

## To Assess the Adequacy of Knowledge to Prevent COVID-19 Pandemic: Cross-Sectional Descriptive Online Survey

Prabhas Kumar

Assistant Professor, Department of Community Medicine, Darbhanga Medical College, Darbhanga, Bihar, India

Received: 05-08-2022 / Revised: 02-09-2022 / Accepted: 13-09-2022

Corresponding author: Dr. Prabhas Kumar

Conflict of interest: Nil

### Abstract

**Aim:** To determine the level of knowledge towards COVID-19 among people.

**Material & Methods:** A cross-sectional descriptive research design was used for the present study and was conducted among people attending Darbhanga Medical College, Darbhanga, Bihar, India, to assess their knowledge regarding COVID-19. A total of 461 people were recruited for this study and sample of 400 eligible people who fulfill the inclusion criteria were enrolled.

**Results:** The association of socio-demographic variables of participants and their knowledge score. It shows that group ( $p > 0.001$ ), gender ( $p = 0.020$ ), education ( $p = 0.001$ ), marital status ( $p = 0.001$ ), age ( $p = 0.020$ ), and inhabitants ( $p = 0.001$ ) were significantly associated with knowledge. Majority of participants 63% having good knowledge while 33% and 1.4% having average and poor knowledge respectively regarding the corona virus pandemic.

**Conclusion:** Study concluded that many people were still had average and poor knowledge on COVID-19. Higher authorities must find the ways for making people more aware on this pandemic to control its impact.

**Keywords:** COVID-19, Knowledge, People.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

### Introduction

The coronavirus disease (COVID-19) is a severe acute respiratory disease that emerged in a patient with viral pneumonia-like symptoms in Wuhan, Hubei Province of China in December 2019 [1]. The pathogen responsible for the infection is termed as acute respiratory syndrome coronavirus-2 (SARS-CoV-2) which is a new form of coronavirus, initially provisionally labelled as novel coronavirus (nCoV) [2]. This highly contagious, zoonotic virus started infections from a small city and spread rapidly to most parts of the world and created a global health emergency. The World Health

Organization (WHO) called for a collaborative effort to tackle the situation and declared it a global pandemic on March 12, 2020 [3]. The regularly updated COVID-19 situation dashboard has reported 40, 49, 10, 528 confirmed cases and 57, 83, 776 deaths globally by this deadly virus as of February 12, 2022 [4].

In India, the first case of COVID-19 got reported in Trissur, Kerala, on 27th January in a 20-year lady with a travel history to China [5]. The rapid movement of people from the global epicenters and between the cities facilitated COVID-19 transmission in India, and infection started

spreading to the major cities of India. In response to the increase in cases and to break the transmission chain, active government intervention like international travel suspension, contact tracing, containment, and mitigation strategies were initiated. However, despite the proactive measures, the infection continued to rise in different parts of the country and confirmed cases reached to 4, 25, 86, 544 as of February 12, 2022 [6].

COVID-19 is characterized by rapid transmission, and can occur by close contact with an infected person [7-11]. The details on the disease are evolving. As such, this may not be the only way the transmission is occurring. COVID-19 has spread widely and rapidly, from Wuhan city, to other parts of the world, threatening the lives of many people [12]. By the end of January 2020, the World Health Organization (WHO) announced a public health emergency of international concern and called for the collaborative effort of all countries, to prevent its rapid spread. Later, the WHO declared COVID-19 a “global pandemic” [13].

This pandemic situation of COVID-19 has necessitated the need to make the people aware about this to encourage them to practice the precautionary measures in order to have a control over the situation. This highlights the need to assess the knowledge of the people regarding COVID19 in order to get information about people’s cognitions and ideology. This will help the health professionals and government officials to know the areas which need more attention and thus take necessary steps and make new laws and policies on the basis of current knowledge and behavior of people.

Hence, we aim to determine the level of knowledge towards COVID-19 among people.

### **Material & Methods:**

A cross-sectional descriptive research design was used for the present study and

was conducted among people attending Darbhanga medical College , Darbhanga, Bihar, India, to assess their knowledge regarding COVID-19. This study was approved by the Institutional Review Board (IRB) of the College. Informed written consent for voluntary participation was taken from each participant, and they were assured for the confidentiality of information and anonymity of informants.

A total of 461 people were recruited for this study and sample of 400 eligible people who fulfill the inclusion criteria were enrolled.

Inclusion criteria for participation in the study was participants willingness and ability to use internet and able to understand English or Hindi language.

Data were collected through online survey. The sample was selected by non-probability sampling (voluntary sampling). All the participants were explained about the purpose of the study and instructed to fill the form completely. Participants’ consent was secured and they were made assured that their anonymity will be maintained.

The Questionnaire was adapted from “the current interim guidance and information for people “published by WHO. A modified form of standardized questionnaire by WHO, considering the countrywide variations was used as tool. It was consisted of closed ended questions and was divided into two sections viz., socio-demographic variables which include age, gender, marital status, batch/year (for students), monthly income (in rupees), educational status, residence, work experience (for faculty), job detail-post (for faculty), current health status, marital status, religion, type of family while second section assess research variables (knowledge) which include total items. The minimum and maximum scores were 0 and 40 respectively. Scores between 29 to 40; 21 to 28 and below 20

were categorized as good, average and poor knowledge respectively

### Data analysis:

All data were coded, entered and analyzed using statistical package for social science (SPSS) version 23 and made meaningful by standard statistical measures. Descriptive statistic comprised frequency, percentage, mean and standard deviation. Inferential Statistic was including ANOVA, Independent t test, linear and logistic regression.

### Results:

Table 1 reflects that majority of participants (89.2%) were of age group 16-30 years and mostly (91%) were female. High numbers of participants (84.2%) were students and 74.7% pursuing graduate programme. More than two third (77.2%) of participants belongs to Hindu religion and 88.2% were unmarried. Almost half (50.2%) of participants belong to rural area and 36.5% participants living in area of 5,000 inhabitants and 33.2% subjects having no idea of population of their area. Nuclear family type is shared by

two third (63.5%) participants and 71.2% participants having 3-8 family members. Nearly all 92% of participants were free from any chronic illness.

Table 2 represent the association of socio-demographic variables of participants and their knowledge score. It shows that group ( $p>0.001$ ), gender ( $p=0.020$ ), education ( $p=0.001$ ), marital status ( $p=0.001$ ), age ( $p=0.020$ ), and inhabitants ( $p=0.001$ ) were significantly associated with knowledge.

Figure 1 showed that majority of participants 63% having good knowledge while 33% and 1.4% having average and poor knowledge respectively regarding the corona virus pandemic.

Figure 2 present participants' knowledge scores on different aspects related to COVID-19 and study found that majority of participants had poor knowledge on COVID-19 susceptibility (88%) and diagnosis (79%) while majority of them had good knowledge on COVID-19 spread (79%), incubation period (86%), treatment (78%) and prevention (78%).

**Table 1: Frequency and percentage of Socio demographic variables of participants.**

Socio-demographic variables	Categories	Frequency	Percentage (%)
Group	Students	337	84.25
	Faculty	63	15.75
Age (years)	16-30	357	89.25
	31-45	28	7
	46-60	6	1.5
	61-75	3	0.75
Gender	Male	36	9
	Female	364	91
Education	Graduate program	299	74.75
	Post-graduate program	60	15
	Doctorate program	41	10.25
Religion	Hindu	309	77.25
	Muslim	38	9.5
	Sikh	49	12.25
	Buddhist	2	0.5
	Christian	2	0.5
Place of living	Rural	201	50.25

	Urban	138	34.5
	Semi-urban	61	15.25
Marital status	Married	47	11.75
	Unmarried	353	88.25
Type of family	Nuclear	254	63.5
	Joint	146	36.5
Number of family members	<3	40	10
	3-8	285	71.25
	9-14	59	14.75
	>14	16	4
Inhabitants	5,000	146	36.5
	5,001-20,000	58	14.5
	20,001-100,000	23	5.75
	100,001-500,000	13	3.25
	>500,000	27	6.75
	Do not know	133	33.25
Chronic illness	Yes	32	8
	No	368	92

**Table 2: Association of Socio-demographic variables of participants with Knowledge scores.**

Sociodemographic variables	Categories	Mean±SD	F/t value	P value
Group	Faculty	33.5 ± 3.71	-5.71	<0.001*
	Students	30.22 ± 3.61		
Age (years)	16-30	29.2 ± 3.88	4.91	0.020*
	31-45	34.2 ± 4.81		
	46-60	29.0 ± 7.22		
	61-75	33.1 ± 0.78		
Gender	Male	32.1 ± 3.71	-3.83	0.005*
	Female	29.3 ± 4.71		
Education	Education	34.2 ± 0.80	8.78	<0.001*
	Engineering	28.4 ± 5.83		
	Graduate program	28.7 ± 3.80		
	Post-graduate program	30.2 ± 3.72		
	Doctorate program	30.6 ± 3.12		
Religion	Hindu	29.0 ± 3.74	0.281	0.762
	Muslim	29.8 ± 2.61		
	Sikh	29.2 ± 3.61		
	Christian	28.0 ± 2.73		
	Buddhist	28.7 ± 4.33		
Place of living	Urban	29.81 ± 3.29	2.14	0.382
	Rural	28.7 ± 3.20		
	Semi-urban	28.5 ± 3.17		
Marital status	Married	33.2 ± 4.63	4.63	0.001*
	Unmarried	30.8 ± 3.32		
Type of family	Nuclear	31.7 ± 3.66	0.271	1.681

	Joint	30.2 ± 4.79		
Number of family members	<3	33.6 ± 3.08	1.26	0.683
	3-8	29.7 ± 3.76		
	9-14	28.7 ± 3.51		
	>14	26.8 ± 2.69		
Inhabitants	5,000	29.7 ± 129	8.90	0.001*
	5,001-20,000	28.6 ± 44		
	20,001-100,000	29.6 ± 25		
	100,001-500,000	31.3 ± 16		
	>500,000	30.7 ± 23		
	Do not know	27.92 ± 129		
Chronic illness	Yes	30.6 ± 3.18	1.26	0.371
	No	29.3 ± 3.88		

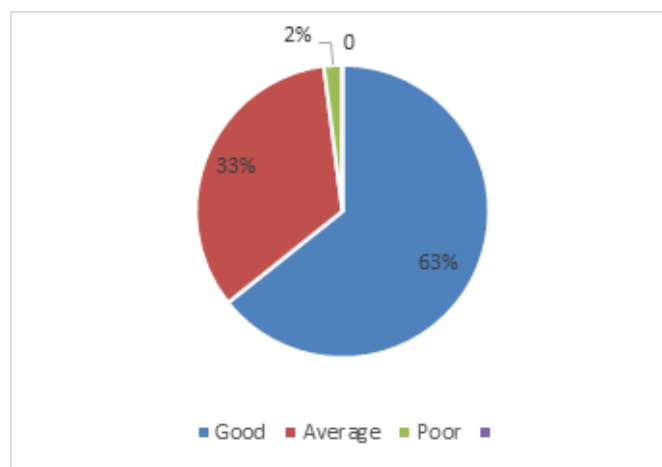


Figure 1: Participants' overall knowledge regarding COVID-19.

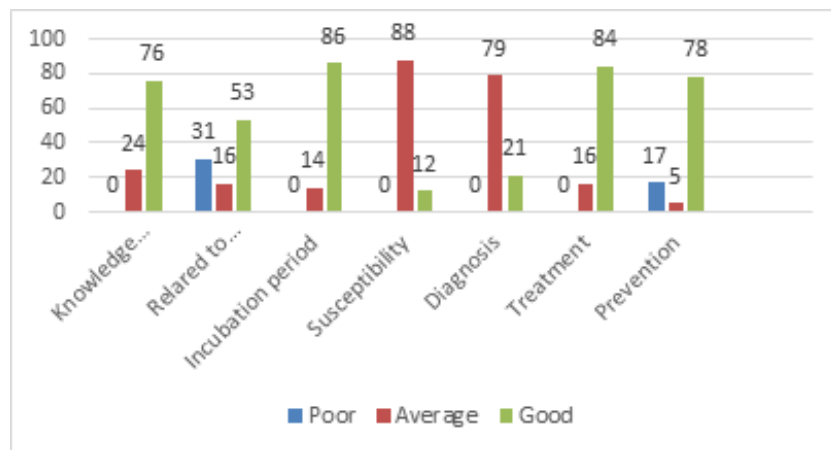


Figure 2: Participants' knowledge on different aspects of COVID-19.

**Discussion**

Our findings revealed that most of the participants (63.2%) were knowledgeable about the prevention of COVID-19. The finding is consistent with other studies done at china, Indian and Saudi Arabia [14-17]. The high level of knowledge

might be due to the information network of the current modern world and higher education level of the people. On the other hand, the attitude was also found positive among more than 2/3rd (65.9%) of the participants which was also correlated with

various studies conducted at China India, Vietnam and Saudi Arabia [14-17].

Significant predictors of participant knowledge in this study were age, gender, educational level, and income level. This finding is supported by other studies that have found that older, female, and more educated respondents are more knowledgeable about emerging communicable diseases [18-19]. Beier et al found that high income earners are more knowledgeable about COVID-19. Education, age, and income have been documented to be highly relevant to knowledge [20].

The perception of risk assessed with the question "you or your family members will get Coronavirus disease (COVID-19) in the next 1–2 months" and moderate attitude for the current healthcare system had given some evident suspicion about the high transmission of SARS--CoV-2 in India. A 22 countries-based study reports the fair knowledge in many countries and good attitudes among the residents of many countries, but significant portion of the studied population reflected little knowledge about the symptoms and treatment [21]. The knowledge and attitude dimensions finding suggest developing a more curated awareness and communication program for COVID-19 with differential targeting.

Rugarabamu revealed good knowledge, optimistic attitudes, and appropriate practices towards COVID-19. [22] Bao-Liang Zhong explained that most Chinese residents of a relatively high socioeconomic status, in particular women, are knowledgeable about COVID-19, hold optimistic attitudes, and have appropriate practices towards COVID-19. [23] Findings of a study done by Khanz et al showed that respondents have good knowledge (93.2%, n=386), positive attitude (Mean 8.43, SD: 1.78) and good practice (88.7%, n=367) regarding COVID-19. [24] Comparable findings were seen in the present study elucidating

good knowledge among 60% of the subjects with more than four-fifth of the sample rated good self-assessed knowledge.

Television and radio were significantly associated with the knowledge and attitude of the respondents as higher level of knowledge was associated with those who get information via TV and radio. This might be due to the reason that TV and radio are the reliable Medias [25] and only broadcast the information based on evidences despite some of the social medias like Facebook, You-tube, Instagram etc. [26, 27]. Also, education level ( $p < 0.001$ ), working province ( $p < 0.001$ ) and monthly income ( $p < 0.005$ ) are some of the demographic characteristics which have association with the knowledge level and regarding the enabling factors only "support from palika" is found to be associated with the knowledge level ( $p < 0.045$ ).

## Conclusion

Study concluded that many people were still had average and poor knowledge on COVID-19. Higher authorities must find the ways for making people more aware on this pandemic to control its impact.

Targeted health education interventions should be directed to this particular vulnerable population, who may be at increased risk of contracting COVID-19.

## References

1. Lu R, Zhao X, Li J, Niu P, Yang B, Wu H, et al. Genomic characterisation and epidemiology of 2019 novel coronavirus: implications for virus origins and receptor binding. *The Lancet*. 2020 Feb 22; 395 (10224): 565–74.
2. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al. A novel coronavirus from patients with pneumonia in China, 2019. *New England Journal of Medicine*. 2020 Jan 24; 382: 8:727–733.

3. World Health Organization. WHO announces COVID-19 outbreak a pandemic. World Health Organization
4. World Health Organization. Coronavirus disease 2019 (COVID-19): Situation report– 91. (internet). WHO;2022.
5. Andrews MA, Areekal B, Rajesh KR, Krishnan J, Suryakala R, Krishnan B, et al. First confirmed case of COVID-19 infection in India: A case report. *Indian Journal of Medical Research*. 2020 May 1; 151 (5):490.
6. Ministry of Health and Family Welfare, Government of India. COVID-19 Dashboard.
7. Shereen MA, Khan S, Kazmi A, Bashir N, Siddique R. COVID-19 infection: origin, transmission, and characteristics of human coronaviruses. *J Adv Res*. 2020; 24:91–8.
8. Phan LT, Nguyen TV, Luong QC, Nguyen TV, Nguyen HT, Le HQ, et al. Importation and human-to-human transmission of a novel coronavirus in Vietnam. *N Engl J Med*. 2020; 382:872–4.
9. Parry J. China coronavirus: cases surge as official admits human to human transmission. *BMJ*. 2020; 368:m236.
10. 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.
11. WHO. Coronaviruses (COVID-19) 2020. Available online at: <https://www.who.int/news-room/q-a-detail/q-a-coronaviruses>
12. Wang D, Hu B, Hu C, Zhu F, Liu X, Zhang J, et al. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus–infected pneumonia in Wuhan, China. *JAMA*. 2020; 323:1061–9.
13. Tang D, Tou J, Wang J, Chen Q, Wang W, Huang J, et al. Prevention and control strategies for emergency, limited-term, and elective operations in pediatric surgery during the epidemic period of COVID-19. *World J Pediatr Surg*. (2020) 3:e000122.
14. Giao H, Ngoc Han NT, Khanh TV, Ngan VK. Knowledge and attitude toward COVID-19 among healthcare workers at District 2 Hospital, Ho Chi Minh City. *Asian Pacific Journal of Tropical Medicine*. 2020;1–6.
15. Malik YS, Sircar S, Bhat S, Vinodhkumar OR, Tiwari R, Sah R, et al. Emerging coronavirus disease (COVID-19), a pandemic public health emergency with animal linkages: Current status update. Preprints
16. Al-Mohrej OA, Al-Shirian SD, Al-Otaibi SK, Tamim HM, Masuadi EM, Fakhoury HM. Is the Saudi public aware of Middle East respiratory syndrome? *J Infect Public Health*. 2016;9(3):259–66.
17. Aldowyan N, Abdallah AS, El-Gharabawy R. Knowledge, attitude and practice (KAP) study about Middle East respiratory syndrome coronavirus (MERS-CoV) among population in Saudi Arabia. *Int Arch Med*. 2017;10.
18. Al-Mohrej OA, Al-Shirian SD, Al-Otaibi SK, Tamim HM, Masuadi EM, Fakhoury HM. Is the Saudi public aware of Middle East respiratory syndrome? *J Infect Public Health*. 2016; 9:259–66.
19. 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: 89– 93.
20. Beier ME, Ackerman PL. Determinants of health knowledge: an investigation of age, gender, abilities, personality, and interests. *J Personal Soc Psychol*. 2003; 84:439.
21. Masoud AT, Zaazouee MS, Elsayed SM, Ragab KM, Kamal EM, Alnasser YT, et al. KAP-COVIDGLOBAL: A multinational survey of the levels and determinants of public knowledge, attitudes and practices towards COVID-19. *BMJ open*. 2021 Feb 1; 11(2): e043971.

22. Rugarabamu S, Byanaku A, Ibrahim M. Knowledge, attitudes, and practices (KAP) towards COVID-19: A quick online cross-sectional survey among Tanzanian residents. 2020. <https://www.medrxiv.org/content/10.1101/2020.04.26.20080820v2>.
23. Thing BLi, Luo WY. Knowledge, attitude and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak. 2020. [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7098034/\(9\)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7098034/(9)).
24. Mahammad S, Muddasir MM, Aqsa G, Sahar N, Zaheer A. A study to assess knowledge, attitude, practices HCPs in Pakistan regarding COVID-19. 2020.
25. BBC news services- “Radio is the most trusted source of news and information, says Of com”
26. Ashish Goel, Latika Gupta, “Social media in the times of COVID-19”
27. Agarwal V, Gupta L, et al. Prevalent fears and inadequate understanding of COVID-19 among medical undergraduates in India: results of a web-based survey. *J R Coll Physicians Edinb.* 2020;50(3):343–50.