Original Research Article

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20203914

Awareness, anxiety and coping regarding COVID-19 among South Indian population: web based cross sectional survey

Puvaneswari Kanagaraj¹*, Anbueswari Kanagaraj³, Madhusheela Srinivasan², Jessy Jacob¹, Mariamma Philip⁴

¹Department of Medical surgical Nursing, ²Department of Obstetrics and Gynaecology, Narayana Hrudayalaya College of Nursing, Bangalore, Karnataka, India

³Department of Nursing, Government Mohan Kumaramangalam Medical College and Hospital, Salem, Tamil Nadu, India

⁴Department of Biostatistics, National Institute of Mental health and Neuro sciences, Bangalore, Karnataka, India

Received: 19 June 2020 **Revised:** 01 August 2020 **Accepted:** 04 August 2020

***Correspondence:** Dr. Puvaneswari Kanagaraj, E-mail: puvaneswariramesh@gmail.com

Copyright: [©] the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: COVID-19, a highly infectious pandemic illness, has caused stress in everyone globally. It is a new situation, where no one is prepared to battle. With the currently available data, health care and the government makes guidelines and fights against this pandemic. The cooperation of the public is highly important to prevent and control the spread of COVID-19.

Methods: A web based cross-sectional survey was conducted among 519 participants using convenience snowballing technique to assess the awareness, anxiety, and coping strategies regarding COVID-19 from 14 May 2020 to 24 May 2020. The validated online Google form questionnaire consisted of demographic variables, questionnaire related to awareness on COVID-19, anxiety related to COVID-19, and coping strategies. The analysis was done using both the descriptive and inferential statistics.

Results: The majority of them were graduates and postgraduates. And 78% of them reported that no COVID-19 positive cases were identified in their area. The awareness score was 7.47 ± 1.37 (median=8, range: 1-10). And the overall anxiety regarding COVID-19 was 47.74 ± 11.58 (Range 17-85). On average, participants practiced 4 coping strategies ranged from 1-8 mainly 'talking to friends and family' and 'taking care of diet'. Awareness was positively correlated with behavioral anxiety (r=0.103, p=0.019) and the number of coping strategies used (r=0.146, p=0.001). **Conclusions:** The study showed that awareness was positively associated with hand washing, social distancing which are the parts of preventive activities. Health promotion activities in terms of health education can improve the behavioural change.

Keywords: Anxiety, Awareness, Coping, COVID-19, Pandemic, Survey

INTRODUCTION

COVID-19 disease is a highly infectious disease caused by a newly (novel) identified corona virus.¹ COVID-19 is announced by WHO as a Global pandemic, that originated in Wuhan, China and spread across almost 213 countries.^{2,3} It is a disease caused by COVID-19 or SARS-CoV-2 which is genetically similar to the SARS (severe acute respiratory syndrome) coronavirus.⁴ It primarily spreads through the respiratory tract by droplets (cough, sneeze), respiratory secretions, and direct contact.² People become infected with COVID-19 by touching the contaminated objects or surfaces with

COVID 19, then touching their eyes, nose or mouth.⁵ COVID-19 infection has an incubation period of 1-14 days, mostly 3-7 days 97.5% of patients express symptoms within 11.5 days.^{6,7} People who are older or who have existing chronic medical conditions, such as hypertension, compromised lung function, chronic obstructive pulmonary disease or diabetes, cancer, or who have compromised immune systems may be at higher risk of serious illness.^{1,8} COVID-19 infected patients may have mild to moderate respiratory symptoms (cough, sore throat, nasal congestion, malaise, fever, difficulty in breathing), and can recover without any specific medical management.^{1,9,10} But few experience severe symptoms (severe respiratory distress, low oxygen saturation, altered mental status, persistent hypotension, etc.) and lead to mortality.^{1,9,10} The estimated fatality rate was 3-4 %.11

More and more countries are experiencing clusters of cases or community transmission.¹² Because of its highly contagious character, it has affected a large population, the total number of deaths caused due to this virus has exceeded that caused by any of its predecessors.¹³ As per the World Health Organisation (WHO) data on 25th May 2020, there had been 5,267,419 confirmed cases of COVID-19, including 341,155 deaths globally.¹⁴ The Indian Government confirmed the first case in India on 30 January 2020 in the Kerala state.¹⁵ According to a WHO report on 25th May 2020 in India, there had been 131,868 confirmed cases of the pandemic with 3,867 deaths.¹⁴

This unprecedented global crisis has also been marked by miscommunication regarding the imminent threat of COVID-19, leading to public confusion and inaction.¹⁶ It requires persons around the world to attend to rapidly changing messages about public health and take immediate actions to minimize their risk for infection and the spread of the virus.¹⁷ Clear communication and provision of updated information helped improve vigilance and preparedness during the pandemic.¹⁸ Awareness creation to the health care workers and the public plays a crucial role in breaking the chain of infection transmission, thus helps to manage, prevent and control the pandemic illness. The information by social media on an increase in the toll of incidence creates severe stress and it is a frightening time for the public. It is very critical to take appropriate decisions and timely management and prevention of the infection.

Many countries have initiated lock-down including India as an emergency protocol to prevent the spread of infection. Lockdown, in the context of the COVID-19 pandemic it has been used for varying limits on movement, function, and activities of communities related to non-essential activities, and allowed the services of essential supplies, grocery stores, pharmacies, and banks to continue to serve the people. ^{19,20} This has led to a break in the global supply chains and thus, affected the global economy brutally.²¹ This pandemic crisis has generated stress throughout the population.²² Anxiety is a common response to any stressful situation.²³ Anxiety helps us prepare to respond more adaptively and healthily. Some people find it possible to tolerate some degree of discomfort and can healthily manage their anxiety.²⁴ The COVID-19 crisis is multidimensional, will have impacts across physical, emotional, economical, social, and psychological wellbeing.²⁵ Both the Centre for Disease Control and Prevention and WHO have widely distributed information regarding the importance of managing and coping with anxiety and stress during the pandemic.²⁵

The objectives of the study were to assess the awareness, anxiety and coping strategies regarding COVID-19 and to associate these study variables with the demographic variables.

METHODS

The research approach adopted for this study was a web based cross sectional survey among South Indian population. A convenience snowball sampling technique was used to collect the data. The data was collected through the online questionnaire in the way of Google forms developed by the investigators. The created link was shared to the participants through WhatsApp. The participants were encouraged to roll out the survey to as many people as possible. Each participant was restricted with one time response to the link. The participants were auto directed with the link while clicking, which included the informed consent and they could proceed with the questionnaire if willing to participate. The data was collected from 519 South Indian participants from 14 May 2020 to 24 May 2020. Participants who can access the Google forms, age more than 18 and willing to participate were included in the study.

The validated online questionnaire consisted of 4 sections of assessment namely Section I- Demographic variables, Section II- Questionnaire related to awareness on COVID-19, Section III- Anxiety related to COVID-19, Section 4- Coping strategies with COVID-19. The Section-I demographic variables included gender, age, education, marital status, occupation/profession, monthly income of the family, currently working status, incidence of COVID-19 in the area. The Section-II questionnaire related to awareness on COVID-19 included 10 multiple choice questions i.e. meaning (1 item), cause and risk factors (2 items), transmission (2 items), symptoms (1 item), diagnostic test (1 item), treatment (1 item), prevention (2 items). The Section-III anxiety related to COVID-19 was categorized into 4 domains: somatic (2 items), emotional (9 items), cognitive (2 items), behavioral (4 items). It was evaluated using 5 point Likert scale varying from never (1), sometimes (2), regularly (3), usually (4), always (5). The Section IV- coping strategies included were talking to friends and family, prayer, eating nutritious diet/extra care on diet, exercises, playing with children/indoor games, watching television,

diversion and others. In this participant can choose according to their technique varying from 1-8 options. The data were analysed using SPSS-22. The inferential statistical methods such as Kruskal Wallis Test, MannWhitney U test, Spearman's correlation were used to analyze the data along with the descriptive statistics.

RESULTS

Description of study participants

519 participants took part in this online survey. Majority of the participants were males (59%). Almost half of them (49%) were between the age group of 25-40 years. Three fourth of the participants were graduate or post graduates. More than half of them (55%) were married. Participants were similarly distributed in the three income categories \leq Rs.25,000, Rs.25,000-50,000, >Rs.50,000. Half of the participants (51%) were working from home during the pandemic situation. Majority of the participants reported that (78%) no COVID-19 positive cases were identified in their area.

Awareness regarding COVID-19

The Figure 1 depicts the awareness related to COVID-19 in aspects like definition, cause and risk factors, transmission, symptoms, diagnosis, treatment and prevention. The total awareness score was 7.47 ± 1.37 (median=8, range: 1-10). The result showed the public has adequate awareness related to COVID-19 on aspects like transmission, symptoms and preventive activities. These are the important aspect in understanding COVID-19 infection as a public which plays a major role in control and prevention of the infection.



Figure 1: Awareness related to COVID-19.

Anxiety related to COVID-19

The Table 1 depicts the anxiety perceived by the participants in the last 2 weeks which was divided into 4 domains i.e. somatic, emotional, cognitive and behavioral. The overall anxiety score ranged from 17-85, and the average anxiety score was 47.74 ± 11.58 . Few participants reported difficulty in sleep (15%, somatic anxiety), more than half of them experienced anxiety related to financial concerns due to lockdown (60%, emotional anxiety), about half of them were anxious about the information obtained from news channel (50%, cognitive anxiety) and majority of them avoided social contact (78%) and washed hands frequently (89%) (behavioral anxiety).

Table 1: Anxiety related to COVID-19.

Domain	Aspects/items	% of responses who feel anxious (sometimes, often and always)	Overall Mean (SD)	Median (Range)	
Somotio	I have difficulty in sleeping by being worried about the pandemic	15	2 20+1 92	2(2,10)	
Somatic	I Have physical discomfort when thinking of COVID-19	11.5	5.50±1.65	2 (2-10)	
	I am Scared of getting the COVID-19	29.4			
	I am feared of my family may get infected when they go out for work / shop	55.8			
	I get irritated when I think of this infection	28.7			
Emotional	I am anxious of the future of human life and normalcy	56			
	I feel helpless with the control of COVID infection	43.3	25 58 17 22	25 (0.45)	
	I am worried about the consequences of financial crisis with/ after the COVID-19	65.7	23.38±1.22	25 ()-45)	
	I Worry about the COVID-19 consequences related to job problems/ loss of job / Increment / Promotion	56.4			
	I get upset with the information on social media	43.9			
	I am happy with the actions taken by Government on COVID-19	49.9			
Comiting	I have doubt about contacting the COVID-19 from my neighbors	33.1	4.07.2.0	5 (2, 10)	
Cognitive	I am Anxious about COVID-19 information on news channel	50.2	4.97±2.0	5 (2-10)	
Daha darah	I frequently talk to family members regarding COVID-19	54.7			
	I frequently talk to friends regarding COVID-19	53.1	12.00.2.42	14 (4-20)	
Denavioufal	I avoid social contact	78.4	13.89±3.42		
	I wash my hands frequently	88.6			

Coping strategies related to COVID-19

The Figure 2 depicted the various coping strategies followed by the participants. Except one participant, all other participants reported using any of the coping strategies to keep up with the challenging times. On an average they practiced 4 coping strategies, number of coping strategies used ranged from 1-8. Majority of them reported 'talking to friends and family' and 'taking care on diet' as their coping strategies. Around 11% reported using other coping strategies like gardening, cooking, reading books, yoga etc.



Figure 2: Coping strategies.

Association of awareness, anxiety and coping with demographic variables

Scores on awareness, anxiety and number of coping strategies used were not following Gaussian distribution, hence they were compared with respect to demographic variables using non parametric tests like Kruskal Wallis Test and Mann Whitney U test and the results are depicted in Table 2. Level of significance was fixed at 0.05.

It can be seen from the table that females have significantly lower scores in anxiety. Scores on awareness and somatic anxiety differed significantly among the age categories. Post hoc tests indicated that participants who were <25 years have significantly lower scores of awareness, somatic anxiety. Awareness scores differed significantly among education categories, and post hoc tests indicated that participants who were diploma holders had significantly lower scores of awareness compared to graduate or post graduate participants. It was also seen that participants who were educated up to 12th had significantly lower awareness compared to participants who were post graduates. Married participants had significantly higher scores on awareness, somatic and cognitive anxiety. Students had significantly lower scores of awareness compared to engineers, they had significantly lower levels of somatic anxiety compared to teachers, significantly lower levels of somatic and cognitive anxiety compared to others.

-	Awaranoss		Anxiety									Coning		
Demo	Awarenes	8	Somatic		Emotion	al	Cognitiv	/e	Behaviou	ral	Coping			
graphic variables	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)			
Gender														
Male	7.54 (1.36)	0.34	3.57 (2.0)	0.01*	26.54 (7.51)	0.01*	5.43 (2.01)	0.0*	14.27 (3.64)	0.01*	3.74 (2.03)	0.96		
Female	7.42 (1.37)		3.10 (1.67)		24.91 (6.93)		4.65 (2.01)		13.61 (3.23)	-	3.72 (2.06)			
Age														
<25	7.181 (1.31)		3.04 (1.67)		25.5 (6.85)		4.77 (1.98)		13.48 (3.09)		3.61 (2.0)			
25-40	7.627 (1.28)	0.004*	3.53 (1.95)	0.01*	25.98 (7.29)	0.30	5.12 (2.10)	0.22	14.03 (3.59)	0.16	3.67 (2.0)	0.21		
>40	7.54 (1.56)		3.11 (1.67)		24.73 (7.57)		4.90 (2.0)		14.12 (3.42)	-	4.05 (2.2)			
Education														
Up to 12 th	7.056 (1.7)		3.05 (1.8)		25.55 (7.56)		5.14 (2.18)		13.27 (3.12)		3.98 (2.03)			
Diploma	6.83 (1.47)	0.0*	3.39 (1.94)	0.30	26.19 (8.21)	0.89	5.0 (2.0)	0.93	14.37 (4.0)	0.46	3.30 (2.23)	0.11		
Graduate	7.48 (1.27)		3.27 (1.80)		25.60 (6.83)		4.95 (1.97)		13.89 (3.23)		3.62 (2.02)			
Post graduate	7.77 (1.24)		3.36 (1.83)		25.38 (7.3)		4.93 (2.13)		13.90 (3.52)		3.92 (2.02)			

Table 2: Association with awareness, anxiety and coping with the demographic variables (n=519).

Continued.

Deres	Awaranacc		Anxiety									Coning	
Demo	Awarenes	88	Somatic		Emotion	nal	Cognitiv	ve	Behavio	ıral	Coping		
variables	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)		
Marital statu	IS												
Single	736 (1.28)	0.02*	3.08 (1.68)	0.005*	25.37 (6.9)	0.57	4.78 (2.01)	0.05*	13.73 (3.23)	0.29	3.66 (2.01)	0.21	
Married	7.57 (1.41)		3.4 (1.93)		25.90 (7.40)		5.14 (2.06)		14.04 (3.53)		3.83 (2.09)		
Occupation													
Teaching	7.74 (1.33)		3.60 (1.99)		26.25 (6.99)		5.14 (2.07)		14.02 (3.45)		3.60 (2.05)		
Health care	7.55 (1.29)	0.018*	3.32 (1.73)	0.002*	24.78 (7.67)	0.05 2	4.93 (2.10)	0.01*	14.0 (3.45)	0.152	3.84 (2.07)	0.348	
Engineering	7.83 (1.17)		3.50 (1.99)		26.88 (7.59)		5.16 (1.98)		14.24 (3.79)		3.8 (2.04)		
Student	7.23 (1.33)		2.79 (1.38)		25.13 (7.01)		4.54 (2.02)		13.47 (3.00)		3.50 (2.05)		
Housewife	7.47 (1.47)		3.15 (1.79)		23.68 (6.41)		4.73 (1.97)		13.17 (3.40)		4.19 (2.21)		
others	7.21 (1.50)		3.66 (2.07)		26.35 (7.21)		5.45 (2.04)		14.38 (3.53)		3.72 (1.93)		
Monthly inco	ome												
Below 25,000	7.25 (1.40)		3.35 (1.75)		25.37 (6.51)		4.70 (1.96)		13.33 (3.22)		3.44 (2.08)		
25,000- 50,000	7.49 (1.37)	0.004*	3.60 (2.06)	0.004*	26.44 (8.08)	0.269	5.46 (2.13)	0.002*	14.23 (3.57)	0.02*	3.54 (1.96)	0.001*	
Above 50,000	7.69 (1.29)		2.96 (1.62)		25.0 (7.05)		4.80 (1.98)		14.15 (3.41)		4.17 (2.03)		
Working													
Yes	7.610 (1.39)	0.15*	3.511 (1.94)		26.15 (7.49)	0.06	5.125 (2.07)	0.73	14.20 (3.67)	0.03*	3.76 (2.04)	0.7	
No	7.33 (1.33)		3.078 (1.67)	0.01*	24.98 (6.88)		4.81 (2.02)		13.56 (3.10)		3.69 (2.06)		
Area infected	1												
Yes	7.31 (1.16)		3.73 (1.86)		27.05 (7.31)		5.23 (1.93)		13.73 (3.94)		3.94 (2.06)		
No	7.45 (1.37)	0.18	3.20 (1.78)	0.01*	25.02 (7.09)	0.01*	4.84 (2.04)	0.02*	13.74 (3.41)	0.06	3.66 (2.07)	0.345	
May be	7.66 (1.40)		3.56 (2.01)		27.85 (7.37)		5.52 (2.06)		14.72 (3.10)		4.0 (1.92)		

* significance at 0.05 level

2	0.0-		0	0	0	0	0	0	0							0	0	0	0
	ľ			0	0	0	0		0							Ũ	0	Ŭ	0
		A	0		0	0	•	•	0		D								
		A			0	0	0	0	0		D o			0	0	•	•	0	
	Ľ				0	•	0	0		-									
1	5.0-	0	0	0	0	0	•	0	0	6.0-				0	0	0	•	0	0
				0	0	0	0	0	0	s	Rho=0 146 p=0 001								
		Rho= 0.103, p=0.019	0	0	0	0	0	•	0	5				0	0	~	~	•	
E			0	0	0	0	•	0	0	liĝi						•	•		
<u>.</u>			0	0	°	°	0	°	0	余									
	0.0-		~	0	0	0	0	0	0	Ŭ ^{4.0−}			0	0	0	0	0	0	0
l in		0	0	0	õ	õ	~	õ	0	9									
-		0		0	0	õ	ő	0	0	1			0	0	0	0	•	0	0
					0	0		0		8									
	5.0-				-	-		-		2.0-				0	0	0	0	0	
		0	0		0				0	2.0				•	•	•		•	
															-	-	-	-	
											0	0	0	0	0	0	0	0	0
	.0-									.0-					0				
1		.0 2.0	4.0		6.0		8.0		10.0		.0 2.0		4.0		6.0		8.0		10.0
1	AWARENESS												AW		ss				

Figure 3: A) Correlation of awareness and anxiety and B) correlation of awareness and coping strategies.

Scores of awareness, somatic, cognitive and behavioral anxiety and number of coping strategies used were

significantly different with respect to their income levels. Post hoc test indicated that scores of awareness, cognitive and behavioral anxiety, and the number of coping strategies used were significantly lower in the participants whose income was <Rs.25,000/- compared to those who earned >Rs.50,000/-, also that somatic and cognitive anxiety scores were lesser in participants who earned >Rs.50,000/- compared to those who earned Rs.25,000-50,000/-. Those who earned >Rs.50,000/- used more coping strategies compared to those who income was between Rs.25,000-50,000/-. Those who were currently working had higher scores of awareness, somatic, cognitive anxiety.

Correlation of awareness, anxiety and coping related to COVID-19

Spearman correlation coefficient was calculated to assess the relationship among the study variables depicted through Figure 3A and 3B. Awareness was positively correlated with behavioural anxiety (p=0.103, p=0.019) and the number of coping strategies used (p=0.146, p=0.001). However the correlation was very weak.

DISCUSSION

The COVID-19, a global pandemic is a societal emergency which requires various measures to prevent and control the infection. Public awareness is highly important in controlling this pandemic. It is important to encourage public to adopt precautionary behaviours which is based on the awareness about the pandemic. For many people, anxiety is high as a result of the pandemic.^{26,27} Anxiety is a normal reaction to stress and can be beneficial in some situations.²³ These responses trigger the fight-or-flight response that motivates people to act in the primitive sense usually to run or fight. This response has kept humans alive for generations despite many dangers in this world.²⁷ The fear and anxiety related to epidemics and pandemics also influence the behaviour of people in the community.¹³

This web based cross sectional survey which was done during lockdown period looked into the awareness, anxiety and coping strategies among the South Indian population. There are few similar online cross sectional survey were found related to COVID-19.^{13,28,29} In this present online survey 59% were males which was higher than a Indian study and lower than a study done in Hubei.^{13,28,29} The mean (SD) of the participants age was 32.1 (10.01) which was very close to a Chinese study 33 (10.7).²⁹

With regard to the marital status, majority (54.5%) were married, which was highly similar (55.5%) to Hubei study.²⁹ Regarding education 78.8% were graduates or post graduates which was very closely (90%) related to an Indian study.¹³ It was very obvious that online survey with the English language was very comfortably done by graduates and above.

Awareness related to COVID-19 was ranged from 75-96% on risk factors, transmission, symptoms and prevention which are the important aspect where the public plays a role in control and prevention of the infection. The similar finding was observed in a cross sectional survey done at Riyadh (90.7%) had knowledge on the clinical manifestation of the similar corona infection (MERS-CoV).³⁰ Awareness of an individual's knowledge and being able to predict his or her behaviour is crucial when evaluating clinical preparedness for pandemics with a highly pathogenic virus.³¹

Anxiety was assessed on the different domains, majority of them had financial anxiety, many of them avoided social contact due to anxiety of acquiring infection and lockdown, and most of them did frequent hand washing to keep them safe. Equal percentage of people were coping with stress by talking to their friends and keeping themselves healthy by eating nutritious diet and praying to god. Almost similar findings observed in an Indian cross-sectional survey that 82% had reduced social contact, 90% avoided partying meetings, gatherings and almost 85% agreed that they frequently washed their hands. A total of 80% of participants repeatedly discussed the pandemic with their friends during this period.¹³

Among the demographic variables except gender there was a significant association found (age, qualification, marital status and occupation) with awareness. Gender and occupation had a significant association with overall anxiety score and there was no association found between the demographic variables and coping. Similarly study results of University of Salamanca Health Care Complex showed that older respondents showed lower levels of anxiety and worry even though this age group is reported as a high risk group and pointed out higher levels of anxiety and worry in women which was contrast with the present survey.³²

Another study conducted in China showed that female gender, student status, specific physical symptoms (e.g., myalgia, dizziness, coryza), and poor self-rated health status were significantly associated with a greater psychological impact of the outbreak and higher levels of stress, anxiety, and depression (p<0.05).³³

There was a weak positive correlation found with the awareness, behavioural anxiety and also with coping strategies. There was a strong positive correlation found with each domains of anxiety like somatic, emotional, cognitive and behavioural anxiety. And behavioural anxiety has a weak positive correlation with the coping strategies. There was no correlational studies observed with the present study variables. A result of a study conducted in Changzhi medical college showed the correlation analysis indicated that economic effects, and effects on daily life, as well as delays in academic activities, were positively associated with anxiety symptoms (p<0.001). However, social support was

negatively correlated with the level of anxiety (p<0.001). $^{\rm 34}$

During the COVID-19 pandemic, it was not feasible to collect the data by face to face communication. The study was limited to the participants who can read English and access to Google forms through the smart phones. So, the generalisation of the findings could not be done with general population.

CONCLUSION

From this web based cross sectional survey we conclude that, it gave an input that educated people have awareness related to COVID-19. The majority of the participants showed financial anxiety, may be because of the uncertainty of their job, salary, etc. And also most of them were keen on hand washing and social distancing which are the safe practices. Due to the limitation in the representativeness of the sample, there should be more studies needed to investigate the awareness, anxiety and coping with the low educational and low economic status group of participants. Hopefully, the government and the health care team can win this battle along with the community participation in the near future.

ACKNOWLEDGEMENTS

Authors are very grateful to the participants for their information and also to Mrs. Pushpa D., Msc (N) Ex-HOD, Department of Psychiatric Nursing, St. Philomena's college of Nursing, Bengaluru for the encouragement and the valuable suggestions in preparing this article.

Funding: No funding sources Conflict of interest: None declared Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

- 1. Corona virus. Available at: https://www.who.int/ health-topics/coronavirus#tab=tab_1.
- Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early transmission dynamics in Wuhan, China, of novel coronavirus-infected pneumonia. N Engl J Med. 2020;382:1199-207.
- Countries where COVID-19 has spread. Worldometer. Available at: https://www. worldometers.info/coronavirus/countries-wherecoronavirus-has-spread.
- Clinical Care for Severe Acute Respiratory Infection. Toolkit COVID-19, WHO. Available at: https://apps.who.int/iris/bitstream/handle/10665/331 736/WHO-2019-nCoV-SARI_toolkit-2020.1eng.pdf?sequence=1&isAllowed=y.
- Coronavirus disease 2019 (COVID-19) Situation Report-66, WHO. Available at: https://www. who.int/docs/default-source/coronaviruse/situation-

reports/20200326-sitrep-66-covid-19.pdf?sfvrsn=81b94e61 2.

- 6. Guo YR, Cao QD, Hong ZS, Tan YY, Chen SD, Jin HJ, et al. The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak- an update on the status. Military Med Res. 2020;7(1):1.
- Lauer SA, Grantz KH, Bi Q, Jones FK, Zheng Q, Meredith HR, et al. The incubation period of coronavirus disease 2019 (COVID-19) from publicly reported confirmed cases: estimation and application. Ann Intern Med. 2020;172(9):577-82.
- Coronavirus disease 2019 (COVID-19). Mayo Clinic. Available at: https://www.mayoclinic.org/ diseases-conditions/coronavirus/symptomscauses/syc-20479963
- Guidelines on Clinical Management of COVID-19, Government of India Ministry of Health and Family Welfare Directorate General of Health Services. Available at: https://www.mohfw.gov.in/pdf/ RevisedNationalClinicalManagementGuidelineforC OVID1931032020.pdf.
- World Health Organization. (2020). Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected: interim guidance, 13 March 2020. World Health Organization. Available at: https://apps.who. int/iris/handle/10665/331446.
- 11. WHO, 2020b. Coronavirus Disease 2019 (COVID-19) Situation Report- 46. Available at: https://www.who.int/docs/defaultsource/coronaviruse/situation-reports/20200306sitrep-46-covid-19.pdf?sfvrsn=96b04adf_2. Accessed on 31 March 2020.
- 12. WHO announces COVID-19 outbreak a pandemic. World Health Organization. Available at: http://www.euro.who.int/en/health-topics/healthemergencies/coronavirus-covid-19/news/news/2020/3/who-announces-covid-19outbreak-a-pandemic.
- Roy D, Tripathy S, Kar SK, Sharma N, Verma SK, Kaushal V. Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. Asian J Psychiatr. 2020:102083.
- 14. WHO Coronavirus Disease (COVID-19) Dashboard. Available at: https://covid19.who.int/?gclid=CjwKCAjw_LL2BR AkEiwAv2Y3SfGAXr5OeiN6pRMpD174SCIVRn2 5Un3K51p3yUo4sDFps19b9OPHVRoCn40QAvD_ BwE (Last accessed on May 25,2020).
- 15. COVID-19 pandemic lockdown in India. Available at: https://en.wikipedia.org/wiki/COVID-19_pandemic_lockdown_in_India
- 16. Ioannidis JPA. Coronavirus disease 2019: the harms of exaggerated information and non-evidence-based measures. Eur J Clin Invest. 2020:e13223.
- 17. Worldometer. COVID-19 coronavirus outbreak. Available at: www.worldometers.info/coronavirus. Accessed on 24 March 2020.

- 18. Lau JT, Griffiths S, Choi KC, Tsui HY. Widespread public misconception in the early phase of the H1N1 influenza epidemic. J Infect. 2009;59:122-7.
- 19. A Lockdown Is a Solution. In India, a Lockdown Is Also Its Own Crisis. The Wire. Available at: https://thewire.in/rights/coronavirus-lockdownauthoritarianism-physical-distancing rights- elite.
- 20. What a coronavirus lockdown looks likes, and what you can do & what you can't. Available at: https://economictimes.indiatimes.com/news/politicsand-nation/coronavirus-outbreak-what-a-lockdownwill-look-like-foryou/articleshow/74760719.cms?utm_source=content ofinterest&utm_medium=text&utm_campaign=cpps t (Last accessed on May 25, 2020).
- 21. Ebrahim SH, Ahmed QA, Gozzer E, Schlagenhauf P, Memish ZA. Covid-19 and community mitigation strategies in a pandemic. BMJ. 2020;368:m1066.
- 22. Mental health and psychosocial considerations during the
- 23. COVID-19 outbreak. Available at: https://www.who.int/docs/defaultsource/coronaviruse/mental-healthconsiderations.pdf?sfvrsn=6d3578af_2. Accessed on 23 March 2020)
- 24. What Are Anxiety Disorders? American Psychiatric Association. Available at: https://www.psychiatry.org/patients-families/anxiety-disorders.
- 25. Coping with the coronavirus pandemic for people with anxiety disorders. Harvard Health Publishing. Available at: https://www.health.harvard.edu/blog/coping-with-the-coronavirus-pandemic-for-people-with-anxiety-disorders-2020032619327.
- Sullivan AB, Kane A, Roth AJ, Davis BE, Drerup ML, Heinberg LJ. The COVID-19 crisis: a mental health perspective and response using telemedicine. J Patient Exp. 2020:2374373520922747.
- 27. Lin Y, Huang L, Nie S, Liu Z, Yu H, Yan W, et al. Knowledge, attitudes and practices (KAP) related to the pandemic (H1N1) 2009 among Chinese general population: a telephone survey. BMC Infect Dis. 2011;11(1):128.
- 28. 9 ways to tame anxiety during the COVID-19 pandemic. Speaking of Health. Available at:

https://www.mayoclinichealthsystem.org/hometown -health/speaking-of-health/9-ways-to-tame-anxietyduring-the-covid-19-pandemic).

- 29. Geldsetzer P. Use of Rapid Online Surveys to Assess People's Perceptions During Infectious Disease Outbreaks: A Cross-sectional Survey on COVID-19. J Med Internet Res. 2020;22(4):e18790.
- 30. Zhong BL, Luo W, Li HM, Zhang QQ, Liu XG, Li WT, et al. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. Int J Biol Sci. 2020;16(10):1745.
- Bawazir A, Al-Mazroo E, Jradi H, Ahmed A, Badri M. MERS-CoV infection: mind the public knowledge gap. J Infect Public Health. 2018;11(1):89-93.
- 32. Almutairi KM, Al Helih EM, Moussa M, Boshaiqah AE, Alajilan AS, Vinluan JM, et al. Awareness, attitudes, and practices related to coronavirus pandemic among public in Saudi Arabia. Fam Community Health . 2015;38(4):332-40.
- Limcaoco RS, Mateos EM, Fernandez JM, Roncero C. Anxiety, worry and perceived stress in the world due to the COVID-19 pandemic, March 2020. Preliminary results. MedRxiv. 2020
- 34. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. Int J Environ Res Public Health. 2020;17(5):1729.
- 35. Cao W, Fang Z, Hou G, Han M, Xu X, Dong J, et al. The psychological impact of the COVID-19 epidemic on college students in China. Psychiatr Res. 2020;287:112934.

Cite this article as: Kanagaraj P, Kanagaraj A, Srinivasan M, Jacob J, Philip M. Awareness, anxiety and coping regarding COVID-19 among South Indian population: web based cross sectional survey. Int J Community Med Public Health 2020;7:3504-11.