European Journal of Molecular & Clinical Medicine
ISSN 2515-8260 Volume 7, Issue 3, 2020

Knowledge, Belief and Practice of Universal Safeety Precautions for Prevention of Covid – 19 Among Patients Attending Opd In A Tertiary Care Centre In Kancheepuram District: A Cross Sectional Study

Amritha Lekha. A.K[1], J. Krishna Kumar[2],Krishna Prasanth.B[3]

1.Post-graduate, Department of Community Medicine, Sree Balaji Medical College and Hospital.

2.Professor, Department of Community Medicine, Sree Balaji Medical College and Hospital.

3.Epidemiologist & Assistant Professor,Department of Community Medicine, Sree Balaji Medical College and Hospital.

Corresponding author :

Dr.B.Krishna Prasanth, Epidemiologist & Assistant Professor, Department of Community Medicine, Sree Balaji medical college and hospital, Bharath Institute of Higher Education & Research

E-mail : mail2kristain@gmail.com

ABSTRACT

Coronaviruses are predominantly known to cause enzootic infections in mammals and birds. In the past few decades, these viruses have become adept in infecting humans. COVID – 19 which is an acute respiratory illness in humans that can be primarily spread from person to person via respiratory droplets released from cough of an ill person. Even after strict imposition of universal masking and social distancing rules, community spread is rampant in India. So, it is mandatory to look into the issues causing this assumed failure of preventive measures.

AIMS AND OBJECTIVES:

1. To assess the knowledge about Universal Safety Precautions among patients attending OPD in Sree Balaji Medical College.
2. To assess the beliefs about Universal Safety Precautions among patients attending OPD in Sree Balaji Medical College.
3. To assess the practice of Universal Safety precautions among patients attending OPD in Sree Balaji Medical College.

METHODOLOGY:

A descriptive cross-sectional study was carried out by interview method using a structured questionnaire to assess the knowledge, beliefs and practices of universal safety precautions among

300 participants who were selected using convenient sampling method where every 3rd person registering at the screening desk aged 18 years and above and giving consent to participate were included in the study.

RESULTS:

This study revealed that 54.3% had good knowledge, 27.3% had moderate knowledge and 18.3% of participants had poor knowledge. Participants were relatively well informed about the ideal type of mask for prevention of spread of COVID 19, social distancing and the ideal distance to be maintained for to prevent the spread of COVID 19 and the ideal duration for which health status of a contact should be monitored. A large proportion of the participants were confused between transient and close contacts and quarantine and isolation which was perceived to be one and the same. Majority of the participants have positive beliefs about universal safety precautions. As far as practices are concerned, a vast majority of participants have good practices of wearing a mask at al times while out of the house, maintaining social distancing, avoiding going out unless absolutely necessary, avoiding crowded places, washing hands regularly, avoiding touching mouth nose and eyes and avoiding handshaking behavior.

INTRODUCTION

In December 2019, a cluster of viral pneumonia cases broke out in Wuhan China. [1] It is corroborated to be caused by a new type of coronavirus that has been labelled Novel coronavirus 2019 or SARS – CoV – 2. Coronaviruses are predominantly known to cause enzootic infections in mammals and birds. In the past few decades, these viruses have become adept in infecting humans. [2] The first human coronavirus was discovered in 1960s as a virus that primarily affects the upper respiratory tract of children to cause a mild illness. Since the Severe Acute Respiratory Syndrome outbreak in South China in 2002 -03, various other types of human coronaviruses have discovered including the NL and NL63 coronaviruses in the Netherlands, HCoV- NH in New Haven, Connecticut, USA and the HKU1 coronavirus in Hong Kong.[3] MERS – CoV was discovered in the summer of 2012 in Saudi Arabia causing respiratory illnesses involving both upper and lower respiratory tract.[4] SARS – CoV – 2 is the seventh human corona virus known to cause infection in humans.[5]

SARS – CoV – 2, as the name suggests, causes Coronavirus disease – 2019 or COVID – 19 which is an acute respiratory illness in humans that can be primarily spread from person to person via respiratory droplets released from cough of a person ill with SARS – CoV – 2. [6] Most cases manifested with mild to moderate disease, while 5 – 10 % of cases went on to develop severe or critical disease involving, pneumonia and acute respiratory distress and failure. [7]

Use of a mask or respiratory is presented as an effective approach to prevent entry of aerosolized viruses from infective cough droplets into the respiratory tract, thereby preventing the infection. [8] Social distancing and maintaining hand hygiene have been promoted as central ramparts for halting the spread of COVID – 19. Universal use of masks by everyone to prevent spread of COVID – 19 is a relatively newer strategy for prevention. Various reports suggest that social

distancing, hand hygiene, avoiding touching eyes, nose and mouth and universal masking can help halt the spread of COVID – 19. [9,10]

The first case reported in India was on January 30th 2020. [10] India has implemented strict social distancing measures by lockdown and issued guidelines regarding hand hygiene and mandatory use of mask.[11] Even after strict imposition of these rules, community spread is rampant in India.[12]

As of 20th September, globally COVID-19 has caused 30.6 million cases and 950 000 deaths. 2 million new cases have been reported in the preceding week which a 6% increase which is the highest number of new cases reported in a single week. India has reported a total of 5,400,619 cumulative cases and 86,752 deaths. India also remains the country that is reporting one of the highest number of new cases in Southeast Asia.[12]

So, it is mandatory to look into the issues causing this assumed failure of preventive measures by looking into the knowledge, beliefs and practice of universal safety precautions for prevention of COVID – 19. Hence, this study was carried out with the following objectives.

AIMS AND OBJECTIVES:

4. To assess the knowledge about Universal Safety Precautions among general population.
5. To assess the beliefs about Universal Safety Precautions among general population
6. To assess the practice of Universal Safety precautions among general population

METHODOLOGY:

Study design:

This is a cross sectional descriptive study carried out in Sree Balaji Medical college hospital, Kancheepuram, Tamilnadu.

Study population:

Anyone aged above 18 years visiting the OPD of Sree Balaji Medical College and Hospital including, patients and people accompanying them, who are willing to participate in the study.

Study period: 1st May to 30th July 2020.

Sample size & Sampling Method:

Convenient sampling method was used and data was collected from every 3rd person registering at the screening desk after obtaining consent. A total of 300 consenting adults were interviewed.

Inclusion criteria:

Anyone aged 18 years and above, patient or not, attending the Out-patient department in Sree Balaji Medical College and Hospital who is willing to participate in the study is included in the study.

Exclusion criteria:

Anyone below the age of 18 or not willing to participate in the study are excluded from the study. Anyone who is visiting the OPD for emergency purposes is also excluded from the study.

Data collection:

Data was collected using a structured pretested questionnaire which includes socio-demographic details, questions regarding knowledge, beliefs and practice of Universal safety precautions for prevention of COVID – 19 which was filled by the investigator during interview with the participants for a duration of 3 months from May to July 2020.

Statistical analysis:

Data entry was done in Microsoft excel and analysis was carried out in SPSS 22.

Ethical clearance and informed consent:

The study was carried out after obtaining approval from the institutional Ethical Committee of Sree Balaji Medical and Hospital, Chrompet. The participants were briefed about the purpose of the study and informed consent was obtained prior to the data collection.

RESULTS:

Out of 300 participants, 165 belonged to the age group 25 – 45 years making up 55% and 83 participants belonged to the age group 18 – 25 years. 166 participants were male making up for 55.3% and the rest were female making up for 44.6%. Out of 300 participants 136 participants had some undergraduate degree accounting for 45.3%, 72 (24%) had a Post graduate degree and 60 (20%) had a doctoral degree. For the purpose of this study participants were classified into employed, retired, students and unemployed. 180 participants (60%) were employed, 59 participants (19.6%) were retired, 56 participants (18.6%) were students and only 5 participants (1.6%) were unemployed. Out of 300 participants 99 participants (33%) belong to Socio Economic class III, 84 participants (28%) belonged to socioeconomic class II, 68 participants 22.6% belonged to Socio economic Class I.

Table1. Distribution of Sociodemographic characteristics of participants.

Socio Demographic Characteristic		**Frequency**	**Percentage**
Age, years	18 - 25	83	27.6
	25 – 45	165	55
	>45	52	17.3
Sex	Male 568	166	55.3
	Female	134	44.6

Education level	Doctoral degree	60	20
	Postgraduate	72	24
	Undergraduate	136	45.3
	Post-secondary/diploma	5	1.6
	Secondary education (grades 9–12)	17	5.6
	High school (grades 5–8)	10	3.3
Occupation	Employed	180	60
	Unemployed	5	1.6
	Retired	59	19.6
	Student	56	18.6
Economical class (BG Prasad Classification)	I	68	22.6
	II	84	28
	III	99	33
	IV	34	11.3
	V	15	5

ASSESSMENT OF KNOWLEDGE ABOUT UNIVERSAL SAFETY PRECAUTIONS:

Out of 300 participants only 40% of them were aware of the optimum duration for effective handwashing Rest of the 60% were unaware. 76.6% of the participants were unaware of the ideal strength of alcohol to be present in a hand sanitizer. 42% of them were unaware of the ideal interpersonal distance to be maintained in order to prevent the spread of COVID 19. 69.3% and 17.3% of participants didn't know about quarantine and isolation respectively. 59.3% of participants had misconceptions about what social distancing is. 28.6% and 71.3% of participants were confused about who are close contacts and who are transient contacts respectively. For the purpose of this study participants who gave 8- 10 correct answers had good knowledge, 5-7 correct answers had moderate knowledge and <5 had poor knowledge about Universal safety precautions for prevention of COVID 19. This study revealed that 54.3% had good knowledge, 27.3% had moderate knowledge and 18.3% of participants had poor knowledge.

Figure1: Knowledge of the participants regarding Universal Safety Precautions

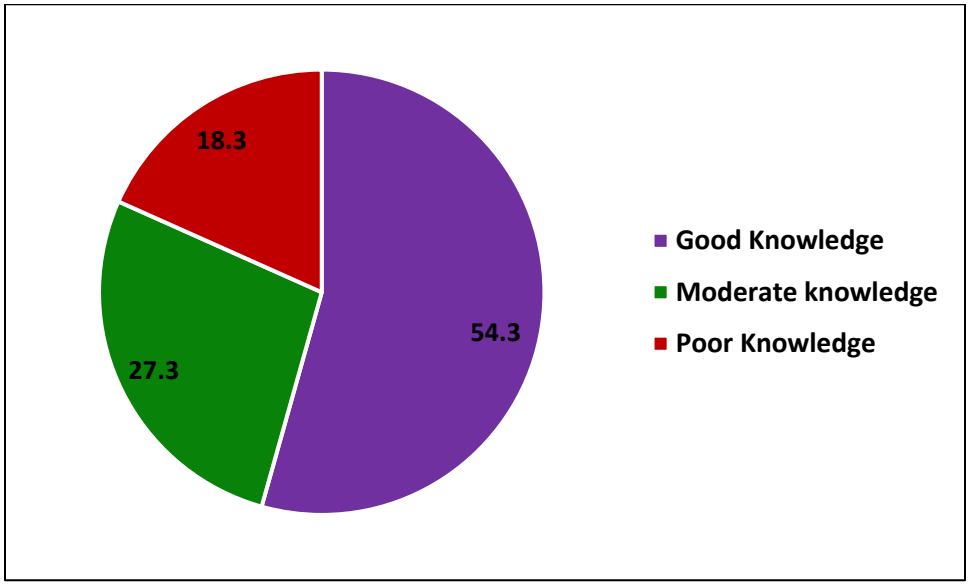

Table 2: Assessment of Knowledge About Universal Safety Precautions

S.NO	QUESTION	ANSWER	No. of correct responses (%)	No. Of incorrect responses (%)
1.	What would be the ideal length of time to wash hands in preventing the spread of COVID-19?	20s	120 (40%)	180 (60%)
2.	What is the ideal strength of alcohol that a hand sanitizer should contain to be used during outbreaks?	60%	70 (23.3%)	230 (76.6%)
3.	What would be the ideal distance to be maintained in preventing the spread of COVID-19?	6 feet	174 (58%)	126 (42%)
4.	During outbreaks, 'quarantine' is a procedure usually followed by?	At-risk people	92 (30.6%)	208 (69.3%)
5.	During outbreaks, 'isolation' is a procedure usually followed by?	Infected people	248 (82.6%)	52 (17.3%)
6.	Health status of all the close contacts should be monitored for how many days from the last exposure (i.e. self-isolation period)?	14 days	230 (76.6%)	70 (23.3%)
7.	Which type of face mask is considered as ideally protective during outbreaks?	N-95 face mask	281 (93.6%)	19 (6.3%)
8.	Social distancing means staying away from the crowd and maintaining minimum distance from people around, with the intention of minimizing the transmission of an outbreak?	True	178 (59.3%)	122 (40.6%)

9.	The term 'close contacts' are those who had provided care for infected persons?	True	214 (71.3%)	86 (28.6)
10.	The term 'transient contacts' are those who had interacted with the infected persons for a short period of time?	True	86 (28.6)	214 (71.3%)

ASSESSMENT OF BELIEFS ABOUT UNIVERSAL SAFETY PRECAUTIONS:

97% of participants believed that maintaining proper personal hygiene will prevent the spread of COVID – 19. 98.6% of the participants believed that cleansing hands using soap or sanitizer can prevent the spread of COVID – 19. 90.6% of participants believed that avoiding handshaking behavior can prevent spread of COVID – 19. 89% of the participants believed that avoidance of placing hands in the eyes, nose and mouth can prevent the spread of COVID – 19. As far as the above-mentioned concepts are concerned the participants had a generally positive beliefs and perspectives.

53.6% of the participants didn't believe that wearing a mask could prevent spread of COVID – 19. 48.6% of the participants believed that coughing and sneezing into the elbow is not a good practice for preventing COVID – 19. 44% of participants believed that sharing food with friends and colleagues is not a reason for spread of COVID – 19. 34% of the participants believed that staying at home is not going to prevent spread of COVID – 19.

Table 2: Assessment of Beliefs About Universal Safety Precautions

S.NO	QUESTION	ANSWER	No. of correct responses (%)	No. Of incorrect responses (%)
1.	Maintaining good personal hygiene would prevent the spread of COVID-19?	Agree	291 97%	9 (3%)
2.	Washing hands frequently using soap or sanitizer would prevent the spread of COVID-19?	Agree	296 (98.6%)	4 (1.3%)
3.	Avoiding handshaking behavior would prevent the spread of COVID-19?	Agree	272 (90.6%)	28 (9.3%)
4.	Avoiding placing fingers into eyes, nose and mouth would prevent the spread of COVID-19?	Agree	267 (89%)	33 (11%)
5.	Wearing a face mask will prevent spread of COVID – 19	Agree	131 (43.6%)	169 (56.3%)
6.	Coughing and sneezing into the elbow or within the clothing is a good practice in preventing the spread of COVID-19?	Agree	154 (51.3%)	146 (48.6%)
7.	Limiting eating and sharing food with colleagues and friends would prevent the spread of COVID-19?	Agree	168 (56%)	132 (44%)

8.	Staying at home would play a significant role in preventing the spread of COVID-19?	Agree	198 (66%)	102 (34%)

ASSESSMENT OF PRACTICE OF UNIVERSAL SAFETY PRECAUTIONS:

89.3% of the participants have the habit of wearing a mask whenever they step outside the house. 94.3% of the participants have the habit of washing hands frequently. 98% of the participants avoid going out unless its absolutely necessary. 95.6% of the participants avoid going to crowded places at all costs. 96.6% of the participants avoid shaking hands with people for greeting them. 85% of the participants maintain social distancing when they go out. As far as the aforementioned aspects are concerned majority of the participants seemed to have healthy practices. On the contrary, only 67% of participants had the habit of disinfecting surfaces at home regularly and only 66% of participants washed groceries before storing them.

Table 3: Assessment of Practice Of Universal Safety Precautions

1.	Do you wear mask whenever you step outside the house?	Yes	268 (89.3%)	32 (10.6%)
2.	Do you wash hands more frequently than before?	Yes	283 (94.3%)	17 (5.6%)
3.	Do you avoid going out except if it's absolutely necessary?	Yes	294 (98%)	6 (2%)
4.	Do you avoid going to crowded places?	Yes	287 (95.6%)	13 (4.3)
5.	Do you avoid touching mouth, nose and eyes?	Yes	262 (87.3%)	38 (12.6%)
6.	Do you avoid shaking hands with people for greeting them?	Yes	290 (96.6%)	10 (3.3%)
7.	Do you maintain social distancing whenever you go out?	Yes	255 (85%)	45 (15%)
8.	Do you disinfect surfaces regularly?	Yes	201 (67%)	99 (33%)
9.	Do you wash groceries before storing them	Yes	198 (66%)	102 (34%)

DISCUSSION

Since this has been a relatively newer issue that has cropped up in the public health milieu there is very limited research studies to compare the findings. Similar studies were conducted by Gudi SK et al.,[13] as a web-based study in India and by Singh et al., in Nepal[14]. These inferences obtained from these studies, if compared with the inferences of the present study will aid in arriving at conclusions and an action plan for filling the massive dearth of authentic information to the public which is the need of the hour.

The present study revealed that 54.3% of participants had good knowledge, 27.3% of them had moderate knowledge and 18.3 % of them had poor knowledge of the universal safety precautions

for COVID 19. The average correct response scores for knowledge is 54.5% while the study conducted by Gudi et al., the average correct response score for knowledge is 63%.[13]

In the present study, participants were relatively well informed about the ideal type of mask for prevention of spread of COVID 19, social distancing and the ideal distance to be maintained for to prevent the spread of COVID 19 and the ideal duration for which health status of a contact should be monitored. Although majority of participants gave wrong answers for the ideal duration for effective hand washing, majority of wrong responses were durations higher than the optimum time i.e. higher than 20 seconds. The participants of the present study were relatively unaware of the strength of alcohol in an effective hand sanitizer. Although the majority of them guessed the answers for isolation and close contacts correctly, it's clear by looking at the overall results that a large proportion of the participants were confused between transient and close contacts and quarantine and isolation which was perceived to be one and the same.

Study done by Gudi et al., revealed similar results where participants had good knowledge about social distancing, ideal type of mask and duration of health monitoring for contacts. Participants were relatively unaware about the ideal duration of effective hand washing, strength of alcohol in an effective sanitizer, quarantine and isolation procedures and the difference between transient and close contacts.[13]

Study done by Singh et al., in Nepal also revealed similar results were participants were ill informed about social distancing and were confused about the difference between close contacts and transient contacts and the difference between quarantine and isolation procedures.[14]

The present study lays bare that majority of the participants have positive beliefs about universal safety precautions. When asked if they believe that wearing a face mask could prevent the spread of COVID 19 majority answered that they didn't believe and attributed their belief to the fact that cases have been consistently increasing even after face masks have been made mandatory. A considerable number of participants also believed that sneezing and coughing into the elbow is a bad practice and sharing food with friends and colleagues. The average of correct responses for beliefs about the universal safety precautions for prevention of COVID – 19 in the present study is 74%.

The Gudi et al., study revealed similar results were participants had wrong preconceptions about sharing food and the average correct response score for beliefs is 83%.[13]

As far as practices are concerned, a vast majority of participants have good practices of wearing a mask at al times while out of the house, maintaining social distancing, avoiding going out unless absolutely necessary, avoiding crowded places, washing hands regularly, avoiding touching mouth nose and eyes and avoiding handshaking behavior. Although higher percentage of participants disinfected frequently used surfaces regularly and washed or otherwise disinfected groceries and other items before storing, a large chunk of them don't follow these practices properly. These practices although satisfactory, should be ruminated with caution considering the fact that most of them have unsatisfactory knowledge about the universal safety precautions. For example, when a participant claims that he is following social distancing but has inadequate knowledge about what is social distancing and the ideal distance to be kept for effective prevention of COVID 19, in reality, his perceived good practice may not be sufficient to prevent contracting COVID 19.

CONCLUSION:

The inferences obtained from the study exposes a clear lack of health education to the public regarding Universal safety precautions for prevention of COVID 19. Since community-based health education programs are close to impossible considering the present scenario, the present rise in social media use and internet coverage can be taken advantage of to educate people about the right information, beliefs and knowledge evidence that will help bring out a fundamental change in attitude and behavior. In par with the legislations, government should take steps to alleviate the suspicions, misconceptions and disbelief that people have on the government by providing accessible preventive and curative health services. Also, more research into preventive aspects and practices for COVID 19 should be encouraged.

CONFLICT OF INTEREST: Dr. Amritha lekha. A. K declares no conflict of interest.

FUNDING: Self

REFERENCES

1. Liu Y, Gayle AA, Wilder-Smith A, Rocklöv J. The reproductive number of COVID-19 is higher compared to SARS coronavirus. Journal of travel medicine. 2020 Mar 13.
2. Schoeman D, Fielding BC. Coronavirus envelope protein: current knowledge. Virology journal. 2019 Dec;16(1):1-22.
3. Kahn JS, McIntosh K. History and recent advances in coronavirus discovery. The Pediatric infectious disease journal. 2005 Nov 1;24(11):S223-7.
4. de Groot RJ, Baker SC, Baric RS, Brown CS, Drosten C, Enjuanes L, Fouchier RA, Galiano M, Gorbalenya AE, Memish ZA, Perlman S. Commentary: Middle east respiratory syndrome coronavirus (mers-cov): announcement of the coronavirus study group. Journal of virology. 2013 Jul 15;87(14):7790-2.
5. Jin X, Lian JS, Hu JH, Gao J, Zheng L, Zhang YM, Hao SR, Jia HY, Cai H, Zhang XL, Yu GD. Epidemiological, clinical and virological characteristics of 74 cases of coronavirus-infected disease 2019 (COVID-19) with gastrointestinal symptoms. Gut. 2020 Jun 1;69(6):1002-9.
6. Lai CC, Shih TP, Ko WC, Tang HJ, Hsueh PR. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and corona virus disease-2019 (COVID-19): the epidemic and the challenges. International journal of antimicrobial agents. 2020 Feb 17:105924.
7. Raghu G, Wilson KC. COVID-19 interstitial pneumonia: monitoring the clinical course in survivors. The Lancet Respiratory Medicine. 2020 Sep 1;8(9):839-42.
8. Liu C, Diab R, Naveed H, Leung V. Universal public mask wear during COVID-19 pandemic: Rationale, design and acceptability. Respirology. 2020 Aug;25(8):895-897. doi: 10.1111/resp.13892. Epub 2020 Jul 6. PMID: 32779805; PMCID: PMC7361830.
9. Sunjaya AP, Jenkins C. Rationale for universal face masks in public against COVID-19. Respirology (Carlton, Vic.). 2020 Apr 30.
10. Tomar A, Gupta N. Prediction for the spread of COVID-19 in India and effectiveness of preventive measures. Science of The Total Environment. 2020 Apr 20:138762.
11. Paital B, Das K, Parida SK. Inter nation social lockdown versus medical care against COVID-19, a mild environmental insight with special reference to India. Science of The Total Environment. 2020 Apr 23:138914.
12. World Health Organization. Coronavirus disease (COVID-19): weekly epidemiological update6. September 20,2020 available @ https://www.who.int/docs/default-

source/coronaviruse/situation-reports/20200921-weekly-epi-update-6.pdf?sfvrsn=d9cf9496_6

13. Gudi SK, Chhabra M, Undela K, Venkataraman R, Mateti UV, Tiwari KK, Nyamagoud S. Knowledge and beliefs towards universal safety precautions during the coronavirus disease (COVID-19) pandemic among the Indian public: A web-based cross-sectional survey. Drugs & Therapy Perspectives. 2020 Sep;36(9):413-20.
14. Singh DR, Sunuwar DR, Karki K, Ghimire S, Shrestha N. Knowledge and Perception Towards Universal Safety Precautions During Early Phase of the COVID-19 Outbreak in Nepal. Journal of community health. 2020 May 13:1.