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Assessment of knowledge, attitudes and practices regarding COVID-19 among pharmacists in Goa

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ABSTRACT

Background: COVID-19 is a highly transmissible and pathogenic viral infection caused by SARS-CoV-2, which emerged in Wuhan, China and became a global pandemic. The aim of our study was to ascertain knowledge, attitudes and practices of pharmacists who are among the Frontline Healthcare Workers involved in infection control and prevention of COVID-19; employing a pre-designed semi-structured questionnaire.

Methods: This descriptive cross-sectional study employing a pre-designed semi-structured questionnaire was carried out among 200 pharmacists in Goa, using simple random sampling method. The study period was 1 month during March-April 2020.

Results: Out of 200 pharmacists, the name of the disease was known by 87%, mode of transmission by 94.5% and major symptoms of the disease by 61%. Very few (28.5%) participants knew that quarantine is for asymptomatic contacts of the disease. Majority (69%) were aware that persons at risk should be placed under observation for 2 weeks. Only 18% knew that 6 feet constitutes close contact. A large number (93%) were aware of the preventive measures for the disease. Most participants possessed the right attitudes and followed correct practices- 96% were willing to avoid foreign travel, 90% preferred to avoid shaking hands during the ongoing disease transmission, 93% cover their face while coughing/sneezing and 98% maintain good hand hygiene.

Conclusions: The knowledge among pharmacists of Goa though limited, was adequate in terms of epidemiology and clinical presentation of the novel disease. They possessed the right attitudes and followed appropriate preventive practices.

Keywords: Attitudes, COVID-19, Knowledge, Practices, Pharmacists

INTRODUCTION

On 31st December 2019, a series of pneumonia cases of unknown cause emerged in Wuhan city, Hubei province of China.¹ A few weeks later, in January 2020, Chinese authorities identified a novel virus 'severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)' as a causative agent for the observed pneumonia cases.²

Coronaviruses are members of a large family of viruses, some causing illness in people and others that circulate among animals, including camels, cats, bats, etc. world health organization (WHO), on 30th January 2020, declared the current novel coronavirus outbreak as a public health emergency of international concern (PHEIC). On 11th February 2020, WHO named the disease caused by the SARS-CoV-2 as 'COVID-19', and

on 11th March 2020, the WHO declared the pandemic status.¹

COVID-19 is the most recent emerging infectious disease globally. Transmission of the COVID-19 virus occurs through contact with infected person and indirect contact with objects used on the infected person or with surfaces in the nearby environment or through fomites around the infected person.³ The spread of virus is through respiratory droplets when an infected person coughs or sneezes. Symptoms appear in 2-14 days and include cough, shortness of breath and fever. Severity ranges from low to being severely ill and even death.³

Since COVID-19 is a novel infection, nobody is immune from it. Challenges in the COVID-19 response include healthcare workers with limited training in emergency preparedness, lack of adequate supplies of personal protection equipment (PPE) including masks and hand sanitizers, testing kits, ventilators, number of available hospital beds, approved treatment, and a specific SARS-CoV-2 vaccine.⁴ These challenges affect the pharmacists and pharmacy professionals who are among the frontline healthcare workers.4 Community pharmacists are vital healthcare providers during the outbreak of disease; they remain on the frontline of public health as they serve as direct points of access for their patients.⁵ Healthcare workers, including pharmacists and their staff, are at the potential risk of acquiring the infection or transmitting it to the patients. It is, therefore, essential to assess their knowledge, attitudes and practices regarding COVID-19 as well as infection control practices. Pharmacists have an important role to play in patient education. Hence, the present novel study was undertaken among the pharmacists in Goa.

Objectives were to study the level of awareness among the pharmacists in Goa towards the origin, manifestations, transmission and treatment options regarding COVID-19, to identify their attitudes, beliefs and reported practices towards prevention and control of COVID-19, to study the association with socio-demographic variables and to give suitable recommendations based on the findings of the study towards effective prevention and control practices and improved patient education programs.

METHODS

A descriptive cross-sectional study was conducted over a period of one month in March-April 2020. A total of 203 pharmacists were invited by using a simple random sampling method, to participate in the study. The profile characteristics of the participants included age (grouped into ≤30, 31-40, 41-50 and >50 years), sex and highest achieved educational qualification (M.Pharm, B.Pharm, D.Pharm).

The study was approved by the Institutional Ethics Committee of Goa Medical College, Goa. The confidentiality of subjects was maintained.

Sampling method

Study participants were selected from the list of enrolled pharmacists in Goa by simple random sampling.

A pre-designed semi-structured study proforma in form of a multiple-choice questionnaire was self-administered to all the study participants by the research investigators. The study proforma consisted of demographic characteristics and questions testing the participants' knowledge, attitudes and reported practices regarding prevention of COVID-19. The questionnaire consisted of auestions-3 related to socio-demographic characteristics, 15 questions on knowledge and 10 questions on attitudes and reported practices. A total of 200 study proformas complete in all aspects were analysed using Microsoft excel. Three study proformas that were incomplete were discarded. The results were expressed as simple proportions, percentages, pie charts and bar diagrams.

RESULTS

Our study participants included a total of 200 pharmacists from Goa. Majority of them i.e. 103 (51.5%) were youth 30 years and under, 60 (30%) were between 31-40 years, 19 (9.5%) were between 41-50 years and 18 (9%) were over 50 years of age (Table 1).

Table 1: Socio-demographic characteristics of study participants.

Study variable	Number	Percentage (%)		
Age (years)		•		
≤30	103	51.50		
31-40	60	30.00		
41-50	19	9.50		
>50	18	9.00		
Sex				
Male	41	20.50		
Female	159	79.50		
Highest qualification achieved among pharmacists				
Postgraduate (M.Pharm)	32	16.00		
Graduate (B.Pharm)	82	41.00		
Diploma (D.Pharm)	86	43.00		

Over two-thirds (79.5%) were females and only one-fifth (20.5%) were males. Amongst the 200 pharmacists, 32(16%) were M.Pharm, whereas majority were either B.Pharm (82; 41%) or D.Pharm (86; 43%) (Figure 1).

Study of the knowledge of the participants regarding novel coronavirus disease yielded mixed results (Table 2). While most of the participants (87%) were aware that COVID-19 is the correct name of the novel disease, very few (18%) participants correctly identified the causative virus as SARS-CoV-2. Awareness that the disease originated in China (99.5%) was almost universal, while majority (94.5%) correctly reported the mode of

transmission through coughing and fomites. However, only 61% participants were aware that the major symptoms of the disease included fever, cough and breathing difficulty. Only 121 pharmacists (60.5%) knew that antiretroviral drugs or oseltamivir is not the correct treatment for the disease.

Most of the participants (81.5%) knew that the elderly population was at greatest risk of fatality from this disease. It was disheartening to note that there was lack of awareness among a greater number of the participants regarding the correct preventive steps to be taken by symptomatic patients and asymptomatic contacts. Only 93 (46.5%) participants knew that isolation is the correct preventive step for patients with symptoms of the disease and a lesser number of participants (57; 28%) knew that quarantine is the correct preventive step for asymptomatic contacts of patients with the disease.

Most of the participants (138; 69%) were aware that the recommended period for placing persons at risk under observation is 2 weeks.

Table 2: Knowledge of study participants regarding COVID-19 disease, its transmission, presentation and management.

Nomenclature of disease	Number	Percentage			
and virus	TD 10 4b-	(%)			
Correctly identified COVID-19 as the name of the novel coronavirus disease					
Yes	174	87.00			
No	26	13.00			
Correctly identified SARS	_==				
the virus causing COVID-		ienciature or			
Yes	36	18.00			
No	164	82.00			
Origin and transmission	- 101	02.00			
Able to identify country of origin					
Yes	199	99.50			
No	1	0.50			
Could identify mode of tra	nsmission t	hrough			
coughing and fomites corr		Đ			
Yes	189	94.50			
No	11	5.50			
Identified major symptom	s of the dise	ase correctly			
Yes	122	61.00			
No	78	39.00			
Treatment options reported by study participants					
Antiretroviral drugs	18	9.00			
Oseltamivir	7	3.50			
Combination of a and b	54	27.00			
None of the above	121	60.50			
Correctly identified age group at greatest risk of					
fatality from disease					
Yes	163	81.50			
No	37	18.50			

Table 3: Awareness regarding prevention and control of COVID-19 disease.

Question	Numb	Percentage (%)			
Identified isolation as c	orrect p	reventive step for			
symptomatic patients					
Yes	93	46.50			
No	107	53.50			
Identified quarantine as the correct preventive measure for asymptomatic contacts of patients					
Yes	57	28.50			
No	143	71.50			
Correctly identified the	recomi	nended period for			
placing persons at risk		quarantine			
Yes	138	69.00			
No	62	31.00			
Vaccine availability rep	orted b	y study participants			
Yes	15	7.50			
No	141	70.50			
I don't know	44	22.00			
Correctly defined what risk for disease	constitu	ites 'close contact' at			
Yes	36	18.00			
No	164	82.00			
Preventive measures de	-0.				
participants	esci ibcu	by study			
Handwashing/hand sanitizers	8	4.00			
Avoid close contact with sick persons with flu like symptoms	3	1.50			
Covering face while coughing and sneezing	3	1.50			
All the options	186	93.00			
Correctly identified 3-layer surgical mask for symptomatic cases and caregivers					
Yes	caregive 44	ers 22.00			
Yes No	156	78.00			
110					
Correctly identified N95 mask for use by health care workers dealing with symptomatic patients					
Yes	143	71.50			
No	57	28.50			

A larger number of participants (141; 70.5%) were aware of the fact that currently there is no vaccine available to prevent this disease. It was very disappointing that less than one fifth (36; 18%) of the participants were correctly able to define what constitutes "close contact" with a person having the disease. Most participants (93%) were aware that preventive measures included handwashing, avoiding close contact with persons with flu like symptoms as well as covering the face while coughing and sneezing. Only a few (22%) were aware that 3-layer surgical masks are recommended for symptomatic cases and caregivers. Notwithstanding, most of the participants (143; 71.5%) knew that N95 masks are recommended for

health care workers dealing with symptomatic patients (Table 3).

Table 4: Attitudes and beliefs among pharmacists towards COVID-19 prevention.

Question	Number	Percentage (%)			
Willingness to stay home until flu symptoms					
disappear					
Yes	165	82.50			
No	35	17.50			
Willingness to avoid	Willingness to avoid a foreign travel during ongoing				
disease transmission	<u> </u>				
Yes	192	96.00			
No	8	4.00			
Prefer shaking hand					
during ongoing disea	ase transmission	l			
Yes	20	10.00			
No	180	90.00			
Believed that drinki	ng alcohol could	kill the virus			
Yes	15	7.50			
No	185	92.50			
Believed that the vir	us will perish in	hot Indian			
summer					
Yes	99	49.50			
No	101	50.50			
Perception that non-medical therapies offer					
effective cure for the	e disease				
Yes	39	19.50			
No	161	80.50			
Perception regarding Level of risk of this infection worldwide as per WHO					
Low	7	3.50			
High	73	36.50			
Very high	120	60.00			

It was heartening to note that the majority of the participants possessed the correct attitudes and followed the appropriate practices in relation to COVID-19 prevention. Majority (165; 82.5%) of participants gave an affirmative answer when asked if they would stay at home until their flu symptoms disappeared. It was reassuring to note that 192 (96%) participants preferred to avoid foreign travel, whereas 180 (90%) participants would avoid shaking hands to greet another person during the ongoing disease transmission. Reassuringly, majority (92.5%) were opposed to the widespread belief that drinking alcohol can kill the virus. There was a clear divide in opinion on whether the virus will perish during the hot Indian summer heat. While 101 (50.5%) participants believed that this was untrue, 99 (49.5%) participants unfortunately believed this to be so. Majority (80.5%) felt that non-medical therapies do not offer effective cure for the disease, suggesting lack of faith in alternative medicines. When quizzed about the level of risk of the infection worldwide according to WHO, more than half (60%) correctly believed it to be very high, 73 (36.5%) participants said it was high and only 7 (3.5%) participants believed it to be low (Table 4).

Most of the participants (93%) reportedly covered their face with a handkerchief/tissue paper or their sleeve while coughing or sneezing. Almost all (197; 98%) reportedly washed their hands with soap and water, or frequently used hand sanitizers. A large number i.e. 165 (82%) participants reported that they were aware of the correct steps of using a face mask (Figure 2).

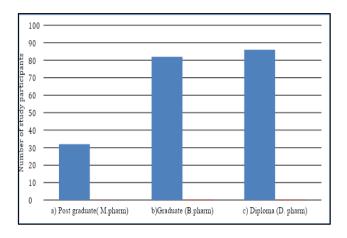


Figure 1: Highest qualification among pharmacists.

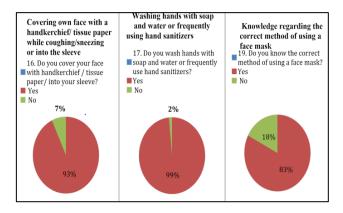


Figure 2: Reported practices among pharmacists regarding COVID-19 disease.

DISCUSSION

Since December 2019, COVID-19 has resulted in catastrophic effects worldwide. The community pharmacists and their teams have always remained on the frontline of public health, ensuring medication safety and access during natural disasters and pandemics. It is imperative that they possess the correct scientific knowledge and attitudes and follow appropriate practices directed towards prevention of the spread of the ongoing COVID-19 pandemic. It is essential to note that, only when they are aware of the correct precautionary measures, they can subsequently spread awareness among the patients as well as the society at large. In our study, we interviewed pharmacists from Goa to assess their knowledge, attitudes and practices regarding COVID-19.

Our study included a total of 200 pharmacists from all over Goa, of which 103 (51.5%) were youth up to 30 years, 60 (30%) were between 31-40 years, 19 (9.5%) were between 41-50 years and 18 (9%) were over 50 years of age. 79.5% were females and only 20.5% were males. Amongst the 200 pharmacists, only 32 (16%) were M.Pharm, while majority were either B.Pharm (41%) or D.Pharm (43%). Knowledge of the study participants regarding novel coronavirus disease, its transmission, presentation and management.

Knowledge is an important prerequisite for establishing preventive health beliefs, forming positive attitudes, and promoting positive behaviours. The effectiveness of strategies aimed at coping with a disease varies, depending on individuals' cognitive abilities.⁶

Our study of the knowledge of the participants regarding novel coronavirus disease yielded mixed results. COVID-19 being the correct nomenclature of the novel disease was known by a majority (87%) study participants. Very few (18%) participants correctly identified the causative virus as SARS-CoV-2. Our findings can be compared with those reported in a study done in Mumbai by Modi et al, where only 22.6% responders were aware that the virus causing COVID-19 was initially called 2019-nCoV and was later termed as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

Awareness about the disease origin in China was almost universal (99.5%), as was also seen in a study by Modi et al, where 98.85% of the study participants were aware of the origin of the disease.⁷ Majority of the study participants (94.5%) correctly reported the mode of transmission as being through coughing and fomites in contrast to a study by Bhagavathula et al where only 39% were aware of the mode of transmission.⁸

More than half (61%) were aware that the major symptoms of the disease included fever, cough and breathing difficulty. Similar findings were seen in a study by Wolf et al, where most participants (71.7%) correctly identified the three main symptoms. The Food and Drug Administration (FDA) has not yet approved drugs to be used in the specific treatment of COVID-19. Despite the numerous claims, definitive clinical trial data is still awaited. It was noteworthy that a greater number (60.5%) were aware that antiretrovirals or oseltamivir is not the correct treatment for the disease. Our findings were comparable to those seen in a study by Zhong et al where 94% of study participants were aware that currently there is no specific cure for this novel disease.

During the ongoing COVID-19 pandemic, strategies for pre-exposure and post-exposure prophylaxis are the need of the hour. This is especially true for close contacts, healthcare workers and other high-risk populations. Majority of the participants (81.5%) knew that the disease fatality risk was greatest for the elderly population. Our findings were consistent with a study done by Zhong et al

wherein 73.2% of the responders were aware of the fact that not all persons with COVID-19 develop severe illness.¹¹ Only the elderly, those with chronic illnesses, and the obese are likely to be more vulnerable to develop severe illness.

Knowledge regarding prevention and control of novel coronavirus disease

It was disheartening to note that there was a lack of awareness among a greater number of participants regarding the correct preventive steps to be taken by symptomatic patients and asymptomatic contacts. Only 93 (46.5%) participants knew that isolation is the correct preventive step for patients with symptoms of the disease and 57 participants (28%) knew that quarantine is the correct preventive step for asymptomatic contacts of patients with the disease.

Most of the participants (69%) were aware that the recommended period for placing persons at risk under observation is 2 weeks. This was in contrast to a cross-sectional study among Jordanian dentists, in which only 36.1% of the responders were aware that the incubation period was 1-14 days.¹³

A larger number (70.5%) were aware of the fact that currently there is no vaccine available to prevent this disease. In a similar study done in Jordan by Alzoubi et al, 89% of the study participants were cognizant about the current unavailability of a specific vaccine.¹⁴

The timely identification and isolation of a suspected case is an important step in curbing the spread of this novel disease. However, in our study, it was very disappointing to note that less than one fifth (18%) of the participants were correctly able to define what constitutes "close contact" with a person having the disease. Close contact is being within 6 feet or 2 meters from a person infected with COVID-19 for a prolonged time. Our study findings are comparable to those found by Modi et al where they reported that less than half of the study participants could correctly define a "close contact".⁷

Majority of the study participants (93%) were aware of the preventive measures. A similar result was found by Bhagavathula et al in their study in the UAE where the majority of the health care workers (85.6%) agreed that maintaining good hand hygiene, covering the nose and mouth while coughing, and avoiding symptomatic patients could help to prevent COVID-19 transmission.⁸

Surgical masks trap larger droplets produced from coughs or sneezes, thus preventing spread from infected people. 15 However, it was disappointing to note that only a handful (44; 22%) were aware that 3-layer surgical masks are recommended for symptomatic cases and caregivers. Notwithstanding, majority (71.5%) knew about the recommendation of N95 masks for healthcare workers dealing with symptomatic patients, so as to keep

themselves protected from infections that can be spread by tiny airborne droplets. N95 respirators are made with a tight seal that fits around the nose and mouth thus protecting against air and virus particles.¹⁵

Being healthcare professionals, it is essential that pharmacists themselves stay informed and become providers of education and reassurance to their respective patients, communities and countries at large. ¹⁶ Therefore, awareness of infectious diseases has a crucial role in disease prevention and control. On the other hand, a lack of reasonable knowledge results in low detection rates and delay in treatment.

Attitudes and beliefs among pharmacists towards COVID-19 prevention

Personal motivation remains one of the major deciding factors in the success of measures aimed at controlling and preventing the spread of infectious diseases. In this study, an attempt was made to assess the attitudes of the participants with regards to the prevention of COVID-19 disease. It was heart-warming to note that 165 (82.5%) participants showed willingness to stay home and self-isolate themselves even with minor flu symptoms until they recover so as to protect others from possible COVID-19 and other viruses.

Most of the participants (96%), were willing to avoid foreign travel while 180 (90%) expressed disfavor towards shaking hands while greeting others during the ongoing disease transmission. This was comparable to the findings obtained by Alzoubi et al in their study on medical and non-medical university students in Jordan, wherein reportedly 96.8% of participants avoid shaking hands.¹⁴

Taking into account concerns regarding reliability of the vast information available on a disease of this magnitude, pharmacists play a major role by assisting government officials in the dissemination of knowledge regarding measures to be undertaken to prevent COVID-19 spread.⁵ An attempt was made to assess the beliefs held by the study participants.

It was reassuring to note that 185 (92.5%) participants opposed the popular belief that drinking alcohol can kill the virus. On the other hand, there was a clash of opinions with regards to the belief that the virus will perish during the Indian summer heat. While 101 (50.5%) were right in rejecting it, 99 (49.5%) participants believed it to be true. Expressing lack of faith in alternative medicines, most participants (80.5%) did not believe that non-medical therapies could offer effective cure for the disease.

Obtaining information from trusted sources, such as WHO is essential, especially for pharmacists who are among the frontline Healthcare workers endeavoring to be accessible to their patients in the midst of this crisis.⁵ Hence, it was noteworthy that 120 (60%) participants

were well aware that the level of risk of infection worldwide as per WHO is very high.

Reported practices among pharmacists regarding COVID-19 disease

Possessing the right attitudes and beliefs can go a long way in shaping one's actions. The same was found to be true for a greater number of participants who reported to be following the right practices for disease prevention. Majority of the participants i.e. 186 (93%) reportedly cover their face with a handkerchief/tissue paper or their sleeve while coughing/sneezing. Similar results were obtained by Alzoubi et al whose study showed that 95.8% participants appropriately follow the cough etiquette.¹⁴

In our study, 197 (98%) participants reportedly wash their hands with soap and water or frequently use hand sanitizers. This was consistent with the findings seen in a study by Saqlain et al among healthcare professionals from Pakistan wherein 96.1% practiced washing hands with soap. Our findings were also consistent with a study done by Alzoubi et al where 98.9% of participants washed hands regularly and 93.8% used an alcoholic hand rub. 14

It was truly commendable that the majority (82%) participants in our study reported that they were aware of the correct method of using a face mask. This was in stark contrast to the findings of Modi et al in a study conducted among healthcare students and professionals in the Mumbai metropolitan region, showing that only 45.4% were aware of the right sequence for application of a mask. Correct method of wearing as well as removing PPE is of utmost importance to prevent spread, and the users need to be appropriately trained to follow the directions.

CONCLUSION

Our study reveals that the knowledge regarding COVID-19 among pharmacists of Goa was limited regarding the availability of correct treatment, though it was adequate in terms of epidemiology and clinical presentation of the disease.

They possessed the right attitudes and followed appropriate practices in relation to its prevention. Majority of the myths regarding COVID-19 were opposed by them, with the exception of a few. The study highlights gaps in specific aspects of knowledge that should be focused in future comprehensive training programs directed towards the pharmacists of Goa in order to contain the risk of acquiring or transmitting the disease.

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