), Paediatrics specialty services had a statistically significant better patient satisfaction score than any of the other speciality services surveyed.

'Age' and 'socio-economic class' emerged as important determinants of patients reflections on the hospital stay and treatment as inferred from univariate and bivariate logistic regression model after adjusting with various factors. It may be explained by the idea that, the older patients with a higher burden of chronic non-communicable disorders somehow received less optimal services due to relatively poorer superspeciality facilities in the hospital concerned. As such the tertiary care hospital lacks dedicated departments like Endocrinology, Cardiothoracic & Vascular Surgery and Geriatrics Medicine amongst others.

In another study, Vinod et al observed that in the unadjusted models, patients aged beyond 66 years were less likely to rate the overall hospital services 'good' compared with younger patients (OR: 0.47, 95% CI: 0.25, 0.90). Even after adjusting for other variables this association was not statistically significant (OR: 0.67, 95% CI: 0.16, 2.74).[13] Another study by Jenkinson et al had suggested that age is not an important factor in the reported satisfaction level.[14]

Socio-economic class was found to be inversely related with the satisfaction level in the five speciality services surveyed. Kadri et al had reported similar findings. [4] The study by Ahmed et al had published a contradictory finding, patients with higher income were 2.09 to 2.84 times more satisfied than their counterparts with lower income.[15] The variation may be attributed to differences in the sociocultural attributes of the population studied.

Conclusion:

About two thirds of the inpatients were satisfied with the services offered at the tertiary care center in the five most occupied speciality indoors. Age and socio-economic class were found to be inversely related with the satisfaction level. Departments of Pediatrics, General Surgery, Obstetrics & Gynaecology and Orthopaedics received a better feedback from the inpatients against a relatively poorer score for Medicine. There is scope of improvement in ancillary services in terms of amenities like toilets, cleanliness, and drinking water. Laboratory services also leave some scope of improvement in the transit time of samples from bed to laboratory. Availability of wheel chair/stretchers and presence of staff for assistance were the deficiencies which received low satisfaction scores in general care and services.

Recommendation:

The infrastructural additions of the tertiary health care facility must include better toilet facilities,

better lighting and ventilation, better sanitation, additional stretchers and wheel chairs. Better security and support staff may be ensured. Periodic training on attitude and communication skills to the health care providers may be imparted.

Limitation:

The connotation 'satisfaction' is the gap between patient expectations and experience and most often is subjective. A quantitative assessment of health care services in terms of patient experience may be a better tool to monitor health care standards. Thus the validity and usefulness of satisfaction data is limited. A larger sample from multiple centres may yield stronger statistical results.

Declaration:

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Conflict of interest: nil

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Impact of Lockdown on Tuberculosis Management during SARS-Cov-2 Pandemic : Urban & Rural Scenario of Surat

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Abstract:

Introduction: India has highest burden of tuberculosis cases both drug sensitive as well as drug resistance in the world. Covid-19 pandemic had affected infectious diseases like TB, HIV, Malaria in developing countries like India. Here, we aimed to study the impact of lockdown on diagnosis and management of tuberculosis in Surat, Gujarat, India due to SARS-Cov-2. **Method:** Cross sectional survey of Tuberculosis patients regarding problems faced during lockdown involving all 18 TB unit of Surat Municipal Corporation (SMC) was done, 15 patients were randomly selected by simple random sampling of line list of patients of each unitand secondary data analysis, data was collected from District Tuberculosis centre for rural part and SMC for urban part. **Results:** In this study we compared data 5 months before and after lockdown i.e. November 2019 to March 2020 and April 2020 to August 2020 , comparison of diagnostic tests like sputum examination by staining, CBNAAT, and first line Line Probe Assay (LPA) which shows significant reduction in number of test. Also the number of cases of pulmonary as well as drug sensitive, drug resistance and no of referral cases too were significantly decreased during and after lockdown. However, treatment success rate and case fatality rate remain the same as five months before and after the lockdown. **Conclusion:** Comparison of diagnostic test of TB showed significant reduction in number of tests done during and after lockdown. It was also observed that no major issues were faced by patients from health care provider side of National Tuberculosis Elimination Programme.

Key words: Cartridge- based nucleic acid amplification test (CBNAAT), Lockdown, Line probe assay (LPA), National Tuberculosis Elimination Programme

Introduction:

As a response to COVID-19 pandemic, India entered the phase of nationwide lockdown on 24 March 2020.[1] Before the emergence of COVID-19, India was directing its forces against existing infectious diseases such as Tuberculosis (TB), with a target of eliminating TB by 2025.India has the highest burden of both drug sensitive and resistant TB.[2] Multidrug-resistant Tuberculosis (MDR-Tuberculosis) remains a public health crisis and a

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health security threat. WHO estimates that there were 484000 new cases with resistance to Rifampicin – the most effective first-line drug, of which 78% had MDR-Tuberculosis.[3] Health services, including national programs to combat Tuberculosis, need to be actively engaged in ensuring an effective and rapid response to COVID-19 while ensuring that Tuberculosis services are maintained. It was modeled that if the COVID-19 pandemic led to a global reduction of 25% in expected TB detection for 3 months, then there could be a 13% increase in TB deaths, along with bringing about major setbacks in the achievements gained through efforts till date.[4] It was estimated that between 2020 and 2025 an additional 1.4 million TB deaths could be registered as a direct consequence of the COVID-19 pandemic.[5] The National Tuberculosis Elimination Programme (NTEP), released guidelines during this lockdown period in India to continue uninterrupted services, including TB diagnosis, treatment, public health action as well as benefit transfers.[6] Present study aims to document the present situation of TB related services in Surat district of Western India, which is a prototype of Indian cities, strengthened with well established health systems, but challenged by the socioeconomic composition of the community and migration, by comparing pre and post lockdown situation of services of National Tuberculosis Elimination Programme (NTEP).

Objectives :

a) To compare indicators of TB management (diagnosis, treatment and outcome) during COVID-19 lockdown, compared to five months before lockdown.

b) To document problems (issues in accessibility of treatment, social stigma, delay in diagnosis) faced by Tuberculosis patients because of lockdown due to Covid-19 pandemic.

Method:

Secondary data analysis of Surat district data collected from District Tuberculosis centre for rural patients and Surat Municipal Corporation (SMC) for urban patients was carried out to compare total number of cases diagnosed and registered as new or previously treated pulmonary and extra pulmonary cases, newly diagnosed drug resistant cases and outcomes in terms of cured, treatment completed, failure and success and case fatality rate in the months during pre lockdown (November 2019 to March 2020) and during lockdown (April 2020 to August 2020). Cross sectional survey of TB patients regarding problems faced by them during lockdown was carried out in 270 TB participants who were randomly sampled from 18 TB units of Surat, after taking written informed consent, using a semi structured questionnaire.

Assuming drop in diagnosis of Tuberculosis by 80 % as per some newspaper articles[7] because of lockdown, and the total number of Tuberculosis patients in first quarter (January 2020 to March 2020) in Surat district to be 6000, as per the data received from District Tuberculosis Centre, Surat, the sample size came out to be 237 which was calculated from open epi software. Assuming 10 % non response rate, final sample size came to be 260. However, data was collected from 270 participants (15 patients randomly each from 18 TB units of Surat). The patients of pediatric age group, HIV co-infection and those receiving care from private health care providers were not included in this study. The study was approved by the Human Research and Ethics Committee (HREC).

Statistical analysis: Data collected was entered in MS office Excel version 2010 and analysed using Statistical Package for Social Sciences (SPSS) version 16. The programme data and data obtained in the survey were analyzed to identify significant differences between prior to lockdown and during lockdown period, using appropriate tests of significance.

Results:

In this study, we compared data of 5 months before and after lockdown i.e., November 2019 to March 2020 and April 2020 to August 2020.

Table 1 depicts the differences in the mean number of diagnostic tests done for Tuberculosis 5

Table 1: Comparison of Diagnostic tests done before and after lockdown

Test done	November 2019 to March 2020	April 2020 to August 2020	t value	p value
	Rural			
Sputum examination (Mean ± SD)	3373 ± 968	1366 ± 119	7.78	0.0002
CBNAAT (Mean ± SD)	676 ± 118	220 ± 57	4.60	0.0016
Urban				
Sputum examination (Mean ± SD)	5756 ± 277	1981 ± 809	9.87	0.000009
CBNAAT (Mean ± SD)	1632 ± 140	542 ± 39	16.77	0.0000162
Rural and Urban				
Cultures done (Mean ± SD)	399 ± 111	324 ± 119	1.03	0.33
FL-LPA done	26 ± 4	9 ± 8	4.2	0.003

Table 2: Comparison of cases detected before and after lockdown

Cases detected	November 2019 to March 2020	April 2020 to August 2020	t value	p value
	Rural			
Pulmonary Tuberculosis cases (Mean ± SD)	193 ± 28	93 + 15.9	6.85	0.00013
Extra Pulmonary Tuberculosis cases (Mean ± SD)	61 ± 10	29 ± 7	5.47	0.0005
Urban				
Pulmonary Tuberculosis cases (Mean ± SD)	740 ± 99	211 ± 91	8.76	0.000022
Extra Pulmonary Tuberculosis cases (Mean ± SD)	387 ± 72	151 ± 81	4.85	0.0012

months before and after lockdown. The number of diagnostic tests (sputum smear examination and CBNAAT) for TB dropped significantly in both urban and rural Surat (p =0.0002 and p=0.0016) during lockdown. However, the number of TB cultures performed did not differ significantly. Other diagnostics tests like First Line LPA, testing reduced significantly after lockdown (p =0.03). Cases detection, Pulmonary TB in particular, reduced significantly (Table 2) in both urban and rural areas (p<0.001).

Table 3 shows comparison of mean number of Tuberculosis cases registered based on Drug sensitivity 5 months before and after lockdown.

Table 3: Comparison of Tuberculosis cases registered based on Drug sensitivity 5 months before and after lockdown

Cases detected	November 2019 to March 2020	April 2020 to August 2020	t value	p value
	Rural			
Drug sensitive Tuberculosis (Mean ± SD)	236 ± 22	252 + 25	- 1.05	0.32
Drug resistant Tuberculosis (Mean ± SD)	4.2 ± 2.2	10.8 ± 5.9	- 2.35	0.046
Urban				
Drug sensitive Tuberculosis (Mean ± SD)	577 ± 68	570 ± 7.9	0.14	0.88
Drug resistant Tuberculosis (Mean ± SD)	26.6 ± 6.7	36.2 ± 4.8	- 2.59	0.031

Table 4: Comparison of referral 5 months before and after lockdown

Cases detected	November 2019 to March 2020	April 2020 to August 2020	t value	p value
	Rural			
No of presumptive Tuberculosis cases referred (Mean ± SD)	2771 ± 391	989 + 209	8.98	0.00001
Cases referred from private (Mean ± SD)	71 ± 15	33 ± 10	4.61	0.0017
Urban				
No of presumptive Tuberculosis cases referred (Mean ± SD)	5756 ± 277	1981 ± 808	9.87	0.00009
Cases referred from private (Mean ± SD)	631 ± 127	256 ± 66	5.85	0.0003

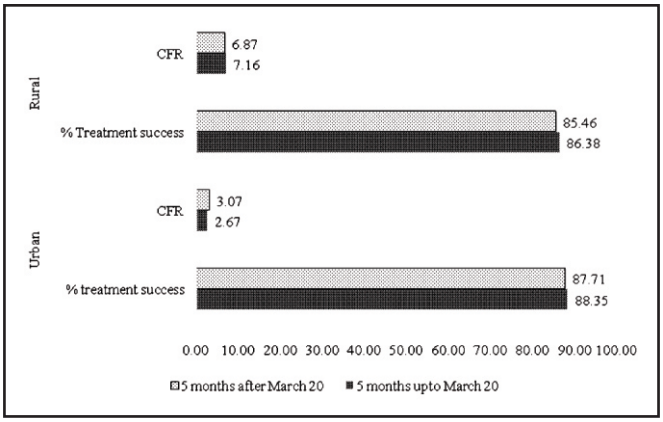
Statistically significant difference in drug resistant cases detected of both rural and urban areas has been observed. However, no statistically significant difference was observed in drug sensitive cases. The number of cases referred for diagnosis and management of Tuberculosis to District Tuberculosis Centre in urban and tertiary care center from rural area had also been significantly decreased. Similarly, cases referred from private have also been significantly reduced in both urban and rural areas (Table 4).

Table 5: Comparison of positivity among Sputum and CBNAAT tested 5 months before and after lockdown

Rural				
Duration	**Sputum +ve**	**Sputum -ve**	**χ^2 value**	**p value**
November 2019 to March 2020	1084	16530	9.013	0.0026
April 2020 to August 2020	501	6459		
	CBNAAT +ve	**CBNAAT -ve**		
November 2019 to March 2020	1083	2286	120.5	< 0.000001
April 2020 to August 2020	543	528		
Urban				
	Sputum +ve	**Sputum -ve**		
November 2019 to March 2020	1082	27692	25.14	0.0000532
April 2020 to August 2020	487	9427		
	CBNAAT +ve	**CBNAAT -ve**		
November 2019 to March 2020	2108	6034	52.16	< 0.000001
April 2020 to August 2020	894	1810		

Both Case Fatality Rate and treatment success rate have remained similar before and during lockdown, suggesting that treatment aspect has not been affected by lockdown (Figure 1).

Figure 1: Comparison of Treatment success and Case fatality Rate (CFR) before and after lockdown



Statistically significant higher positivity has been reported for both Sputum and CBNAAT testing in both rural and urban area during and after lock down as compared to scenario before lockdown (Table 5). This is because though the number of tests have decreased after lockdown, judgment of health care workers to clinically identify and refer Tuberculosis among presenting patients to testing has remained intact, resulting in paradoxically increased positivity for Tuberculosis.

Patients of Tuberculosis on treatment during lockdown were interviewed using semi structured questionnaire for assessing the problems faced by them for access of treatment and diagnosis during the lockdown period. Experiences shared by them do not show any major issues from health care provider side of NTEP program (Table 6)

Discussion:

India is one of the high burden countries in terms of both drug sensitive and resistant TB, contributing to nearly 26% of the global cases of TB.[8] India has committed itself to TB elimination by 2025, five years before the global target.[2] The cornerstone of the National TB Elimination Programme has been early case detection and prompt treatment. During the COVID 19 lockdown, it was expected that the number of TB cases reported would decline, due to various reasons, including lack of manpower and reallocation of financial and other resources to COVID-19 response activities.[8] The WHO issued a guidance to all countries to continue or minimize the disruption

Table 6: Experiences shared by Tuberculosis patients during lock down (n=270)

Questions	Response n (%)		
Staff cooperation during lockdown	Satisfactory	Non satisfactory	
	270 (100)	0 (0)	
Any problems faced in access of treatment and diagnosis?	Yes	No	
	34(12.6)	236(87.4)	
Requirement of consultation at tertiary care centre	Yes	No	
	45(16.7)	225(83.3)	
Access to emergency services like ambulance in case of emergency	Emergency service was required and accessible	Emergency service was required, but not accessible	No emergency
	22(8.2)	0(0)	248(91.8)
Management of Adverse drug reaction	Management done	Management not done	No adverse drug reaction reported
	26(9.7)	0(0)	244(90.3)
	Yes	No	
Money deposited in the account as per Government rules	225(83.3)	45(16.7)	
Patient faced financial issues during lockdown	88(32.6)	182(67.4)	
Patient faced social stigma during lockdown	29(10.8)	241(89.2)	
Advice on treatment given by DOTS provider during lockdown	94(34.8)	176(65.2)	
Practice of prevention control measures by patients during lockdown	270(100)	0(0)	

of TB services, through expanded use of digital technology, home based treatment and reducing the number of movements.[9] There were apprehensions regarding the increase in the number of TB cases due to poverty and malnutrition during the period of lockdown.[10] In view of all these guidelines and opinions, India adopted several of these strategies, including use of digital technology through the NIKSHAY, NIKSHAY AUSHADHI and state based IT platforms,[11] with special emphasis on uninterrupted drug delivery to the patient.[12]As expected, there was a reduction in the number of cases notified, from both private and public sectors during the months of lockdown, when compared to before that. The estimated number of the diagnosis of number of new cases of tuberculosis detected as of April 27, 2020 in government healthcare centres saw a significant fall to 34,342 compared to 1,56,000 cases in April month of 2019, a 78% decrease.[2] This study was able to document the decline in the actual number of patients screened by sputum smear by 2.4 times, in both urban and rural Surat. Similarly, the number of cases diagnosed with TB also declined. However, it was appreciated that positivity rate was higher during and after lockdown, perhaps because the clinicians and health workers were able to identify and test the patients with TB symptoms, as before. This decline in absolute number of tests and

increased positivity show that while the hospital based passive case detection and testing has been maintained well even during lockdown, the large proportion of people who were usually screened through active surveillance, such as migrants and remote villages, has reduced. This could be due to several operational issues, such as use of GeneXpert machines for COVID-19 testing instead of diagnostic testing for TB, reassignment of staff in national TB programmes to COVID-19 related duties and reallocation of budgets[8]. Moreover, about 58% of Surat's urban population are migrants,[13] working in the diamond and textile industries of the city. The lockdown saw a reverse migration of these migrants to their home towns, while the unlock phase saw them return gradually to the city. Case detection in the impoverished migrant population through active surveillance is a priority under National Programme, which has been affected in the lockdown period. Similarly the number of people attending the OPD of hospitals had also decreased, contributing to the low absolute number of people screened.

The study results suggest that there was no additional impact on indicators of continuum of care, such as the treatment success rates and Case Fatality Rate during the lockdown. Similarly, the study participants were generally satisfied with the amount of care that they received.

The study results show that the operational mechanism for case detection through passive surveillance, linkage and retention in care for such patients was maintained well throughout the lockdown period. Thus, the strategies adopted during the COVID-19 lockdown and "unlock" phase have contributed significantly in maintaining the essential services to patients reaching the health care facility. The Central TB Division of National TB Elimination programme has issued rapid response plan in September 2020 to address the issues of decreased testing and reporting, including the introduction of bi-directional TB-COVID screening.[14]

Conclusion: Comparison of diagnostic test of TB showed significant reduction in number of tests done during and after lockdown. Though, the number of cases of pulmonary, extra pulmonary drug sensitive, drug resistant and number of referral cases detected during and after lockdown were not significantly different as compared to scenario before lockdown It was also observed that no major issues were faced by patients from health care provider side of National Tuberculosis Elimination Programme.

Recommendations:

The study results show that the operational mechanism for case detection through passive surveillance, linkage and retention in care for such patients was maintained well throughout the lockdown period.However, the gap that has arisen due to low coverage of active surveillance and migration will now have to be addressed vigorously. This would require widespread community sensitization, involvement and revamped active surveillance.Tuberculosis should be included in active surveillance of COVID-19 to reach towards the goal to eliminate TB.

Declaration:

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Conflict of Interest: Nil

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An Epidemiological Study for Assessment of Selected Lifestyle Disorders among University Students at Central Gujarat, India

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Abstract:

Introduction: The prevalence of overweight and obesity among children and adolescents has risen dramatically from just 4% in 1975 to over 18% in 2016. The risk for the non-communicable diseases increases, with increase in Body Mass Index (BMI). **Objectives:** To provide epidemiological insights into proportion of malnutrition in form of underweight/ overweight, hypertension and high blood sugar and to analyse the relation between anthropometric measures with Blood Pressure and Blood Sugar level among University students. **Method:** A cross sectional study was conducted among newly admitted college students of the university during 2018. Total 3311 students' data were collected using case-record form. Data collection included information on socio-demographic profile from students, anthropometric measurements, Blood pressure measurement and Random blood sugar (RBS) check-up. **Results:** The mean age was 18.7±1.2 and 19.17±1.6 years among male and female students, respectively. Out of 3311 students, 30.90% were in underweight category and 18.76% were in overweight or obesity category according to BMI. According to Waist-Hip ratio (WHR), 20.6% males and 18.9% females had substantially increased risk for metabolic complications. Around 139 (5.99%) males and 16 (1.61%) females were found to have high systolic blood pressure while 365 (15.7%) males and 44 (4.4%) females were in high diastolic blood pressure category. Around 1.06% had RBS > 140 mg/dl. There was positive correlation and statistically significant association between BMI and WHR with high blood pressure. **Conclusions:** High prevalence of underweight, overweight and obesity, high WHR, high blood pressure among youth population demands early screening and intervention to prevent morbidity and mortality in later life.

Key words: Lifestyle, Non-communicable diseases, Obesity, Overweight

Introduction:

Undernutrition coexisting with overweight and obesity is significant health challenge many countries. In India, the share of underweight adults is the highest globally, even as the country experiences an ongoing rise in overweight/obesity due to urbanization, improved economic conditions, the prevalence of sedentary lifestyles, and dietary changes.[1]

Non-Communicable diseases kill 41 million people each year globally. In terms of attributable deaths, the leading risk factor globally is high blood pressure to which 19% of global deaths are attributed, followed by overweight/obesity and raised blood glucose.[2] Two thirds of premature deaths in adults are associated with conditions and behaviors of childhood and youth.[3]

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The prevalence of hypertension among adolescents is 4.5%. By the age of 15, more than 25% of obese adolescents have early signs of diabetes. Among obese youth, 70% have at least one risk factor for cardiovascular disease by the age of 20.[4] Quantification of elevated risk for exposed groups of individuals is important to inform decision making on individual health; as well as important input into any national or global strategy to improve population health and make progress.[5]

The present study was conducted with the objective of providing epidemiological insights in to proportion of malnutrition in form of under nutrition/ obesity, high blood pressure, high blood sugar level and to analyze the relation between anthropometric measures with Blood pressure and blood sugar level among University students. The university is Gujarat's one of the leading private university covering diploma, undergraduate and post graduate programs including around 21 faculties like medicine, pharmacy, engineering, arts, commerce, management and many more.

Method:

It was a cross sectional study including 4000 university students enrolled in the first year at the university during 2018 academic year. Schedule of health checkup was prepared for each and every faculty in advance to ensure quality of checkup and maximum attendance of the students, after discussion with respective principles. Per day maximum 60 students were scheduled. If absent on particular day, students were allowed to join the next batch of their college. At the end of data collection, 3328 students participated voluntarily in the checkup. After data cleaning 3311 student's data was available for analysis. As the study invited all the 1st year students enrolled during 2018-year, sampling was not required.

Inclusion-exclusion criteria : All the students enrolled for 1st year in the university, gave written consent to take part in the study were included in the health checkup. Students who are not in 1st academic year, not ready to give consent, drop outs, having obvious skeletal deformities were excluded from the study.

Permission was taken from institutional ethicl committee prior to the data collection procedure. Written consent was taken from the participants before data collection. Data were collected using case record form which included structured questionnaire to collect information on socio-demographic profile, anthropometry and clinical profile including blood pressure and Random blood sugar (RBS). Socio-demographic profile was filled up by students after proper instruction under supervision of respective faculties/teachers.

Medical checkup part included measurement of Blood Pressure, Random blood sugar and anthropometric measurement. Anthropometric measurements, Blood pressure measurement and RBS checkup were done by trained health staff and recorded in the form. Trained health staff included team of fixed medical officers, staff nurse and laboratory technician. Anthropometric measurements included Height, Weight, Hip circumference and Waist circumference. Instruments were calibrated before use. Height was measured to the nearest 0.1 centimeter using stadiometer, and weight was measured to the nearest 0.1 kilogram using a portable scale. Both height and weight were measured with shoes, coats, and other heavy outerwear removed. Body Mass Index (BMI) was calculated as the ratio of weight to height squared (kg/m^2). BMI values were categorized according to WHO classification.[6] Waist and hip circumference were measured according to guideline given in Waist Circumference and Waist-Hip Ratio Report of a WHO. Data were categorized according to WHO cut-off points for risk of metabolic complications. [7]

Blood pressure was measured using manual sphygmomanometer by auscultatory method. If the student's systolic and diastolic blood pressure were normal, blood pressure was recorded. If the first measurement was elevated, the blood pressure was

retaken after rest for 10 minutes. The process was repeated one more time if the blood pressure remained elevated and students were also referred to medicine department for further investigation and management. Blood pressure was categorized according to the Joint National committee (JNC-7)[8] classifications. RBS was measured using glucometer and results were recorded in mg/dl. Similarly, students those who had high RBS (≥ 200 mg/dl) value at the time of study were also referred to medicine department. A blood glucose level between 79 and 140 mg/dl, 140 and 200 mg/dl and more than 200 mg/dl was considered normal, prediabetes and diabetes respectively according to American Diabetes Association Criteria.[9]

Data entry and analysis : Data entry was done in university web portal from case record forms by trained health staff. Excel sheet was assessed from university web portal and used for data analysis. Proportion and frequency for underweight, obesity, hypertension and risk for diabetes was calculated using standard references. Correlation and association were also checked between different anthropometric parameters and blood pressure and diabetes risk.

Results:

Around 3311 students' health check-up data were available for analysis. Out of them 2319 (70.04%) were males and 992 (29.96%) were females. The mean age with standard deviation was 18.7±1.2 and 19.17±1.6 years among male and female students, respectively. Mean values for height, weight, BMI, Hip and waist circumference measurements are more in males as compared to females except mean RBS. There was significant difference in mean values of different measurements among males and female students. (Table1)

Classification according to BMI& WHR: Out of 3311 students, 621 (18.76%) had BMI ≥ 25.0 kg/m^2 and among them 176 (5.31%) were obese according to WHO classification. Around 665 (28.68%) males were underweight and 358 (36.09%) females were in underweight category (Table 2). Undernutrition was statistically significant among females as compared to males ($p<0.0001$) while overweight and obesity is statistically significant among males (19.75%) as compared to females (16.42%) ($p=0.0278$).

Out of 3311 study subjects, 664 (20%) students were found to be substantially increased risk for metabolic complications as per their WHR measurements. According to waist circumference

Table 1: Mean values of basic measurements in male and female students

Variable	Total	Male	Female	p-value (Independent sample t-test)
Weight (kg)	57.57±13.90	60.57±13.63	50.54±11.86	< 0.0001
Height (cm)	164.47±9.12	168.17±7.27	155.81±6.85	< 0.0001
BMI (kg/m^2)	21.25±4.93	21.44±5.00	20.82±4.72	0.0009
Waist circumference (cm)	77.85±12.78	80.28±12.59	72.19±11.33	< 0.0001
Hip circumference (cm)	93.26±10.47	93.87±10.44	91.84±10.40	< 0.0001
WHR	0.83±0.099	0.86±0.095	0.79±0.09	< 0.0001
SBP (mmHg)	116.84±11.7	119.26±11.32	111.19±10.56	< 0.0001
DBP (mmHg)	76.72±8.08	78.02±7.99	73.70±7.49	< 0.0001
RBS (mg/dl)	93.1±15.3	91.49±14.37	96.78±16.77	< 0.0001

Table 2: Classification of students according to BMI

Classification	BMI (kg/m2)	Total (%)	Male (%)	Female (%)
Underweight	<18.50	1023 (30.90)	665 (28.68)	358 (36.09)
Normal weight	18.50- 24.99	1667 (50.35)	1196 (51.57)	471 (47.48)
Pre-obese	25.00-29.99	445 (13.44)	330 (14.23)	115 (11.59)
Obese class-I	30.00-34.99	131(3.96)	101 (4.36)	30 (3.02)
Obese class-II	35.00-39.99	35 (1.06)	19 (0.82)	16 (1.61)
Obese class-III	≥40.0	10 (0.30)	8 (0.34)	2 (0.20)
Total		**3311**	**2319**	**992**

Table 3: Classification of students according to waist circumference, WHR and risk for metabolic complication as per WHO classification

	Cut-off points (M)	Males (%)	Cut-off points (F)	Female (%)	Risk of metabolic complication
Waist	>94 cm	166 (7.2)	>80 cm	140 (14.1)	Increased
Waist	>102 cm	87 (3.8)	>88 cm	76 (7.7)	Substantially increased
WHR	>0.90 cm	477 (20.6)	>0.85 cm	187 (18.9)	Substantially increased
Total		**2319**		**992**	

Table 4: Classification of students according to Blood pressure

Category	SBP (mmHg)	Total (%)	Male (%)	Female (%)	DBP (mmHg)	Total (%)	Male (%)	Female (%)
Optimal	<120	1652 (49.89)	946 (40.79)	706 (71.17)	<80	1544 (46.63)	898 (38.72)	646 (65.12)
Pre hypertension	120-139	1504 (45.42)	1234 (53.21)	270 (27.21)	80-89	1358 (41.01)	1056 (45.54)	302 (30.44)
Stage-1 HT	140-159	132 (3.99)	118 (5.09)	14 (1.41)	90-99	363 (10.96)	332 (14.32)	31 (3.13)
Stage-2 HT	≥160	23 (0.69)	21 (0.91)	2 (0.20)	≥100	46 (1.39)	33 (1.42)	13 (1.31)
Total		3311	2319	992		3311	2319	992

measures,163 (4.9%) students were found to be substantially increased risk for metabolic complications (Table 3).

Classification according to Blood pressure& RBS: According to JNC-7 blood pressure categorization, around 139 (5.99%) males and 16 (1.61%) females were found to have high systolic blood pressure (SBP) while 365 (15.7%) males and 44 (4.4%) females were in high diastolic blood pressure (DBP) category (Table 4). Frequency of high blood pressure was higher among males as compared to female students ($p<0.0001$).

Out of 3311 students, 373 (11.3%) students had RBS value less than 79 md/dl. Around 2903 (87.7%) had RBS values between 79 to 140 mg/dl and 35 (1.06%) had RBS more than 140 mg/dl. There was no

significant difference for being prediabetics (RBS>141) among males and females (p=0.06). Only 2 students were found to have RBS>200 mg/dl.

Obesity, BP and RBS (correlation): There was positive and significant correlation of SBP with Waist circumference (r=0.32), WHR (r=0.16) and BMI (r=0.29) (p<0.0001). Similarly, DBP was positively and significantly corelated with Waist circumference (r=0.27), WHR (r=0.12) and BMI (r=0.26) (p<0.0001). RBS values were weakly correlated with BMI (r=0.052), waist (r=0.007), WHR (r=-0.0016), SBP (r= 0.06) and DBP (r= 0.04).

Obesity, BP and RBS (Association): There was significant association between BMI ≥ 25.0 kg/m2 and hypertension (SBP>139 mmHg and or DBP>89 mmHg) (Chi-square=129.6, p<0.0001). Similarly, there was significant association between Obesity according to waist circumference (male>95 cm, female>80 cm) and Hypertension (Chi-square=81.2, p<0.0001). Obesity according to WHR (male>0.90 and female>0.85) and Hypertension also showed significant association (Chi-square=26.8, p<0.0001).

Being high risk for diabetes (RBS>140 mg/dl) did not show significant association with any of the obesity criteria like WHR (Chi-square=1.1, P=0.29) or BMI (Chi-square =1.67, p=0.19). Similarly, there was no association between hypertension and being high risk for diabetes (Chi-square=0.86, p=0.35).

Discussion:

In present study, Prevalence of underweight was 30.90%. According to National Nutrition Monitoring Bureau (NNMB) report, only two-thirds of the recommended calories are consumed by adolescent boys and girls, which result in high prevalence of undernutrition.[10] Barrier function of body is compromised by undernutrition, which results in lower immunity, easy entry and growth of pathogens in the body. Infection accelerated by undernutrition again causes changes in dietary intake, food absorption and losses of endogenous nutrients. That ultimately result in malnutrition infection vicious cycle.[11] Underweight was significantly more frequent among females as compared to males in present study findings. Again, higher rate of undernutrition among girls increases morbidity and mortality associated with pregnancy and child birth. That leads to the intergenerational cycle of malnutrition.[12]

On the other hand, Prevalence of overweight and Obesity was 13.44% and 5.32% in present study. Similar result was reported as 15.1% overweight and 5.2% obesity in University Students from 22 Countries.[13] Overweight and obesity was significantly higher among males (19.75%) as compared to females (16.42%). Number of studies from Asia also shows that male gender is more associated with overweight and obesity.[13-16]

Large number of students, 45.42% were in Pre hypertension category, 4.68% had high SBP and 12.35% had high DBP in present study. Frequency of high blood pressure was higher among males as compared to female students. NFHS-4 data also shows that hypertension is more prevalent among adult males (13.6%) as compared to adult females (8.8%).[17] Blood pressure difference among male and females are detectable during adolescence and persist through adulthood. In all ethnic groups, men tend to have higher mean blood pressure than women.[18] Among premenopausal females, lower level of blood pressure have been explained by protective effect of estrogen and other life style habits like smoking and alcohol.[19]

Data from Framingham Heart Study, which followed study subjects for 30 years, showed that SBP shows linear increase between the ages of 30 and 84 years or over. The Framingham Heart Study also showed that cardiovascular risk is continuously, positively and independently associated with rising Blood pressure.[20] Thus, students in prehypertension category today may be in hypertension category in later life with increased risk of cardiovascular complications.

There was positive and significant correlation between Waist circumference, WHR and BMI with SBP and DBP blood pressure values. There was

significant association between high BMI and HT, high Waist circumference and HT and high WHR and HT in present study. Similar relationship has been documented in various studies between anthropometry and Blood pressure.[21-24] RBS values were weakly correlated with obesity in terms of BMI and WHR. Similar result is documented by study done in rural area of Telangana state.[25]

Conclusion:

According to WHR, 20.6% males and 18.9% females had substantially increased risk for metabolic complications. Around 18.76% had BMI ≥ 25 kg/m^2 and 57.77% were in Pre hypertension or hypertension category. Out of 3311 subjects, 1.06% had RBS>140 mg/dl. All these students are at high risk for future NCDs and chronic diseases. On the other hand, high number of underweight (30.90%) students are at risk of morbidity and mortality associated with undernutrition. There was positive correlation between BMI, WHR and high blood pressure.

Data point outs the opportunity to educate youth and their parents at early stage of life. Young adult is an important age-group and any corrective health measures will help not only improve their individual health but could also have a lasting impact in the community and also towards breaking a vicious cycle of intergenerational malnutrition and preventing/ delaying lifestyle associated morbidities/mortality later in life.

Declaration:

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Conflict of Interest: Nil

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The Patent fact about Alcohol and Getting Stroke: A Case Control Study

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Abstract:

Introduction: Globally 17.9 million people die each year from CVDs (Cardio Vascular Diseases) and 85% of all CVD deaths are due to heart attacks and strokes. According to the World Health Organization (WHO), 15 million people worldwide suffer from stroke every year and after ischemic heart disease, stroke is the second most leading cause of death. **Objective:** To study alcohol consumption as a risk factor in patients with acute strokes. **Method:** Case control study was conducted among 148 newly diagnosed cases of CT scan / MRI-confirmed stroke and 148 non-stroke controls attending the tertiary hospital of central Gujarat. Sample size calculation was done, assuming the power ratio of the number of controls same as numbers of cases i.e.,1:1, specifying values for two-sided confidence level=95% (error=5%), power of study=80%, odd ratio=2.15, percent of cases with exposure=82% and percent of controls with exposure=68%. Patients who are willing to participate in the study were included. The data were analyzed using the EPI INFO TM 7.0.8.0 software. **Results:** Out of the total 148 cases, 100 (67.56 per cent) were male and 48 (32.43 per cent) were female. The odds of getting stroke among alcoholic was two times more as compared to non-alcoholic patients. Heavy alcohol drinkers have a significant association. **Conclusion:** According to the study results male married patients who drank heavily had a higher risk of stroke than light/moderate alcoholics.

Key words: Alcohol, Cerebro vascular accident, Stroke

Introduction:

A stroke is a non-communicable disease of increasing importance. According to the World Health Organization (WHO), 15 million people worldwide suffer from a stroke every year. Globally, 6.5 million stroke deaths occurred in 2013, making National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) guideline[2], *"Stroke or Cerebrovascular accident means that part of the brain is suddenly damaged. If any artery in the brain becomes blocked by a thrombus, it causes a stroke or an artery in the brain leaks, then too it damages the brain and causes a stroke"*.

Stroke is a medical emergency that can cause permanent neurological harm and death. There are two kinds of stroke episodes depending on the location of the stroke in the brain. A minor stroke episode Transiant Ischaemic Attack (TIA) may cause minor issues, such as weakness in the arm or leg. A significant episode of the stroke can lead to paralysis or even death. Many stroke patients are left with weakness on one side of the body, speech difficulties, incontinence and/or bladder problems.

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There are two significant stroke subtypes (i) ischemic stroke (ii) hemorrhagic stroke. Ischemic stroke happens as a consequence of obstruction within a blood vessel that supplies blood to the brain, which may be thrombotic or embolic. It accounts for 87% of all stroke cases.[3] Stroke is a multi-factorial disease that happens owing to a mixture of different risk variables, all of which may not necessarily be present at the moment of its incidence.

According to the NPCDCS guideline[2], behavioral risk factors include unsanitary diet, physical inactivity, heavy alcohol consumption, cigarette addiction and stress, and physiological risk factors include enhanced Body Mass Index (BMI), hypertension, high blood sugar and hyper-cholesterolemia, which are modifiable risk factors. The non-modifiable risk variables include age, gender and family genetics. Previous studies recognized alcohol is one of the independent risk factors that are extensively associated with stroke. [4-7] Research shows that drinking large amounts of alcohol will substantially increase your risk of stroke, since alcohol leads to a number of medical conditions that are risk factors for stroke. Very few studies have been conducted in developing nations such as India related to effect of alcohol and stroke. Present study was conducted with objective to study alcohol consumption as a risk factor in patients with acute strokes.

Method:

A case control study was performed in the Medicine and Medical Intensive Care Unit (MICU) departments from January 2018 to June 2018 in one of the tertiary care hospital of central Gujarat. Cases were those whose diagnosis of a stroke had been confirmed by CT Scan / MRI. The recruits of cases in the study were incident cases (first ever in the lifetime) within 72 hours after admission. Each and every confirmed stroke case patient who arrived during the study period and agreed to participate in the study were enrolled. Patients who were admitted to the same ward for circumstances other than stroke were chosen for the incorporation of control. One control was chosen for each stroke case. For feasibility of study controls were chosen from the patients admitted to the Department of Medicine / Ward, without a stroke such as Typhoid, Hepatitis (Jaundice), Diarrhoea, Chronic Obstructive Pulmonary Discase (COPD), Malaria, etc. Cases and controls patient not ready to participate in the research and patients with transient ischaemic attack, poisoning, trauma-related symptoms and past history of IHD were excluded from the study.

Medcalc software was used to calculate sample size. Assuming the power ratio of the number of controls same as numbers of cases specifying values for two-sided confidence level 95% and odd ratio 2.15 which was the minimum risk factor in previous study (Obesity, odds ratio-2.15) [8] According to the reference study, obesity has the lowest odds ratio of all risk factors for stroke, so we chose it for sample size calculation in the current study. So, considering 82 percent of cases with exposure and 68 percent of controls with exposure, the total sample size was 296 including 148 cases and 148 controls have been selected. Matching was done for the gender. Confounding factors include age, smoking, obesity, and other risk factors.

The interviewer was fully informed about the study and its purpose, the risks or benefits of participation and confidentiality of the information. If the patient was unable to communicate sufficiently to complete the study questionnaire, proxy respondent was used. The valid proxy respondent was a spouse (husband/wife) or first-degree relative (a person's parent, sibling, relative or more than 18 years old son/daughter) who was living in the same home or was aware of the patient's previous medical history and present treatments.

This study was reviewed and approved by the Institutional Ethics Committee for Human Research (IECHR), prior to the initial interview, written consent was obtained from the participants.

Physicians operationally defined "light" drinking as 1 drinks/day, "moderate" drinking as 2 drinks/day, and "heavy" drinking as >3 drinks/day.[9]

Results:

The present study was conducted to study alcohol

consumption as a risk factor in patients with acute strokes admitted in the Medicine wards and Medical Intensive Care Unit (MICU) from January 2018 to June 2018 of one of the teaching hospitals of Vadodara.

As shown in Table 1, total 148 cases of Stroke and 148 controls were analysed. Among the cases 67.56% were males and 32.43% were females. There were 135 (91.22%) cases and 127 (85.81%) controls who were Hindus followed by 13 (8.78%) cases and 21 (14.19%) controls who were Muslim by religion. Out of 296 study subjects, 120 (81.08%) cases were married, 4 (2.70%) were unmarried while 142 (95.95%) controls were married and two (1.35%) were unmarried.

Table 1: Socio-Demographic Characteristics of cases and controls

Variables	Cases (n=148)	Controls (n=148)
Gender distribution		
Male	100 (67.57%)	100 (67.57%)
Female	48 (32.43%)	48 (32.43%)
Religion of Patients		
Hindu	135 (91.22%)	127 (85.81%)
Muslim	13 (8.78%)	21 (14.19%)
Marital Status		
Married	120 (81.08%)	142 (95.95%)
Unmarried	4 (2.70%)	2 (1.35%)
Other*	24 (16.22%)	4 (2.70%)

* Other (Widow, Widower and Divorce)

As shown in Table 2, 51 (34.46%) of the cases and 32 (21.62%) of the controls consumed alcohol. The crude odds ratio was 1.91, that is odds (chance) of getting stroke among alcoholic was two times more as compared to non-alcoholic patients.

Table 2: Distribution of study subjects according to history of alcohol consumption

Alcohol consumption	Cases (n=148)	Controls (n=148)
Yes	51 (34.46%)	32 (21.62%)
No	97 (65.54%)	116 (78.38%)
OR – 1.91, 95% CI – 1.14 to 3.20 P value – 0.01		

Cases and controls in the study were distributed on the basis of alcohol consumption, whether daily or occasionally. Table 3 shows, four (8%) cases and five (16%) controls consumed alcohol daily. The crude odds ratio was 0.46, that is odds (chance) of getting stroke was lower in occasional alcohol drinker as compared to daily alcohol drinker.

Table 3: Distribution of study subjects according to frequency of alcohol consumption

Current use	Cases (n=51)	Controls (n=32)
Daily*	4 (7.84%)	5 (15.63%)
Occasionally**	47 (92.16%)	27 (84.37%)
OR - 0.46, 95% CI - 0.11 to 1.86, P value-0.28		

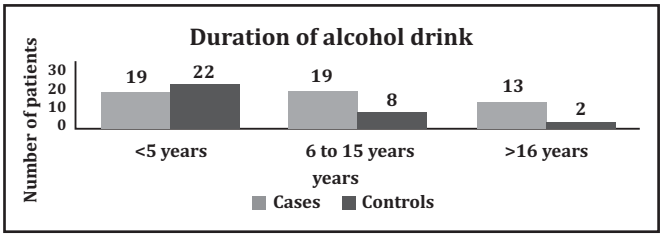
* Daily – Heavy drinker
** Occasionally – Light / Moderate drinker

As shows in Table 4, 4 (7.84%) cases consumed heavy alcohol followed by 8 (15.69%) who consumed moderate amount of alcohol and only 39 (76.47%) case consumed light amount of alcohol. In controls 5 (15.63%) consumed heavy amount of alcohol, followed by 10(31.26%) consumed moderate alcohol and 17 (53.13%) consumed light amount of alcohol which was statistically significant.

Table 4: Distribution of study subjects according to severity of alcohol consumption

Alcohol consumption	Cases (n=51)	Controls (n=32)
Heavy drinker	4 (7.84%)	5 (15.63%)
Moderate drinker	8 (15.69%)	10 (31.26%)
Light drinker	39 (76.47%)	17 (53.13%)
χ^2 (trend) Value – 4.11, DF - 1, p - 0.04		

Figure 1: Distribution of study subjects according to duration of alcohol consumption



χ^2 (trend) Value - 8.78, DF - 1, p - 0.003

Cases and controls were further distributed based on the alcohol consumption period. (Figure1) Total 19 (37.25 %) cases had consumed alcohol for less than five years of duration followed by 19 (37.25%) who consumed alcohol for 6 to 15 years of duration and only 13 (25.49%) case consumed alcohol for >16 years of duration. In controls 22 (68.75%) consumed alcohol for less than five years of duration, followed by eight (25%) consumed alcohol for 6 to 15 years of duration and only two (6.25%) consumed alcohol for >16 years of duration which was statistically significant.

Discussion:

The present study was conducted in the Medicine wards and MICU from January 2018 to June 2018 of SSG Hospital Vadodara, one of the tertiary care hospital of central Gujarat.

In the study, 51 (35%) of the cases and 32 (22%) of the controls were alcoholic. The crude odds ratio was 1.91, that is odds (chance) of getting stroke among alcoholic was virtually two times more in alcoholic as compared to non-alcoholic. This is statistically significant association. Similar result found in a meta-analytic dose-response study done by Zhang C et al (2014) which included 27 prospective studies that reported data on 14,25,513 people. Low alcohol intake was associated with a reduced risk of total stroke and stroke mortality, but it had no significant effect on haemorrhagic stroke. Moderate intake of alcohol had little or no effect on the risk of total stroke, haemorrhage stroke, ischemic stroke and mortality of strokes. Heavy intake of alcohol was associated with an increased risk of total stroke, but had no significant effect on haemorrhagic stroke, ischemic stroke, and stroke mortality.[10]

Other meta-analysis conducted by Larsson SC et al (2016) included 27 prospective studies with ischemic stroke (25 studies), intra cerebral haemorrhage (11 studies) and/or subarachnoid haemorrhage (11 studies). Light and moderate alcohol consumption was associated with a lower risk of ischemic stroke, where as high and heavy drinking was associated with an increased risk; the overall RRs were 0.90 (95% CI, 0.85-0.95) for less than 1 drink/day, 0.92 (95% CI, 0.87-0.97) for 1-2 drinks/day, 1.08 (95% CI, 1.01-1.15) for more than 2-4 drinks/day, and 1.14 (95% CI, 1.02-1.28) for more than 4 drinks/day. Light and moderate alcohol consumption was not related to any subtype of haemorrhagic stroke. High alcohol consumption (> 2 - 4 drinks / day) was associated with a non - significant increased risk of both haemorrhagic stroke subtypes, and the relative risk of heavy drinking (> 4 drinks/day) for intracerebral haemorrhage was 1.67 (95% CI, 1.25-2.23) and 1.82 (95%CI, 1.18-2.82) for subarachnoid haemorrhage.[11]

In the present study, four (8%) of the cases and five (16%) of the controls consumed alcohol daily. The crude odds ratio was 0.46, that is odds (chance) of getting stroke were lower in occasional alcohol drinker as compared to daily heavy alcohol drinker. This is statistically not significant association. In a study conducted by Lee SJ et al (2015), light to moderate alcohol intake of 3 to 4 beverages (1 drink = 10 g ethanol) per day was substantially associated with lower risk of ischaemic stroke after accounting for potential confounders. [12]

In the analysis it was observed that heavy, moderate and light levels of alcohol intake were statistically related to stroke in cases and controls. The meta-analysis by Xiaoyan Zhang BA et al found a light-moderate drinking trend not statistically significant. There was evidence of an increase in the risk of stroke at the highest level relative to a heavy alcohol-drinking history.[13]

The cases and controls were further distributed in the study, depending on the duration of alcohol consumption. It was found that duration of alcohol consumption was significantly associated with occurrence of stroke. Previous study conducted by Matti H et al showed no link between duration of alcohol consumption and stroke but suggested that recent heavy alcohol consumption but not previous heavy drinking was an independent risk factor for stroke.[14]

Conclusion: The study revealed that, the odds (chance) of getting stroke among alcoholic was virtually two times more in alcoholic as compared to non-alcoholic. Male married patients who drank heavily had a higher risk of stroke than light/moderate alcoholics. Occasional alcohol consumption was less likely to get stroke compared to frequent and heavy alcohol consumption which highlights the need for a rapid cessation of alcohol consumption.

Declaration:

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Social Stigma towards Health Care Workers during COVID Pandemic : A Hospital based Cross-sectional Study in Kolkata

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Abstract:

Introduction: With the rise of COVID-19 pandemic, the health staffs have faced resistance and disrespect by the society. They have been stigmatised unnecessarily that has been resulted from fear and poor knowledge of general population regarding spread of COVID-19 infection. **Objective :** To estimate the proportion of health care workers who experienced social stigma during COVID-19 pandemic and to determine the association of social stigma with their socio-demographic and other background characteristics. **Method:** A descriptive type of observational study, cross-sectional in design was carried out among health care workers(HCWs) of a tertiary care hospital in Kolkata during the COVID-19 lockdown period (19th May 2020– 20th July 2020) using a pre-designed, pre-tested, structured schedule. By simple random sampling, 422 HCWs were selected and 410 of them had given consent to participate in this study. MS Excel 2010 and SPSS v20.0 were used for data entry and binary logistic regression. **Results :** About 52.68 % had experienced 'Significant Social Stigma', 32.92% experienced 'Insignificant Social Stigma' and only 14.39% had 'no stigma'. Age groups of 25-40 years and mode of transport by hospital vehicle had significant association with social stigma. **Conclusion:** More than half of the study population experienced "Significant Social Stigma". The HCWs who were travelling by hospital vehicles from home to attend their duties and HCWs of younger age group were stigmatised in different ways.

Key words: COVID-19, Pandemics, SARS-CoV-2, Social Stigma

Introduction:

Social stigma in the framework of health is the negative association between a person or group of persons who share a specific disease and certain characteristics.[1] In an epidemic/pandemic, this mean people are labelled, discriminated against, stereotyped, treated separately, and/or experience loss of status because of a recognized connection with a disease. Such behaviour can affect those with the disease, caregivers, family, friends, doctors and nurses and even communities at large.[1] The COVID-19 pandemic, being an unfamiliar communicable disease, has provoked social stigma and discrimination against people perceived to have been in contact with the virus, may be patients or healthcare providers.[1] Even the family members of the health care workers have been stigmatized.

Among the 'Corona Warriors'; the healthcare workers (HCWs)are considered the most vulnerable for their close contact with patients, their contacts, and asymptomatic carriers. As participation of health care personnel in the treatment of COVID-19 are

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rising, they are increasingly considered by the public as petri dishes of the virus- a source of viral dissemination.[2]

Prior to this, there were already alarming number of incidences of physical and verbal assault on healthcare provider.[3] Now during COVID-19 pandemic,many incidents of stigmatization of healthcare workers, have come up across the world.[4] For instance, in Mexico, doctors and nurses used bicycles during this pandemic, because they were denied access to public transport and faced physical assaults; in Malawi, healthcare workers were disallowed to use public transport, insulted in the road, and evicted from rented apartments.[4] A mob of locals threw stones and spat upon a team of health care workers and civic officials in Ranipura, Indore who had gone to screen residents' there.[5] An Auxiliary Nurse Midwife was obstructed from entering her house and manhandled in Bareilly.[2] In Moradabad's Nawabganj area a team of doctors and medical staff were stoned.[2] A group of ASHA (Accredited Social Health Activist) workers were assaulted in the Sadiq, area of Bangalore during conducting survey on symptomatic people.[2] There was a complain of obscenity lodged by Chief Medical Superintendent (CMS) of MMG District hospital of Ghaziabad against a group of five suspected coronavirus patients.[6] A lady doctor in Surat was verbally abused by her neighbour.[7] Health Care Workers raised their voices and showed their concern over these increasing instances of stigma on them.Funeral of a nurse who died of COVID-19 in Sewakul village, West Ungaran, Semarang regency in Central java was rejected by several residents.[8] In Chennai, a neuro surgeon, who died of COVID-19 infection, was denied decent burial.[9] To tackle the social stigma in COVID-19 pandemic, WHO tells to create an environment where open discussion among healthcare workers and people is possible.[4]

There are several studies worldwide which speaks about psychological problems, depression, stress and mental health of HCWs during COVID-19 pandemic. However there is dearth of epidemiological research regarding social stigma towards them during this pandemic and with the best of our knowledge, probably this is the first study in this part of India. With this background this study was conducted on social stigma perceived by the health care workers working in a tertiary care hospital in Kolkata.

Method:

A descriptive type of observational study, cross-sectional in design was conducted during the COVID-19 lockdown period (19th May 2020– 20th July 2020) over a period of 2 months among health care workers of a tertiary care teaching institute of Kolkata, West Bengal, India.

Inclusion and Exclusion Criteria: All persons who were involved in any type of health care or health care related work and were travelling daily from outside the hospital for their duty (either by their own vehicle or vehicle provided by the administration) or those who had hostel accommodation but were availing hospital transport to go home on holidays/ off-days were included in the study. Health care workers who did not give informed written consent were excluded.

Sample Size and Sampling Technique: Assuming proportion (p) of social stigma as 50%, standard normal deviate Z = 1.96 (for 95% confidence interval) and 5% absolute precision (d),sample size was calculated using Cochran's formula as (Z^2 x p x (1-p)/$(d)^2$)= 384. After adding 10% non-response rate, final sample size was calculated to be 422.By simple random sampling method, 422 people were chosen from an available list of the staffs from the travel register for data collection. However, 12 of them did not gave their consent to participate in the study. Thus a total of 410 people were included.

Study tool: A pre-designed, pre-tested structured schedule was used for data collection which was prepared in consultation with 3 experts; 1 public health specialist, 1 social scientist and 1 psychologists. After the schedule was designed it was pretested among 20 HCWs of the same institution who were not included in final study. Minor corrections were made in the schedule. From their responses Cronbach's Alpha (α) was calculated for

each question. The question with α>0.7 were included in final schedule. The schedule consisted of two parts:

First part included Socio-demographic characteristics (age, gender, religion, caste, marital status, type of family, education, socioeconomic status, current residence, department of work, addictions etc.).

Second part included 17 Components to assess social stigma. Responses of social stigma components were noted in 5 point Likert Scale scoring '0'(zero) to 4 for their responses of 'Never', 'Rarely', 'Sometimes', 'Often' and 'Very often' respectively. Median of the social stigma response score (aggregated) was calculated and it was found to be 7. Scores below 7 were considered to be 'No- significant Social Stigma' (NSS) and scores >=7 were taken as having 'Significant Social Stigma'. Among the NSS, those having '0' score were marked as 'No social stigma' , scores 1 to 6 as 'Insignificant Social Stigma'.

Study variables: The study variables were broadly Dependent variables (Social Stigma to HCWs) and Independent variables (age in completed years, gender, religion, caste, marital status, residence, currently living with, type of family,[10] level of education, occupation, socio-economic status,[11] transport, addiction).

Data collection technique: After obtaining approval from Institutional Ethics Committee (IEC), data collection was done by face-to-face interview by the investigator and co-investigators, maintaining physical distance and wearing mask, face shield & cap. Informed written consent was taken from all the participants after explaining the purpose & nature of the study and ensuring their anonymity & confidentiality.

Data analysis: Data were entered in Microsoft Office Excel 2010(Microsoft Corp, Redmond, WA, USA) and analysis were done using Statistical Package for the Social Sciences (SPSS for Windows, version 20.0, SPSS Inc., Chicago, USA). Descriptive and Inferential Statistics for study variables were performed. Descriptive results were expressed by frequency and percentage; binary logistic regression wasdone;Pearson's Chi Square Test and odds ratiowith 95% Confidence Intervals were calculated. A p value of <0.05 was considered statistically significant.

Ethics Committee Approval: Approval from Institutional Ethics Committee (IEC) was taken vide memo no. IPGMER/IEC/2020/391 dated 18/05/2020.

Operational Definitions:

Health Care Workers: Health care worker or "HCW" means any paid (by the government or by the contractors) or unpaid person (including health care students/ volunteers) working in a health care facility or hospital on permanent or contractual basis, and involved directly or indirectly in patient care/ academics/ hospital administration/ hospital upkeep and security on a consistent and regularly scheduled basis for five or more hours per week. In Indian context, they include doctors, nurses, support staffs, technicians, para medical staffs, medical students, interns, externs, house-staffs etc.

Residence (hostel): Health Care Workers who had hostel accommodation but used to go their home during holidays/ off-days.

Socio Economic Classification: Revision of the Prasad's social classification for the year 2020 [11]

Other background characteristics: It includes type of transport used by the HCWs, contact with COVID-19 positive patient, posting in fever clinic.

Table 1 shows distribution of the study population as per their Socio-demographic profile.Out of 410 HCWs, 54.6% were females and 45.4% were males. About 39.3 % were in the age group of 25-40 years with mean age of 36.53±12.3 years, median age of 34 years and a range of 18 to 62 years. Most (80.2%)of the participants followed Hinduism; 59.8% were married;28.8% belonged to Scheduled Caste, 3.2% to Scheduled Tribe,15.1% to Other Backward Classes and 52.9% to General category. Regarding education, majority (54.1%) were Graduate &above. About 87.3% lived with

Table 1: Socio-demographic profile of study population (N=410)

Socio-demographic characteristics		n(%)
Age group (in completed years)	<25	101(24.6)
	25-40	161(39.3)
	41-55	97(23.7)
	>55	51(12.4)
Gender	Female	224(54.6)
	Male	186(45.4)
Religion	Hindu	329(80.2)
	Muslim	76(18.7)
	Christian	3(0.7)
	Other (Buddhist, Jain, Secular)	2(0.5)
Caste	Others (general)	217(52.9)
	SC	118(28.8)
	OBC	62(15.1)
	ST	13(3.2)
Marital status	Married	245(59.8)
	Unmarried	161(39.2)
	Others(Separated, divorced,Widow)	4(1.0)
Current Residence	Hostel	10(2.4)
	Quarter	13(3.2)
	Rented house	174(42.4)
	Own house	213(52.0)
Living with	Alone	52(12.7)
	Family	358(87.3)
Type of family	Joint	149(36.3)
	Nuclear	261(63.7)
Level of education	Non-formal education	14(3.4)
	Primary	6(1.5)
	Middle school	26(6.4)
	Secondary	57(13.9)
	Higher secondary	85(20.7)
	Graduates and above	222(54.1)
Occupation	Doctor	48(11.7)
	Nurse	176(42.9)
	Paramedical staff (Lab Technician, Physiotherapy interns)	25(6.1)
	Others (House-keeping, clerical staffs, administrative staffs, Security, Lab technician, GDA* etc.)	161(39.3)
Socio-economic class (Modified BG Prasad Scale 2020)[11]	Class I (Upper)	216(52.7)
	Class II (Upper Middle)	164(40.0)
	Class III (Middle)	16(3.9)
	Class IV (Lower Middle)	11(2.7)
	Class V(Lower)	3(0.7)
Addictions (if any)	Yes	89(21.7)
	No	321(78.3)

family members whereas rest 12.7% lived alone. Among the respondents, 42.9% were Nurses, 11.7% were Doctors and 6.1% were Paramedical staffs. As per Modified BG Prasad Scale, January 2020,[11] majority (52.7%) belonged to Class I while only 0.7% were in Class V. Most of them (87.3%) were travelling by hospital vehicles and 12.7% by own vehicles. Addiction was found among 21.7% of the study population.

Distribution of the study population according to response to different components of social stigma was demonstrated in Table 2A and Table 2B which revealed that people did not avoid talking to 46.1% of the HCWs; only 38.0% of the HCWs were not considered as source of infection; 9.5% were ordered to vacate the house by their landlord. Only 52% of the respondentshad no fear to step out of their residence. When enquired about psychological status, 13.9% of the HCWs reported to be depressed sometimes and 13.0% were depressed more often. Though 13.9% faced verbal abuse sometimes or more by the patient's relatives and 6.4% faced verbal abuse by their neighbours sometimes or moreduring last 1 month, there was no incidence of physical abuse. Social media harassment was faced by 7.7% of HCWs.

Table 2A: Distribution of the study population according to response to different components of social stigma (N=410)

Information sought	Never n (%)	Rarely n (%)	Sometimes n (%)	Often n (%)	Very often n (%)
1. People avoid talking to me when they see me.	189(46.1)	102(24.9)	94(22.9)	22(5.4)	3(0.7)
2. People behave strangely and show unusual expression when they see me leaving for duty or returning.	203(49.5)	94(22.9)	90(22.0)	19(4.6)	4(1.0)
3. My family members, relatives and friends are avoiding me and not spending time with me like they used to.	288(70.2)	82(20.0)	25(6.1)	15(3.7)	0(0)
4. People think I might be infected with Covid-19 and transmit infection to them.	156(38.0)	69(16.8)	111(27.1)	67(16.3)	7(1.7)
5. My landlord has asked me to vacate house.	371(90.5)	12(2.9)	16(3.9)	11(2.7)	0(0)
6. My family has asked me to stay in hospital premises and not to return home.	361(88.0)	25(6.1)	13(3.2)	4(1.0)	7(1.7)
7. My neighbours are avoiding meeting and talking to my family members.	244(59.5)	34(8.3)	76(18.5)	35(8.5)	21(5.1)
8. I feel scared to step out of my house for duty.	213(52.0)	105(25.6)	68(16.6)	21(5.1)	3(0.7)
9. My colleagues have changedtheir behaviour towards me and started behaving strangely.	377(92.0)	15(3.7)	15(3.7)	3(0.7)	0(0)

Out of the 410 participants, 16.1% had difficulties in car parking / water supply/ supply of essential items to their home. During this pandemic, only 61% of the study population never regretted to be in this noble.

Table 3 depicted predictors of social stigma using binary logistic regression. In simple binary logistic regression analysis, age of the participant, female gender, general caste,currently residing in rented house,nuclear family , education up to mid school, living alone, Per Capita Monthly Income , occupation (doctors), mode of transport by hospital vehicle, addiction and contact with COVID-19 patient were found to be statistically significant.

These were considered for final binary logistic regression analysis and age group, female gender, general caste, mid school education, living in rented house, mode of transportby hospital vehicle, and contact with COVID-19 patient were proved to be statistically significant with stigma score.

Figure 1 showed that about 53% of the study population faced 'Significant Social Stigma'; 33% had'Insignificant Social Stigma' and only 14% had faced'No Social Stigma'.

Discussion:

Engagement of HCWs in hospitals& clinic sputs them at high risk of contracting the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2).[12] The accelerating spread of COVID-19 and its outcomes has led people to fear, panic, concern, anxiety and thus constitutes stigma.[13]

In the present study 52.34% of the HCWs faced significant social stigma. A study by Uvais et al [14] at Calicut, Kerala among healthcare workers (haemodialysis staff -nurses and technicians) during COVID-19 showed that 54.6% of the dialysis staff

Table 2B: Distribution of the study population according to abuse faced by them (N=410)

Information sought	Never n (%)	Rarely n (%)	Sometimes n (%)	Often n (%)	Very often n (%)
1. I have been feeling depressed and in low mood since last 1 month.	227(55.4)	73(17.8)	57(13.9)	47(11.5)	6(1.5)
2. I have faced verbal abuse by neighbours in last 1 month.	317(77.3)	36(8.8)	48(11.7)	9(2.2)	0(0)
3. I have faced verbal abuse by patients' relatives/other people in last 1 month.	297(72.4)	87(21.2)	13(3.2)	13(3.2)	0(0)
4. I have faced physical abuse by neighbours in last 1 month.	410(100)	0(0)	0(0)	0(0)	0(0)
5. I have faced physical abuse by patients' relatives/other people in last 1 month.	402(98.0)	4(1.0)	4(1.0)	0(0)	0(0)
6. I have faced problem regarding car parking/ water supply/ home delivery of items at my residence.	322(78.5)	22(5.4)	51(12.4)	15(3.7)	0(0)
7. I have been harassed on social media.	358(85.6)	28(6.8)	22(5.4)	6(1.6)	3(0.7)
8. I feel I would have preferred to be in some other job rather than being a health care worker.	250(61.0)	59(14.4)	46(11.2)	28(6.8)	27(6.6)

perceived significant stigma during COVID-19.Another study by Uvais et al [15] among doctors working in COVID-19–designated hospitals in India revealed that 62.1% had higher levels of perceived stigma.Ramaci et al at Italy [16] has suggested that stigma has a high impact on workers' outcomes and compliance. Perceived stigma among the HCWs is a major mediator for psychiatric problems during COVID-19 pandemic. The WHO issued specific psychosocial considerations to reduce the growing stigma of COVID-19.[17]

Due to the lack of studies on the perceived stigma by HCWs during COVID-19, studies were drawn from other sources- Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome coronavirus (MERS-CoV).A study by Verma et al [18] among General Practitioners (GPs) and Traditional Chinese Medicine Practitioners after the outbreak of SARS pandemic in Singapore revealed that stigma towards GPs who were involved in SARS-affected patient care was significantly higher than that of Traditional Chinese Medicine (TCM) practitioners. Study by Koh et al in Singapore [19] among HCWs during SARS pandemic demonstrated that 49% HCWs experienced social stigmatization. In Taiwan 20% of HCWs engaged with the SARS outbreak felt stigmatization and rejection from their neighbourhood revealed from a study by Bai et al.[20] Stigma had both direct and indirect influence on mental health among nurses working at a government-designated hospital in Gyeonggi-do, South Korea during MERS-CoV epidemic described by Park et al.[21]

A study by Taylor et al[22] from the United States and Canada showed that avoidance of HCWs is a widespread problem during the COVID-19 pandemic. Over a quarter of Non-HCW adults believed that HCWs should be isolated from communities and their families too because of fear that HCW is a source of infection. Netherland study by Kluytmans et al[23] found that HCWs are more likely to acquire COVID-19 in the community, rather than in hospital settings like non-HCWs.

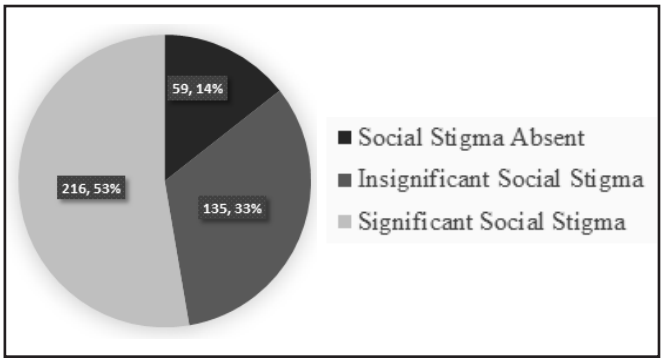
Table 3: Predictors of social stigma: Binary logistic regression (N=410)

Independent variables		Significant Social Stigma present (n=216)	OR (95% CI)	AOR (95% CI)	p value
Age group (in completed years)	<25	61	4.45(2.11-9.39)	34.89(9.29-131.01)	p<0.001
	25-40	92	3.89(1.93-7.87)	14.89(4.92-45.14)	p<0.001
	41-55	50	3.11(1.48-6.55)	11.38(3.87-33.49)	p<0.001
	>55	13	1	1	-
Gender	Female	142	2.62(1.76-3.91)	5.93(2.09-16.82)	0.001
	Male	74	1	1	-
Caste	SC	58	0.82(0.53-1.29)	0.38(0.19-0.77)	0.007
	ST	10	2.85(0.76-10.64)	1.58(0.31-8.19)	0.580
	OBC	31	0.85(0.49-1.50)	0.14(0.05-0.34)	p<0.001
	Others (General)	117	1	1	-
Level of Education	Non formal education	4	0.31(0.09-1.02)	0.81(0.126-5.49)	0.833
	Middle School	20	2.59(1.00-6.69)	38.02(7.99-180.91)	<0.001
	Secondary	26	0.65(0.36-1.17)	1.69(0.51-5.57)	0.389
	Higher Secondary	41	0.72(0.44-1.19)	0.26(0.12-0.57)	0.001
	Graduate and above	125	1	1	-
Residence	Hostel	6	2.01(0.55-7.33)	5.74(0.47-70.19)	0.171
	Quarter	10	4.47(1.19-16.70)	12.69(1.66-97.23)	0.014
	Rented house	109	2.25(1.49-3.39)	3.29(1.62-6.72)	0.001
	Own house	91	1	1	-
Living with	Alone	35	2.01(1.09-3.72)	0.97(0.32-2.97)	0.962
	Family	181	1	1	-
Type of family	Joint	65	0.56(0.37-0.85)	0.60(0.34-1.07)	0.085
	Nuclear	151	1	1	-
Occupation	Doctor	19	2.90(1.31-6.40)	1.75(0.45-6.79)	0.419
	Nurse	118	2.71(1.74-4.22)	1.67(0.49-5.79)	0.413
	Paramedical Staff	10	0.88(0.38-2.09)	0.48(0.11-1.99)	0.310
	Others	69	1	1	-

Transport	Hospital vehicle	205	4.99(2.49-10.03)	39.94(7.59—210.26)	p<0.001
	Own vehicle	11	1	1	-
Contact with COVID19 Positive patient	Yes	38	1.76(0.99-3.11)	2.41(1.05-5.54)	0.038
	No	178	1	1	-
Addictions (if any)	Yes	40	1.49(0.93-2.38)	1.33(0.59-2.95)	0.49
	No	176	1	1	-

Model Fit: Cox and Snell R-Square=0.365, Nagelkerke R-Square=0.487, Omnibus Test p <0.001, Hosmer-Lemeshow Test p=0.074

Figure 1: Pie diagram showing distribution of study population according to presence of social stigma (N=410)



American data collected from February-April, 2020 revealed that the majority of reported COVID-19 cases (89%) were non HCWs.[24] Similarly Canadian research demonstrated that HCWs had a risk of only 0.14 % of developing COVID-19, compared to 0.10 % in the general population.[25] In a study by Jha et al[26] in Max Superspeciality Hospital in India, 14.7% of HCWs who participated had flu-like symptoms, and only 1.8% of them had COVID-19 infection. Thus there is no basis for the attitudes that HCWs should be separated from their communities and/or families.

Strengths & Limitations:

Strengths of the present study are:

- There is a dearth of epidemiological research study about healthcare worker's stigmatization during COVID-19 pandemic and to the best of our knowledge this is probably the first study carried out in this part of India.
- Large sample size.
- High response rate(97.15%).
- Our findings provide valuable information that HCWs are associated with the "COVID Stress Syndrome" and interventions that reduce "COVID Stress Syndrome" may also reduce stigma towards HCWs.

Limitations:

- Firstly, there was lack of a validated scale that specifically assesses the stigma associated with COVID-19.
- Secondly, the cross-sectional design did not allow exploring the changes in stigma pattern over time.
- The third limitation was possibility of social desirability bias, that is, responses to some questions being socially favourable. Moreover the study population were recruited from a single institute for this study which limit the external validity. Last but not the least qualitative method was not used which would have added more insights to the problem.

Conclusion and Recommendations:

The COVID-19 has emotionally affected the lives of HCWs- both for the physical threat of the disease, and fear of stigmatisation. This study has revealed that more than half of the study population experienced "Significant Social Stigma".The HCWs who were travelling from home to attend their duties were stigmatised in different ways. Many of them were considered as source of infection by the society. People avoided them and reacted strangely when

they had seen them going to duty or coming home. Few Rented house residents were ordered to vacate the house by their landlords. They had difficulties regarding water supply, car parking and delivery of essential items to their home.

It is not known at this point whether this pandemic will have a continuing effect, or it will end after an extended time-hence it is important that stigma towards these HCWs be explored and treated. Community awareness generation through mass media will play an important role. Accommodation of the HCWs in hospital facility may be considered, especially during the pandemic. Co-operation, assistance and strict measures from administration for the safety of HCWs and their family members can reduce the stigma. Development of an environment/ forum, where open discussion among health care workers and people is possible, will educate the general population and clear there doubt and it will reduce the stigma.

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Socio-demographic Factors affecting Female Sterilization Operation among Couples of Ahmedabad City: A Record Based Study

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Abstract:

Introduction: Unplanned pregnancy may be the reason of many neonatal and maternal adverse effects. Many factors have been reported to be associated with acceptance of female sterilization. **Objective:** To identify various socio-demographic factors affecting the decision of choice of Tubal Ligation (TL). **Method:** A record based study was done using data from the register maintained at the Family Planning Unit of Obstetrics and Gynaecology department. Analysis of data of TL operations conducted between April 2018 to March 2019 were performed. **Results:** A total of 675 tubal ligation operations were conducted. The mean age of females undergoing TL was 28.8 ± 3.9 years and their husbands was 33.25 ± 4.38 years. Out of the total, 484(71.1%) couples were Muslims. Total 74(10.8%) females were illiterate and 39(5.8%) males were illiterate. Among 440 (65.1%) couples who had underwent TL had 3 living children. Majority i.e., 518 (76.7%) had the age of their last living child less than 1 month. Ninety one percent of couples had at least one male child. There was a significant relationship of female education with total number of living children. Relationship of total number of living children with religion was also significant statistically. **Conclusion:** The study concludes that female education as well as religious and cultural beliefs plays a major role in deciding the female sterilization.

Key words: Female education, Female sterilization, Religion, Tubal ligation.

Introduction:

Unplanned pregnancy may be a major social and public health issue with adverse effects on neonatal and developmental outcomes and also on maternal health and wellbeing.[1] In India, the birth control program was implemented in 1952, as a national population policy to regulate the rapid rise of population and reduce poverty. Initially, variety of recent methods were focused and later shifted toward male sterilization, but female sterilization became the prime focus from late 1970. However, the persistent dominance of sterilization in the family program is largely affected by the socioeconomic conditions.[2] The use of contraceptive methods among Indian women is related to several factors such as personal, interpersonal, partner related, service related and/or method related.[3] Various factors like age, education of both the parents, age of the last living child were reported to be associated with acceptance of female sterilization in the population of rural Ahmedabad, Gujarat.[4] It was also seen that either lack of information or misinformation regarding temporary methods and less opportunity to prefer modern temporary

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methods due to affordability and accessibility issues also affect women's choice of selecting female sterilization in rural parts of India.[5] One qualitative study from Mumbai showed that from a women perspective, the choice to undergo sterilization makes them effectively control their fertility leading to their improved sexual relationships and emotional health.[6] However, a major determinant in sterilization was son preference, as it was found that many women preferred sterilization even with two sons than if they had two daughters, especially in states like Gujarat, Punjab, Rajasthan, Uttar Pradesh and Bihar.[7] Due to scarce data on multiple factors affecting the selection of contraceptive, it is worth to analyse the record based data and use it to identify the various socio-demographic factors affecting the decision of choice of Tubal Ligation (TL).

Objectives:

- To study the socio-demographic profile of various couples undergoing Tubal Ligation
- To correlate the various socio-demographic factors affecting the decision of choice of Tubal Ligation.

Method:

A record based study carried out at the Family planning unit of Obstetrics and Gynaecology, at one of the tertiary care hospital of Ahmedabad city. Data of the Couples undergoing Tubal ligation (TL) operation at the above hospital during the one year period from April 2018 to March 2019 was collected with permission. The data included the variables like education of couple, their age, and number of children, occupation and age of last child, religion, and time of selection of TL.

Results:

A total of 675 couples had opted TL operations at the Family Planning Unit of Obstetrics and Gynaecology Department from April 2018 to March 2019. Out of the total, 486 (72%) couples were Muslim, one was Sikh and rest 188(27.9%) were Hindu. It may be due to majority of the population in the nearby area of the hospital is Muslim. Mean age of females undergoing TL was 28.8 ± 3.9 years and their husband was 33.25 ± 4.38 years. Maximum age in females was found to be 41 years and in males it was 50 years, while the minimum age found in females was 20 years and in males was 23 years. Most common age group at the time of TL operation among female was of 21-30 years and among males was 31-40 years. Majority(75%) of the female and 65% of the male had completed education up to primary level. (Table 1)

Table 1: Socio-demographic information of couples selecting Tubal Ligation (n=675)

Age group (years)	No. of women (%)	No. of men (%)
11-20	1(0.1)	0(0)
21-30	502(74.4)	246(36.4)
31-40	171(25.3)	403(59.7)
41-50	1(0.1)	26(3.9)
Educational status	No. of women (%)	No. of men (%)
Illiterate	74(10.8)	39(5.8)
Primary education	509(75.5)	441(65.3)
Secondary education	88(13.05)	188(27.9)
Graduate	4(0.6)	7(1)
Religion of couple	**No**	**Percent**
Hindu	187	27.7
Muslim	484	71.7
Sikh	1	0.1
Not mentioned in record	3	0.4

The mean number of children in the family was 3.09 ± 0.72. The mean number of female children was 1.53 ± 1 and the mean number of male children was 1.56 ± 0.8. There were 92(13.6%) couples without any female child in the family and 59(8.7%) couples without any male child indicating 91% of the couple had at least one male child. Only 15% of the couples underwent permanent method of contraception after 2 living children while majority (65%) of the couples decided it after having 3 living children. Only 1 couple underwent TL operation even if they didn't have any child and the reason for the same was not mentioned in the records.

Majority i.e., 518(76.7%) of the couples preferred the sterilization operation when the age of last living child was less than one month. Out of total 675 couples, the last living child was male in 375(55.6%) and female in 300(44.4%) couples. (Table 2)

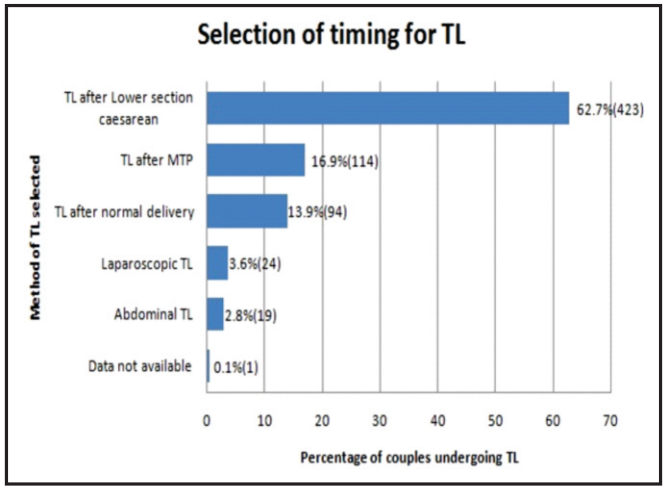
Table 2: Total number of living children, gender and age of last living child in couples at the time of doing Tubal Ligation (n=675)

Number of living children	No. of couples	percentage
0	1	0.1
1	1	0.1
2	101	15
3	440	65.1
More than 3	132	19.7
Number of children	**No. of couples (male children)**	**No. of couples (female children)**
0	59(8.7%)	92(13.6%)
1	275(40.7%)	261(38.7%)
2	253(37.5%)	215(31.9%)
More than 2	88(13.1%)	107(15.8%)
Age of last living child	**No. of couples**	**percentage**
< 1 month	518	76.7
1 month to 12 months	10	1.5
1 year to 5 years	97	14.4
5 years to 10 years	41	6.1
More than 10 years	9	1.3
Gender of the last living child	**No.**	**percentage**
Female	300	44.4
Male	375	55.6

Majority (62.7%) of couples selected TL along with Lower section caesarean, 94(13.9%) of couples preferred TL after normal vaginal delivery while 114(16.9%) females underwent sterilization after Medically Terminated Pregnancy (MTP) procedure. (Figure 1)

Out of 675, 74 (11%) were illiterate and among these 71(96%) had more than 2 children while among literate females, 501(83%) out of 601 had more than 2 children and this difference was also statistically significant(p value 0.003 and Odds Ratio (OR) 4.72). Out of 675 males, 39(5.8%) were illiterate

Figure 1: Selection of timing for TL



and among these couples, 95% were having more than 2 living children. However, male educational status was not significantly associated with the total number of living children in family(p value 0.1134 and Odds Ratio (OR) 3.49). Out of 484 Muslims couples, 429(88%) had more than 2 children while among Hindu couples 139(74%) out of 187 had more than 2 children and this difference was also highly significant(p value 0.0001 and Odds Ratio (OR) 2.69). Gender of last living child whether male or female, was not significantly related to the total number of living children(p value 0.9618 and Odds Ratio (OR) 0.98). Out of a total 675 couples, 59(8.7%) had no male child, and among these couples 53(90%) had more than two living children. However, this association was insignificant(p value 0.3428 and Odds Ratio (OR) 1.65). (Table 3)

Discussion:

The study was conducted at Vadilal Sarabhai General Hospital which is situated in the west zone of Ahmedabad city. The mean age of females undergoing TL was 28 years and their husband was 33 years. Puwar et al., had also reported 28 years as median age in females and 31 years as median age in males.[4] This shows that couples are choosing permanent method of contraception at a younger age. 74.4% females who underwent TL in our study were in the age group of 21-30 years. While a study by Benjamin et al., reported that 40.1% of female who underwent sterilization operation were in the age group of 30-35

Table 3: Association between socio demographic variable and total living children (n=675)

Variable	Total number of living children		Total	Odds ratio and 95% Confidence Interval	p - value
	More than 2 (%)	Up to 2 (%)			
Female Education					
Illiterate	71(95.95)	3(4.05)	74	4.72 (1.46 to 5.301)	0.0030
Literate	501(83.36)	100(16.64)	601		
Total	572(84.7)	103(15.2)	675		
Male Education					
Illiterate	37(94.8)	2(5.1)	39	3.49 (0.82 to 14.72)	0.1134
Literate	535(84.1)	101(15.8)	636		
Total	572(84.7)	103(15.2)	675		
Religion					
Muslims	429(88.6)	55(11.3)	484	2.69 (1.74 to 4.14)	0.0001
Hindu	139(74.3)	48(25.6)	187		
Total	568(84.6)	103(15.3)	671		
Gender of last living child					
Female	254(84.6)	46(15.3)	300	0.98 (0.64 to 1.51)	0.9618
Male	318(84.8)	57(15.2)	375		
Total	572(84.7)	103(15.2)	675		
At least one male child					
No	53(89.8)	6(10.2)	59	1.65 (0.69 to 3.94)	0.3428
Yes	519(84.2)	97(15.7)	616		
Total	572(84.7)	103(15.2)	675		

years.[8] We found in our study that 75% females and 65% of males had completed education up to primary level, whereas in a study by Athavale A et al., showed that 23% of women were illiterate, 11% were educated up to primary level and 66% had completed education beyond primary level.[9] Amongst illiterate females, 96% had more than 2 children in our study. It was seen in an ICMR study by R Baveja et al., that illiterate women in their study had more children compared to literate women.[10] A significant relationship was seen between female education with number of living children (Odds ratio 4.72 and P value 0.003) in our study. Education of female was also found significantly related to the total number of children (chi square 22.4, p = 0.001) in a study by Puwar B et al.[4] This shows that female education play a major role in limiting the family size. Male education had no significant relationship with the number of living children (p value 0.1134) in our study. A study by Palamuleni ME et al., showed that with higher women empowerment the use of long acting contraceptives has increased.[11] While a study conducted from the data of National Family Health Survey (NFHS) in Uttar Pradesh in 1992– 1993 by

Dwivedi SN et al., showed that whose husband's were literate were more likely to adopt contraception(OR = 1.7, 95% CI : 1.4-2.1).[12] Thus, improving the educational level may prove beneficial in controlling the population growth. The mean number of children in the family was 3 in our study. Similarly, Puwar B et al., reported 2.84 as the mean number of children.[4] Out of all, 91% of the couple had at least one male child and 55% of total couples had the last living child as male indicating that having at least one male child in the family before undergoing permanent method of contraception does have an influence. Similarly, Athavale A et al., reported that 89% of the couples had at least one male child.[9] Puwar B et al., also observed that 98.9% couples had at least one male child in the family before selecting permanent method.[4] Edmeades J et al., also showed that 29% women did sterilization if they had at least one son.[13] A good deal of documented research had shown the same results for sex preference.[7,14-17]

When analyzed, the gender of last living child with the total number of living children, no significant relationship was seen (P = 0.9618). Instead, an equal distribution was noted. Also having at least one male child did not show a significant relationship in our study with total number of children (P = 0.3428). We also noted that 62% of the couples preferred TL soon after Lower section caesarean delivery and 76% couples preferred TL when the age of their last child was less than a month. Puwar et al., stated that 28% females preferred to undergo sterilization when the age of last living child was less than 1 month.[4] TL after lower section caesarean delivery makes it a cost-effective strategy. It was also seen that about 16.9% couples did sterilization after undergoing Medically Terminated pregnancy, indicating an unmet need for contraception.

It was seen that out of Muslims couples, 88% had more than 2 children before selecting TL while in Hindus it was 74% of couples who had more that 2 children, this relationship was also found to be highly significant (P = 0.0001). A study done by Hayat H et al., in rural Kashmir valley particularly Muslim dominated also showed 17% of couples did not use contraception due to religious reasons.[18] In a study by Kansal A et al., they stated that the most common reason for not using contraception was the desire for more children in 21% couples or particularly male child (5.4%) followed by religious reasons also (5.8%).[19] Similarly in a study by Patra S et al., in 2015, about 9% Muslim women in India do not use contraception due to religious reasons, and non-Muslim women were more likely to use a family planning method in the future than Muslim women,[20] thus religious and cultural beliefs regarding the family size play a definite role in limiting the size of the family.

Limitations:

This was a record based study so, only the factors mentioned in the records could be studied. More such studies are required having a larger sample size and a population consisting of different ethnic groups and religion.

Conclusion:

In present study, women did sterilization at the age of 28 years after having approximately 3 children. Majority of the families had at least one male child. Education of mother was significantly related to the total number of children, indicating women's role in deciding the time of sterilization. Religion of the couple also showed a significant association with total number of children in the family. Most common time selected for TL was soon after Lower section caesarean delivery and majority of the couples preferred TL when the age of their last child was less than a month. So we would like to recommend to increase literacy among females.

Declaration:

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Prevalence of Diabetes Mellitus among Pulmonary TB patients in a Tertiary Care Hospital of Ahmedabad City, Gujarat

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Abstract:

Introduction: Diabetes Mellitus and Tuberculosis are two major diseases that often present together and complicate each other at many levels. The epidemic growth of Diabetes Mellitus has occurred in developing countries where Tuberculosis (TB) is highly endemic. As a result, Diabetes Mellitus and TB are increasingly present together. **Objectives:** To estimate the prevalence of diabetes in tuberculosis patients currently on DOTS treatment and to determine the socio-demographic factors associated with it. **Method:** A cross sectional study was carried out among pulmonary TB patients receiving DOTS treatment. Total 340 patients were included using convenient sampling who received treatment between August and October 2018. **Results:** Out of 340 patients, 208 (61%) were males and 132 (39%) were females. The prevalence of diabetes in patients of tuberculosis was found to be 11.5%. Among diabetics, 59% had only diabetes and 41% had other co-morbid disease apart from it. About 56.4% of diabetic TB patients were consuming tobacco. Age, Illiteracy, re-treatment regime were significantly associated with presence of diabetes among TB patients. **Conclusion:** Diabetes was found to be prevalent in 11.5% of the patients of tuberculosis. Diabetes is significantly associated with the severity of TB, old age and literacy of the TB patients in this study.

Key words: Diabetes, DOTS, Prevalence, Tuberculosis.

Introduction:

Tuberculosis is one of the top ten causes of death in the world, and the leading cause from a single infectious agent (above HIV/AIDS).[1] In the incident rate of TB, India is 17th among 22 High Burden Countries. It has the largest number of TB cases in the world (estimated at 2.8 million incident cases per annum) with an incidence rate of 217/100,000 per year for 2015.[2] Globally, 350 million people have Diabetes Mellitus and it is predicted that global prevalence of diabetes will be doubled by 2030. India has the maximum number of diabetics in the world.[3,4] The prevalence of Diabetes Mellitus in adults in India is estimated to be ranging from 5.6 to 12.4%.[5]

Diabetes Mellitus is recognized as an important co-morbidity for the development of TB. Those who have weak immune system such as Diabetes Mellitus, have 2-3 times higher risk of developing TB than those without Diabetes Mellitus.[6-8] This leads to a higher prevalence rate of TB among Diabetes Mellitus patients; the rate of Diabetes Mellitus is also higher among TB patients than in general population. Around 10% cases of Tuberculosis are linked with Diabetes Mellitus.[9] With the increase of Diabetes Mellitus burden globally, concerns have been raised about the emerging co-epidemics of Diabetes

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Mellitus and TB, especially in low- and middle-income countries. This study was carried out to estimate the prevalence of diabetes mellitus and to determine the socio-demographic factors associated with it.

Method:

Current cross sectional study was carried out between August 2018 and October 2018 among TB patients attending TB Chest OPD at Designated Microscopic Center (DMC), TB Center, Civil hospital, Ahmedabad. Total 340 sputum smear-positive pulmonary TB patients, registered for treatment under Revised National Tuberculosis Control Program/National Tuberculosis Elimination Programme (RNTCP/NTEP) in TB center who visited the out patient department during that time period were included in the study with consideration of inclusion and exclusion criteria. The permission to carry out the study was taken from the institutional ethics committee.

All registered pulmonary TB patients who gave written consent were included in the study. Patients were excluded from the study if they had any of the following conditions: (1) extra pulmonary TB, (2) malignancies with long-term steroid or cytotoxic drug therapy, (3) connective tissue disorders, (4) chronic renal failure, (5) chronic liver disease[10] These conditions are also immune compromised. So to avoid the confusion of TB developed because of these conditions or treatment of them or DM, to avoid the cofounding effect, we excluded these conditions to know the real association between Diabetes and TB.

A pre-designed, structured questionnaire was used to collect the information regarding sociodemographic profile, history of diabetes etc. After obtaining prior consent from pulmonary TB patients, the interview was conducted. Those patients who themselves reported to be diagnosed and were on treatment for diabetes were considered already having diabetes. Those TB patients who were identified by screening by random blood sugar method and confirmed by fasting and post prandial blood sugar level at the initiation of treatment of TB were considered as the new cases of diabetes.

Data was entered and analyzed by using MS Excel 2010 and Chi square test was applied as a test of significance.

Results:

Out of 340 pulmonary TB patients, 208(61%) were males and 132(39%) were females. Median age of the participants was 40 years (Range: 6-77).Most of the study participants were Hindu and from age group 21- 30 years. The sociodemographic details of the participants is shown in Table 1.

Out of the total 340 tuberculosis patients included in the study, 39 patients were having diabetics and the prevalence of diabetes was found to be 11.5%. Among diabetics, 23 (59%) had only diabetes and 16 (41%) had other co-morbid disease (HIV, Asthma, Hypertension) apart from diabetes. (Figure 1) The mean age of tuberculosis patients having diabetes was 53.84 ± 9.54 years. There was a higher prevalence for diabetes in older population.

Majority of the patients (64%) were receiving treatment as newer cases (known as drug sensitive treatment regimen). (Table 2)

Association of various variables with diabetic status of the TB patients is shown in Table 3. As shown in the table, TB patients of old age (age group 51- 60 years), Illiterate, re-treatment regime were significantly associated with presence of diabetes along with TB.

Out of the 39 diabetic patients, 24(62%) patients did not aware about their diabetes status before the diagnosis of TB (newly detected diabetics) and the remaining 15 (38%) were already diagnosed of having diabetes and on treatment for it. Among 39 diabetic TB patients, 22 TB patients were consuming tobacco, among 22 (56%) consumers, 8 were consuming smokeless tobacco, 4 were smoking bidi/cigarettes and 10 were consuming both.

Discussion:

India is facing dual burden of TB and Diabetes. There have been significant improvement in case

Table 1: Socio-demographic characteristics of TB patients

Variables	Frequency (n=340)	Percentage (%)
Gender		
Male	208	61%
Female	132	39%
Religion		
Hindu	299	88%
Muslim	36	10.5%
Others	5	1.5%
Age group (completed years)		
≤20	33	9.7%
21-30	79	23.2%
31- 40	54	15.9%
41- 50	74	21.8%
51- 60	59	17.3%
>60	41	12.1%
Education		
Illiterate	72	21%
Primary	67	20%
Secondary	42	12%
Higher Secondary	75	22.5%
Graduate and above	84	24.5%
Occupation		
Job	82	24%
Business	16	5%
Labour	45	13%
Agricultural work	34	10%
Household business	10	3%
Housewife	70	20.5%
Unemployed	39	11.5%
Retired	38	11%
Others	6	2%
Marital Status		
Unmarried	94	27.6%
Married	167	49%
Widow/widower	76	22.4%
Separated/divorced	3	1%

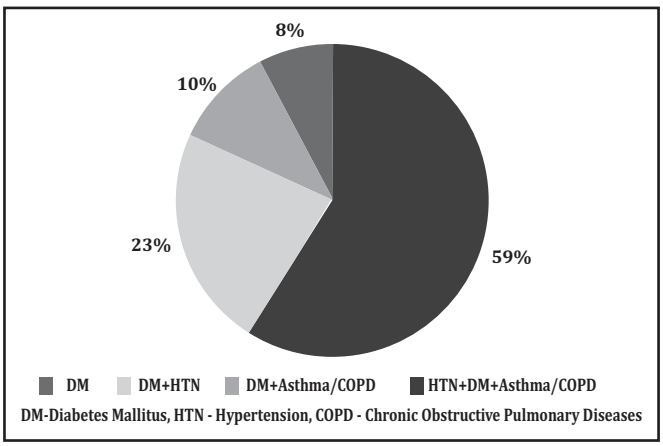
Table 2: Distribution of TB patients according to their treatment regimen

Type of treatment regimen	Frequency (n=340)	Percentage (%)
New cases (drug sensitive)	217	123
Re treatment cases (DR-TB)	64%	36%

Table 3: Association of various variables with diabetic status of TB patients

Variables	Diabetic TB patients (n=39)	Non Diabetic TB patients (n=301)	p value
Gender			
Male	27(12.98%)	181(87.02%)	> 0.05
Female	12(9.10%)	120(90.90%)	
Age (completed years)			
<40 years	4(2.40%)	162(97.60%)	> 0.05
41-50 years	6(8.10%)	68(91.89%)	
51-60 years	19(32.20%)	40(67.80%)	
> 60 years	10(24.40%)	31(75.60%)	
Literacy			
Illiterate	15(20.83%)	57(79.17%)	> 0.05
Literate	24(8.95%)	244 (91.05%)	
Category			
New cases	16(7.37%)	201(92.63%)	> 0.05
Re treatment cases	23 (18.70%)	100 (81.30%)	

Figure 1: Proportion of co-morbid diseases along with Diabetes in TB patients



detection and control of TB but prevalence of diabetes is posing an important challenge for TB control.[11] Presence of chronic disease such as diabetes weakens the immune system ultimately posing as a risk factor for new as well as reactivation of old cases of TB. Studies have shown that in India, 15% of pulmonary tuberculosis cases have been estimated to be attributable to DM[12] and screening for DM among TB patients reported a wide range of DM prevalence among TB patients ranging from 1.9% to 35%.[13,14]

Prevalence of diabetes among TB patients was 11.5% in present study. Similar results were there in a study from South Kerala where there was 12.7% diabetes prevalence among TB patients.[15] Almost similar results were reported in other studies done in Bhopal by Vivek Nagar[16]and in Chandigarh by D. Sharma[17] with 11.9% and 13.1% prevalence respectively. On the contrary, the studies carried out by Singla et al.,[18] Raghuram et al.,[19] Balakrishnan et al.[20] and Zhang et al [21] showed the prevalence of diabetes among TB patients to be 25%, 29%,44%, 9.5% respectively. Long term diabetes can impair the immune response for opposing the existing infection of TB. Increasing age was found to be significant risk factor for diabetes in the present study. Similar findings have been reported from India and some other countries.[22-25] This older age predominance may be due to the fact that mostly Diabetes Mellitus is detected in elderly. With the availability of better health care facilities, improved living conditions and changing lifestyles, the prevalence of diabetes is increasing. Routine screening and detection of diabetes may decrease the incidence of TB in diabetics. We found the significant association between low literacy status and diabetic status of TB patients, it could be assumed that due to illiteracy and low education, people remain ignorant about the manifestations and may be because of poor health seeking behaviour do not visit health care facility for screening of the disease. In the current study, re treatment cases were significantly associated with Diabetes which could be due to worsening of the infection and treatment of TB due to diabetes.

More than half of the diabetics (62%) were unaware of their diabetic status at the time of tuberculosis diagnosis. Earlier detection of it might prevent them from getting tuberculosis. Thus, routine and active screening of all patients including those who do not self report the disease is also important.

According to the current study, there were around 42.6% of tobacco users. In another study done in Chandigarh by D. Sharma,[17] 25.5% were tobacco users, study done by Kolappan and Gopi,[26] 58% were smokers. Any type of addiction of tobacco associated with Diabetes leads to increase in the risk of adverse effect associated with TB.

There are few limitations in the study. The status of diabetes was confirmed by TB treatment cards and prescription records. The other limitation was that only those patients who were coming to out-patient department in tertiary care center of Ahmedabad were enrolled in the study. So the results cannot be generalized.

Conclusion:

Prevalence of Diabetes in TB patients has been found 11.5% in the study. Diabetes Mellitus is the most common co morbidity in TB patients. Many diabetic TB patients did not know about their diabetic state at the time of diagnosis of TB. Diabetes is significantly associated with severity of TB (category II), old age and literacy of the TB patients. So, especially in areas having high burden of TB as well as diabetes, bi-directional screening of both diseases would lead to better treatment outcomes.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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Knowledge and Perception of Health Care Workers Regarding COVID-19 in Different Parts of Gujarat State

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Abstract:

Introduction: The World Health Organization declared the 2019–20 coronavirus outbreak a Public Health Emergency of International Concern (PHEIC) on 30 January 2020 and a pandemic on 11 March 2020. A poor understanding of the disease among healthcare workers may implicate in delayed treatment and the rapid spread of infection. **Objective:** To know the perception and knowledge of the health care workers in different districts of Gujarat state about the COVID 19. **Method:** A cross sectional web based survey was conducted among the 104 health care workers working in different districts of Gujarat during the month of April 2020. WhatsApp and Telegram based questionnaire was sent to each participant and their response was recorded. Data was entered in Microsoft Excel 2016 and was analysed by applying various statistical test using SPSS version 25. **Results:** Out of 104 participants, 46.15% and 53.85% were male and female respectively. Mean age of participants was 26.40 years. Majority participants were from Saurashtra-Kutch(36.54%) followed by central Gujarat(28.85%) and north Gujarat(23.08%). Out of 63 who had received training of basic course in COVID-19, only 27 were able to give correct answer about criteria for discharge of patient. **Conclusion:** HCWs in our study are having good knowledge regarding COVID 19. They are aware of the measures needed to be taken to reduce the spread of the disease. HCWs were using authentic sources for information; this ultimately affects knowledge and is reflected in attitude and practice.

Key words: Perception, Knowledge, Health care worker, COVID 19

Introduction:

Coronavirus (CoV) infections are emerging respiratory viruses that are known to cause illness ranging from the common cold to severe acute respiratory syndrome (SARS).[1] Multiple epidemic outbreaks occurred in 2002 (SARS), with approximately 800 deaths, and in 2012 (Middle East respiratory syndrome coronavirus, MERS-CoV), with 860 deaths.[2,3] About 8 years after the MERS-CoV epidemic, the current outbreak of coronavirus disease 2019 (COVID-19) in Wuhan City, Hubei Province, China, has emerged as a global outbreak and significant public health issue.[4] On January 30, 2020, the World Health Organization (WHO) declared COVID-19 a public health emergency of international concern.[5] Astonishingly, during the first week of March, a devastating number of new cases were reported globally, and COVID-19 emerged as a pandemic. As of June 15, 2020, more than 3,00,000 confirmed cases in India had been reported.[6] The route of transmission are respiratory droplets, close contact with an infected person through oral, nasal, and mucous membranes of the eye, including through fomites.[7] The first case of

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COVID-19 in India, which originated from China, was reported on 30 January 2020. As of 5 June 2020, the MOH&FW has confirmed a total of 226,770 cases, 109,462 recoveries and 6,348 deaths in the country.[8] India's case fatality rate is relatively lower at 2.80%, against the global 6.13%, as of 3 June 2020.[9] Ongoing pandemic nature of the disease made it necessary for doctors to adopt increased precautions in accordance with the critical situation, and to put effort into implementing appropriate hygienic conditions and follow recommendations.[3] In addition, healthcare workers (HCWs) are at a high risk of getting the infection and the source of transmission in the community. A poor understanding of the disease among healthcare workers may implicate in delayed treatment and the rapid spread of infection. With this background present study is aimed to know the perception of the health care workers in different districts of Gujarat state about the COVID-19.

Method:

A cross sectional survey using google forms was conducted among the 104 doctors working in different districts of Gujarat state during the month of April 2020. A pretested structured 25-item survey instrument was developed using WHO course materials on emerging respiratory viruses, including COVID-19. The survey instrument comprised 19 closed-ended and 6 open-ended questions and took approximately five minutes to complete. The survey covered HCWs' characteristics, awareness, information sources, and knowledge and perceptions related to COVID-19. The developed draft survey instrument was made accessible through a link. The pilot web survey was then conducted among 10 randomly selected doctors to assess clarity, relevance, and acceptability. Feasibility and time required to answer the survey were evaluated on another five participants. These participants were not included in the research. Refinements were made as required to facilitate better comprehension and to organize the questions before the final survey was distributed to the study population through a URL link. Briefly, we used Whats app and telegram a cloud-based instant messaging app. In the groups and individually the survey link was advertised to the target population and was opened in April 2020 for 20 days. The obtained data were coded, validated, and analysed using SPSS version 25 (IBM). Descriptive analysis was applied to calculate frequencies and proportions. The chi-square test was used to investigate the level of association among variables. A p value of less than 0.05 was considered statistically significant. Confidentiality of personal information was maintained throughout the study by making participants' information anonymous and asking participants to provide honest answers. Eligible HCWs' participation in this survey was voluntary and was not compensated. Electronic informed consent was shown on the initial page of the survey.

Results:

Out of 104 participants, 46.15% were male and 53.85% were female. Mean age of participants was 26.40 years. Majority participants were from Saurashtra-Kutch(36.54%) followed by central Gujarat(28.85%) and north Gujarat(23.08%). Among these participants majority (54.81%) were pursuing their Post graduation or completed it, 25% were Medical officers, 14.42% were Intern doctors and 5.77% were from paramedical staff. Out of 63 who had received training of basic course in COVID-19, only 27 were able to give correct answer about criteria for discharge of patient.

Table 1: Knowledge and Attitude about COVID-19

Knowledge about COVID 19	Correct answer (n=104)(%)
Mode of transmission	54(51.92)
Sample to be taken	39(37.50)
Test to be done (RT-PCR)	56(53.84)
Discharge criteria	41(39.42)
Attitude about COVID-19	Yes (n=104) (%)
People are tested adequately in India	14 (13.46)
Stressful to work in COVID hospital	60 (57.69)
Getting adequate sleep	70 (67.31)
Affect family life	52 (50.00)

Table 1 shows that 55(52.88%) participants were having knowledge about which sample has to be taken for diagnosis of COVID 19 and 41(39.42%) participants were knowing when to discharge the patient as per guideline. Majority 70(67.31%) were getting adequate sleep during their duty and for 60(57.69%) participants it was stressful to work in COVID hospital. Half (49.43%) of the participants in govt. hospital were provided with sufficient PPE while in private hospital only 13.33% were getting it. Family life was more(52.81%) affected in those who were working in govt hospital.

Table 2: Association between COVID 19 posting duty and taking prophylaxis

Participants doing / posted at COVID 19 duty	Taking any prophylaxis* for COVID 19	
	Yes	No
Yes	20	47
No	12	25

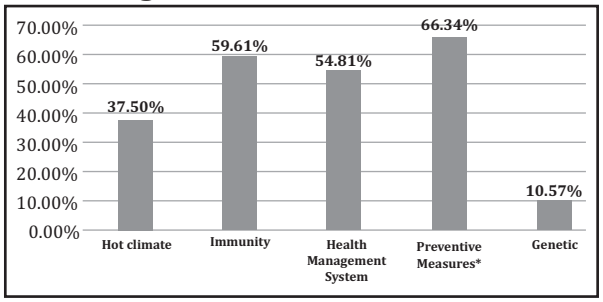
α^0=0.075;p-value=0.78

*Allopathic and/or Ayurvedic and/or Homeopathic

Table 2 shows the association between the participants posted in COVID duty and taking any prophylaxis in which there is no any statistical significance(α^2=0.075;p-value=0.78) between those who are taking and those who are not taking any prophylaxis.

Majority 31.25% of the participants were getting the information for guidelines from websites like WHO/MoHFW, followed by social media (23.26%), television (17.70%), and rest were getting it from news paper (14.23%) and friends(13.54%).

Figure 2: Favourable factors for India to fight against COVID-19



*Hand hygiene, Wearing mask, Social distancing

Figure 2 shows that majority participants believed that preventive measures (66.34%), followed by immunity (59.61%) and health management system (54.81%) were the favourable factors for India to fight against COVID 19.

Discussion:

The findings in our study showed that HCWs had a high level of knowledge and a positive attitude towards the COVID-19 outbreak. Findings of this study suggest out of 104, Majority (31.25%) participants were getting the information for guidelines about COVID-19 from websites like WHO/MOH&FW, which is contrary to a cross sectional study conducted by Huynh Giao et al at District 2 Hospital, Ho Chi Minh City done on 327 participants shows that HCWs are more interested in social media to gather knowledge on COVID-19 than the official website of the Ministry of Health.[9] Obtaining information from authentic sources is pivotal for disseminating unbiased and reliable data about the emerging COVID-19 infection and is essential for HCWs' preparedness and response. Study conducted by us shows that majority(66.34%) of HCWs agreed that maintaining preventive measures is recommended which is similar to finding of a study conducted by Bhagavathula et al which shows that the majority of the HCWs (n=338, 85.6%) agreed that maintaining hand hygiene, covering the nose and mouth while coughing, and avoiding sick patients could help to prevent COVID-19 transmission.[3] Present study shows only 32(30.76%) participants were taking any prophylaxis against COVID 19 which is in contrast to the study conducted by Debajyoti Bhattacharyya et al. at New Delhi, India which shows that around 76% of the HCWs had accepted the prophylaxis and taken HCQ at least once as a part of prophylaxis.[10] Present study shows that 52% participants were having correct knowledge about mode of transmission about COVID 19 while another study conducted on non medical students shows more than 84% students had wrong concept that COVID-19 could transmit through touching persons with flu and 52.5% and 10.8% students believed that COVID-19 could spread

through water and food, and mosquito bite respectively.[11] When question asked about which test has to be done for COVID-19, 46.16% participants were unable give correct answer, While one study done by Saqlain M et al showed 23.91% respondents were unable to identify correct responses regarding the same.[12] One-third(32.69%) of the participants were sleepless during the COVID-19 outbreak and more than half had stress (57.69%) in this study, while in a study done by Abdulah DM et al showed More than two-thirds of the physicians were sleepless during the COVID-19 outbreak (68.3%) and majority had stress (93.7%).[13]

Conclusion:

As the global threat of COVID-19 continues to emerge, greater efforts through educational campaigns that target HCWs are urgently needed. We identified that HCWs in our study are having good knowledge and perception regarding COVID 19.They are aware of the measures needed to be taken to reduce the spread of the disease. The findings also demonstrated that HCWs were using authentic sources for information; this ultimately affects knowledge and is reflected in attitude and practice.

Recommendations:

The study recommends that health ministry should provide a comprehensive training programme, targeting all HCWs, to promote all precautionary and preventive measures of COVID-19, to achieve equilibrium in terms of clinical knowledge about COVID-19.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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Online Pivot to Support Students' Learning Amid COVID-19

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What problem was addressed ? Amid Covid-19 colleges and universities are closed down, reorganization of student education raises concerns about timely graduation.[1] Therefore, there is a radical shift across colleges to remote and online teaching models. The current article shares an experience with online teaching at a Medical College located in western India.

What was tried ? During Covid-19 lockdown it was decided by faculties of first professional medical course of the medical college, viz; Anatomy, Physiology & Biochemistry to shift to teaching online for a batch of 200 students. Initially, video-conferencing (VC) call applications like zoom or Team Link were utilized and WhatsApp group was created to inform students regarding topics and time. This ran smoothly to start with and 160-170 participants could join. Within few days, internet connectivity and bandwidth issues started erupting from both the sides, hampering quality of teaching. The teachers then decided to record each session via screen recording software and started uploading the same in dedicated Google Drive, sharing the link via WhatsApp group. Additionally, a dedicated YouTube channel was created for students to download videos to watch as per their convenience. This helped to minimize the challenge faced due to internet connectivity and to safeguard against cyber-attack, likely to prop up with apps like Zoom that uses VC.

To engage students through interaction as in live session (Google-meet), teachers made themselves available on WhatsApp at a fixed time or a live session or by sharing the answers in WhatsApp group either by text, audio file, sharing link of relevant video, animation or by any other best possible way. At the end of series of topics covered (one month), voluntary feedback was obtained from the students through Google form. Out of 171 who offered feedback, 62 % found the online classes to be effective. The limiting factors were; internet connectivity and suitability of timings. 68% found You-tube videos to be the most effective method. To open-ended questions some of the verbatim received were: “Every student doesn't reside in urban area and faces network issues leading to loss”; “Sharing YouTube videos is better than live classes”; “A very big thanks for helping us learn while trying to be interactive as well”. 38% students expressed the need for Multiple Choice Questions (MCQ) tests for self - assessment, which could be administered through google forms. Other methods suggested were: small group viva sessions; posting questions papers of previous years; open book exams and once a week MCQ type quiz.

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"What lessons were learned?" Covid-19 pandemic has forced educational uses of online technology. It's learnt that as education is the prime goal, teachers' need to explore, innovate and create effective strategies to teach students online. Assessment in subjects like anatomy might require self-directed virtual patient exercises. We need preparedness, empathetic and sensitive attitude to student's data plan and limitations of weak Wi-Fi connections. Making medical education work for next few months is going to require many sacrifices to continue to help our students to learn, the "goal" we have always had.

References:

1. Coping with Coronavirus; How faculty members can support students in traumatic times. The Chronicle of Higher Education. 1255 Twenty-Third Street, N.Y. Washington, D.C. 20037. 2024661000/chronicle.com.

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Journals: Mehta MN, Mehta NJ. Serum lipids and ABO Blood group in cord blood of neonates. Indian J Pediatr.1984; 51:39-43.

Book: Smith GDL. Chronic ear disease. Edinburgh: Churchill Livingstone; 1980.

Chapter in the Book: Malhotra KC. Medicogenetics. problems of Indian tribes. In: Verma IC, editor. Medical genetics in India.vol. 2. Pondicherry: Auroma Entrprises; 1978. p. 51-55.

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સગર્ભાવસ્થા દરમ્યાન કોવિડ-19 રસીકરણ

01 સગર્ભાવસ્થા સહીત 18 વર્ષથી ઉપરની તમામ વ્યક્તિઓ કોરોનાની રસી લઈ શકે છે.

02 કોરોનાના લક્ષણો ધરાવતી સગર્ભા સ્ત્રીઓને ગંભીર પ્રકારની બીમારી થવાની સંભાવના વધુ અને તેમના ગર્ભસ્થ શિશુને પણ અસર થઈ શકે છે.

03 સગર્ભા સ્ત્રીઓમાં કોરોનાના ગંભીર લક્ષણો વધુ જોવા મળી શકે છે જે :
- 35 વર્ષથી વધુ વયના છે
- સ્થૂળ છે
- જેમને ડાયાબિટીસ અથવા હાય બી.પી. કે અન્ય બીમારીઓ હોય
- જેને હાથ-પગમાં લોહી જામી જવાની બીમારી હોય

04 કોરોનાના ચેપને કારણે નીચેની અસર થવાની શક્યતાઓ વધુ છે :
- સમય પહેલાની પ્રસુતિ
- જન્મ સમયે બાળકનું વજન 2.5 કિલોથી ઓછું
- અમુક કિસ્સાઓમાં ગર્ભમાં જ બાળકનું મૃત્યુ

05 કોવિડ-19ની રસી સગર્ભાવસ્થા દરમ્યાન કોઈપણ સમયે લઈ શકાય છે અને શક્ય હોઈ એટલી પહેલી લેવી હિતાવહ છે.

06 જો કોઈ સ્ત્રીને સગર્ભાવસ્થા દરમ્યાન કોરોનાનો ચેપ લાગ્યો હોઈ તો પ્રસુતિ બાદ તરત રસી લેવી જોઈએ.

07 કોવિડ-19ની રસી સગર્ભાવસ્થા દરમ્યાન સુરક્ષિત છે. સામાન્ય આડઅસરો જેવીકે ઝીણો તાવ, રસી આપેલ જગ્યાએ દુખાવો, અથવા અસ્વસ્થતા અનુભવવી વગેરે 1-3 દિવસ સુધી થઈ શકે છે.

08 ગર્ભસ્થ શિશુ અને આવનાર બાળકમાં રસીની લાંબા ગાળાની આડઅસર અને સુરક્ષા અંગે સંશોધન ચાલી રહ્યા છે.

કોવિડ-19ની રસીકરણ બાદ નીચે માંથી કોઈપણ લક્ષણ જણાય તો નજીકની આરોગ્ય સંસ્થાનો સંપર્ક કરો

શ્વાસ લેવામાં તકલીફ, છાતીમાં દુઃખાવો, શરીર પર ઝીણી ફોલ્લીઓ અને લાલ ચકામા, અસહ્ય અને સતત માથાનો દુઃખાવો, ઉલ્ટી સાથે અથવા ઉલ્ટી વગર પેટનો દુઃખાવો, ખેંચ આવવી અથવા ઝાંખું દેખાવું.

કોવિડ-19ને અનુરૂપ વર્તણુકનું પાલન કરતા રહો

માસ્ક પહેરો

એક બીજા વચ્ચે સલામત અંતર રાખો

વારંવાર હાથ ધુઓ

આરોગ્ય અને પરિવાર કલ્યાણ વિભાગ, ગુજરાત રાજ્ય