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Study to assess the knowledge and perceptions on COVID-19, among RVM hospital staff, Siddipet district, Telangana state, South India

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Abstract
Introduction: Coronaviruses belongs to a large family of viruses, which are known to cause mild to moderate respiratory diseases. In the past there were epidemics of two beta coronaviruses namely MERS (Middle East Respiratory Syndrome), SARS (Severe Acute Respiratory Syndrome) which caused over 10,000 deaths over the past two decades [1, 2]. Corona Virus Disease (COVID-19) was first identified in December 2019 in Wuhan, China. This disease has spread globally now and has become an ongoing 2019-2020 life threatening pandemic disease [1-4]. The aim and objective of this study is to assess the knowledge and perceptions against COVID-19 disease among hospital staff.
Materials & Methods: Hospital based cross-sectional study conducted between April 1st to April 15th 2020 and a total of 195 staff participated in the study. The self-administrated, semi-structured 16-item questionnaire was developed based on WHO myth busters, administered on the study participants. Consent of the participants and Institutional ethical clearance was obtained before conducting the study. Convenience sampling method was used for data collection.
Results: Total number of study participants in this study was 195 hospital staff. Among this study participants the mean age 28.54 +/- 5.26 years. 95 members belong to the age group of 20-29 years and above 40 years are around 37 members. The gender distribution among the study participants was M: F = 1.3:0.8. Knowledge on COVID-19 was estimated by using the semi-structured questionnaire consisting questions on knowledge and the myths (beliefs) on every participant. Out of the 195 participants majority of them 164(84.10%) answered correct about what is COVID-19, only 31(15.8%) were wrong. The route of transmission was also answered correctly by 146 (74.8%) among 195 participants. Maximum 177(90.7%) participants are aware of the symptoms and 166 participants know the preventive aspects. 144(73.8%) participants are aware about waste segregation and usage of yellow coloured bin to drop the hospital waste from COVID wards in the hospital.
Conclusion: We would like to conclude from this study that Authentic Health information on COVID-19 and good Health care practices against COVID-19 are to be inculcated among the Hospital staff and the doctors by using continuous medical education platform

Keywords: COVID-19, coronavirus, pandemic, knowledge and perception, HCW's (health care workers)

Introduction
India prepares for the COVID-19 pandemic; healthcare workers and hospital staff on the frontlines are particularly more vulnerable to this disease. The virus that causes COVID -19 was initially called as 2019-nCoV and was then termed as syndrome coronavirus 2 (SARS-CoV-2) by the International Committee on Taxonomy of Viruses (ICTV) [7]. SARS- CoV was transmitted from civet cats to humans. SARS-CoV-2 seems to have originated from bats and first case was reported from Wuhan, Hubei Province in China, from a live stock market. The virus then spread outside Hubei and subsequently, to the rest of the world via human transmission. Several countries have now reported community spread. The World Health Organization (WHO) declared coronavirus disease as a pandemic on March 11, 2020 [8]. The virus is transmitted through respiratory droplets and direct or indirect contact. Droplet transmission occurs when a person is within 1 m of someone who has symptoms like coughing or sneezing and is therefore at risk of having him exposed to potentially infective droplets [9, 10]. Indirect contact with surfaces in the immediate environment or with objects used on the infected person like stethoscope can transmit virus. Airborne transmission can

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occur during specific procedures or treatments that generate aerosols like endotracheal intubation, gastric lavage, and bronchoscopy etc. [11]. Sign and symptoms appear within 2 to 14 days after exposure. Clinical features include fever, cough, and shortness of breath or difficulty in breathing. Other symptoms include fatigue, chills, body aches, sore throat, loss of smell and taste, diarrhoea and severe vomiting's. The severity of symptoms can range from mild to severe i.e. some people can show absolutely no symptoms and some might have combination of symptoms. People who are old or who have underlying heart, lung, kidney disease, diabetes or who have compromised immune systems may be at higher risk of serious illness [12, 13]. With this mode of transmission, healthcare workers are among the highest risk of being infected. The highly contagious SARS-CoV-2 virus is an additional hazard for the healthcare system apart from the burden of extended work hours, physical and psychological stress [14]. The aim and objective of this study is to assess the awareness of COVID-19 disease and related beliefs among hospital staff.

Materials & Methods
Hospital based Cross-sectional study; this study was conducted at a tertiary-care hospital and teaching institute, RVM Institute of medical sciences & Research Centre, Siddipet District, Telangana state, South India. The period of the study was between April 1st to April 15th 2020 and a total of 195 staff participated in the study. The self-administered, semi-structured 16-item questionnaire was developed based on WHO myth busters [15]. The first section consists of demographics of participants such as age, gender, occupation, education and working department. The second section has six knowledge based questions on COVID-19. Initial four questions were provided with multiple options with only one correct answer and the last question is about knowledge on hospital waste disposal for which the respondent should choose one correct answer from multiple options. The third section has 11 questions pertaining to beliefs of people on transmission of coronavirus and prevention & treatment of COVID-19. Each question has two options (Yes/No). The responses 'Yes' were considered as false belief and 'No' was considered as correct belief. Consent was obtained by all participants in this study. Institutional ethical clearance was obtained from RVM institute ethics committee before conducting the study. Convenient sampling method was used for data collection, and the distribution of responses was presented as frequency and percentages. Mean with standard deviation was calculated for continuous variables and number with percentage was calculated for categorical variables. Chi-square test was used to find the association

between demographic details of people and their beliefs on COVID-19. The results were statistically significant if $p < 0.05$ and descriptive statistics were performed using Statistical Package for Social Sciences (SPSS Version: 21)

Results
Total number of study participants in this study was 195 hospital staff. Among this study participants the mean age 28.54 +/- 5.26 years.95 members belong to the age group of 20-29 years and above 40 years are around 37 members. The gender distribution among the study participants was M: F = 1.3:0.8. Nursing staff was majority among the study participants 62 (32%) followed by technical staff 55 (28%) and unskilled workers 40 (21%) and housekeeping staff 38 (19%). (Table 1 and Figure 1)

Table 1: Demographic details of the hospital staff participated in this study

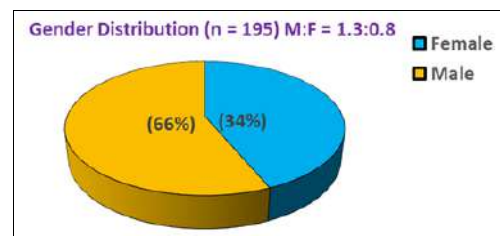| Characteristics	Category	No. of Participants (%)
Age	20-29	95(49)
	30-39	66(34)
	>40	34(17)
Gender	Male	110(56)
	Female	85(44)
Occupation	Technical staff	55(28)
	Nurses	62(32)
	House keeping	38(19)
	Un skilled worker	40(21)

Fig 1: Gender Distribution among the study participants

Knowledge on COVID-19 was estimated by using the semi-structured questionnaire consisting questions on knowledge and the myths (beliefs) on every participant. Out of the 195 participants majority of them 164(84.10%) answered correct about what is COVID-19, only 31(15.8%) were wrong. The route of transmission was also answered correctly by 146 (74.8%) among 195 participants. Maximum 177(90.7%) participants are aware of the symptoms and 166 participants know the preventive aspects. 144 (73.8%) participants are aware about waste segregation and usage of yellow coloured bin to drop the hospital waste from COVID wards in the hospital. (Figure 2)
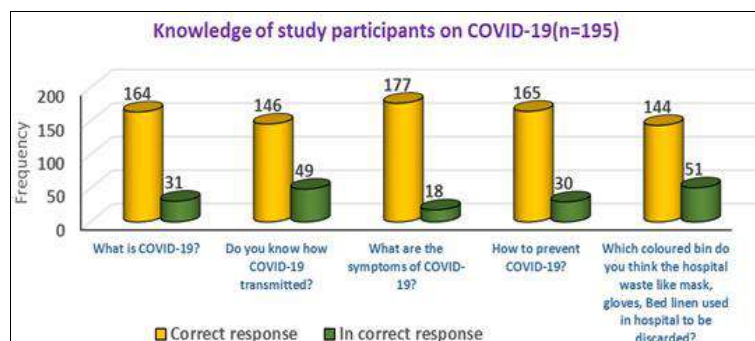

Fig 2: Knowledge on COVID-19 among the study participants

Among the 195 participants, 72(36.92%) participants think the virus can be destroyed by sunlight, Only 24(12.30%) participants are in perception that cool temperature can kill the virus, 66(33.84%) participants think COVID-19 has treatment, 160(82.05%) participants think Govt released Arogya sethu application is useful, very limited participants, 20(10.25%) have perception that consumption of alcohol can protect against COVID-19, 10 (5.12%) mosquito bite can transmit COVID-19 and 33(16.92) antibiotics can cure COVID-19. 176 (90.25%) Most of them have positive perception that Old age people are at risk than the young, 168 (86.15%) chronic disease people are more affected than the normal individuals, 178 (91.2%) disinfection of work environment protects from COVID-19 and 184 (94.35%) participants perceive that Personal Protection Equipment (PPE) can protect from COVID-19. (Table 2)

Table 2: Perception of Study participants on covid-19 (n=195)

S. No	Question	Yes n (%)	No n (%)
1	Do you think COVID-19 can be destroyed with sunlight?	72(36.9)	123(63.1)
2	Do you think COVID-19 can be killed in cool temperature?	24(12.3)	171(87.7)
3	Do you think COVID-19 has treatment?	66 (33.8)	129(66.2)
4	Do you think Arogya sethu application is useful?	160(82.05)	35(17.94)
5	Do you think drinking alcohol can protect from COVID-19?	20(10.25)	175(89.75)
6	Do you think mosquito bite can give rise to Covid-19 disease?	10(5.12)	185(94.87)
7	Do you think antibiotics will cure Covid -19?	33(16.9)	162(83.07
8	Do you think old age people are more affected than younger with Covid-19?	176(90.2)	19(9.74)
9	Do you think chronic diseased people are affected more with Covid-19?	168(86.15)	27(13.84)
10	Do you think disinfection of work environment can protect from Covid-19?	178(91.2)	17(8.71)
11	Do you think that PPE can protect from COVID-19?	184(94.3)	11(5.64)

Statistically significant results was observed among the study participants that sunlight cannot destroy COVID-19 (p=0.0477), cool temperature cannot kill COVID-19 (p=0.0009), Arogya sethu app by Govt of India was useful (p=0.0306), drinking alcohol will not protect from COVID-19 (p=0.0003), antibiotics do not cure COVI-19 (p=0.0009), old age people are effected more due to COVID-19 than the younger age group people (p=0.00017) and PPE can protect against COVID-19, (p=0.0464). Table 3

Table 3: Perception among males and females in the study participants (N=195)

S. No	Question	Response	Male(n=110)	Female(n=85)	Chi-square and p-value*
1	Do you think COVID-19 can be destroyed with sunlight?	Yes	34	38	(3.9189,0.0477)*
		No	76	47	
2	Do you think COVID-19 can be killed in cool temperature?	Yes	6	18	(10.9812,0.0009)*
		No	104	67	
3	Do you think COVID-19 has treatment?	Yes	36	30	(0.1410,0.7071)
		No	74	55	
4	Do you think arogya sethu application is useful against COVID-19?	Yes	96	64	(4.6716,0.0306)*
		No	14	21	
5	Do you think drinking alcohol can protect from COVID-19?	Yes	20	0	(17.2207,.00003)*
		No	90	85	
6	Do you think mosquito bite can give rise to Covid-19 disease?	Yes	4	6	(1.1543,0.0769)
		No	106	79	
7	Do you think antibiotics will cure Covid -19?	Yes	10	23	(11.0106,0.0009)*
		No	100	62	
8	Do you think old age people are more affected than younger with Covid-19?	Yes	107	69	(14.1263,0.00017)*
		No	3	16	
9	Do you think chronic diseased people are affected more with Covid-19?	Yes	99	69	(3.1293,0.0768)
		No	11	16	
10	Do you think disinfection of work environment can protect from Covid-19?	Yes	100	78	(0.0441,0.8336)
		No	10	7	
11	Do you think that PPE can protect from COVID-19?	Yes	95	89	(3.9651,0.0464)*
		No	15	5	

*($p<0.05$) Pearson –chi-square statistical significance changes were observed.

Nursing and Technical staff had good perception than the housekeeping and unskilled workers in the hospital that sunlight cannot destroy COVID-19 (P=0.000), perception is similar in all the hospital staff that cool temperature cannot kill COVID-19 (P=0.0005), Nursing and Technical staff had good perception that COVID-19 has no treatment (p=0.0000)., perception is similar in all the hospital staff that Govt of India developed application Arogya Sethu is useful against COVID-19 (p=0.0000), all the staff has good perception that alcohol consumption cannot protect from COVID-19 (p=.000018), none of the staff, belonging to any department in the hospital have the false perception that mosquito bite can cause COVID-19 which was statistically significant (p=0.000020). Nursing and technical staff knew that antibiotics cannot cure COVID-19 very few housekeeping and unskilled workers have false perception which is statistically significant (p=0.0000), Good perception among all the hospital staff was observed that old age people are at risk than younger age group people, Disinfection of work environment and PPE helps in

protecting against COVID-19 (p=0.0000), (p=0.0000), (P=0.000241). False perception was observed among the unskilled workers and few housekeeping employees that

chronic disease people are not effected by COVID-19 than the normal individuals, which was statistically significant (p= 0.0000). (Table 4)

Table 4: Perception on COVID-19 among study participants based on their job role in the hospital

S. No	Question	Response (n=195)	Technical staff (n=55)	Nurses (n=62)	Housekeeping (n=38)	Un skilled worker (n=40)	Chi-square and p-value
1	Do you think COVID-19 can be destroyed with sunlight?	Yes	0	0	29	38	(156.1218,0.0000)*
		No	55	62	9	2	
2	Do you think COVID-19 can be killed in cool temperature?	Yes	1	0	10	8	(27.2733,0.00005)*
		No	54	62	28	32	
3	Do you think COVID-19 has treatment?	Yes	10	6	21	29	(56.6785,0.0000)*
		No	45	56	17	11	
4	Do you know about Arogya sethu application?	Yes	55	60	33	12	(95.3365,0.0000)*
		No	0	2	5	28	
5	Do you think drinking alcohol can protect from COVID-19?	Yes	0	0	8	7	(24.7213,.000018)*
		No	55	62	30	33	
6	Do you think mosquito bite can give rise to Covid-19 disease?	Yes	0	0	2	8	(24.5095,0.000020)*
		No	55	62	36	32	
7	Do you think antibiotics will cure Covid -19?	Yes	2	0	10	21	(57.9315,0.0000)*
		No	53	62	28	19	
8	Do you think old age people are more affected than younger with Covid-19?	Yes	55	62	34	25	(47.6992,0.0000)*
		No	0	0	4	15	
9	Do you think chronic diseased people are affected more with Covid-19?	Yes	55	62	36	13	(110.7214,0.0000)*
		No	0	0	2	27	
10	Do you think disinfection of work environment can protect from Covid-19?	Yes	55	62	35	26	(45.9264,0.0000)*
		No	0	0	3	14	
11	Do you think that PPE can protect from COVID-19?	Yes	55	62	34	33	(19.2668,0.000241)*
		No	0	0	4	7	

Discussion

Currently, COVID-19 is a global topic of discussion in the media and among the public, especially among HCWs and patients. With the COVID-19 transmission raising alarm among everyone and everywhere that primarily includes health officials and health systems, an important question arises regarding how we manage information to help frontline HCWs in times of public health crisis. For this reason, we assessed the HCWs' knowledge and perceptions against COVID-19 during this pandemic.

Total number of study participants in this study was 195 hospital staff. Among these study participants the mean age was observed between 28.54 +/- 5.26 years. Nursing staff was majority among the study participants 62 (32%) followed by technical staff 55 (28%) and unskilled workers 40 (21%) and housekeeping staff 38 (19%).

Knowledge and perceptions of COVID-19 varied across different categories of Hospital staff. This study revealed that Housekeeping and Un-skilled workers have insufficient knowledge about COVID-19 but showed positive perceptions of the prevention of COVID-19 transmission. We also found that more that 82.05 % hospital staff has knowledge and positive perception towards government application Arogya Sethu as a primary source of information about COVID-19. This indicates that the COVID-19-related updates posted online by official government health authorities had positive implications for improving hospital staff knowledge on COVID-19.

Generally, most participants had a positive perception on the prevention of COVID-19. However, discrepancies were identified in the perceptions of different categories of hospital staff. For instance, (36.9%) of the hospital staff has false perception that sunlight can destroy COVID-19, (33.8%) believe that COVID-19 can be treated as treatment is available and 16.9% believe that the antibiotics can treat

COVID-19.But, (94.3%) majority of Hospital staff strongly agreed that using PPE can protect against COVID-19 and (91.2%) disinfecting the work environment can protect against COVID-19.

Conclusion

We would like to conclude from this study that Authentic Health information on COVID-19 and good Health care practices against COVID-19 are to be inculcated among the Hospital staff and the doctors by using continuous medical education platform, through which all the frontline workers can attain knowledge, leave false perceptions and develop good health care system to combat COVID-19 and also any pandemic in future.

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