

A Study on Knowledge, Attitude and Practices on COVID 19 and its Associated Factors Among the Urban Population of District Ghaziabad, UP

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Abstract

Background: COVID 19 disrupted the normal life of people all over the world. KAP studies are known to find gaps in the policies of the government and their implementation among the people for control and prevention of infectious diseases. These findings can thus, help in furthering public health interventions, educational programs and also create more awareness among the people of the nation.

Objectives: The present study aimed to assess the knowledge, attitude and practices regarding COVID 19 in the urban population of district Ghaziabad, the factors associated with it and to suggest preventive methods and promote the same among the study population.

Methods: Urban people of the district of Ghaziabad were the subjects of a community based cross sectional survey from January to September 2021. A pre designed, pre tested, and semi structured questionnaire was used to interview 400 adults during door to door visits. To identify the variables substantially linked with KAP of the study participants with relation to COVID 19, regression analysis was done using the chi square test for categorical variables.

Results: Majority of the study participants 277 (69.25%) were males. Almost two fifth of the study participants, 153 (38.25%) had finished graduation. The mean total KAP score of the study participants was 61.07 (SD = 11.03, range: 22-87). Those who had completed graduation and higher studies had almost two and a half times better KAP scores (OR 2.496 [95% CI, 1.645-3.788]).

Conclusion: Positive correlation was found between knowledge levels of the study participants with their attitude and practices regarding COVID 19. Therefore, information, education and communication (IEC) strategy of public health authorities to create awareness needs to be targeted at the vulnerable sections of the society.

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1. Introduction

The first cases of suspected coronavirus associated viral pneumonia were reported at the end of year 2019 in Hubei province of China.⁽¹⁾ “On 30th January 2020 the World Health Organization (WHO) declared the outbreak in China to be a Public Health Emergency of International Concern (PHEIC)”.⁽²⁾ On 11th March 2020, WHO declared it as a Pandemic considering its severity and alarming levels of spread throughout the world.⁽¹⁾

Containment of infectious diseases requires stringent public health measures like social distancing, quarantine, widespread testing and isolation of infected individuals with contact tracing.^(3,4) Prevention of transmission of this disease is through maintenance of hygiene. Adoption of simple measures like frequent hand washing, regular disinfection of surfaces, wearing of masks while in public places will play a very important role. For such measures to be successful, public participation is a must.^(5,6) Therefore, having an understanding about the level of knowledge and awareness of general population about COVID 19 is essential.

India saw its first COVID 19 case in Kerala on 30th January 2020.⁽⁷⁾ The foremost containment measure in India was a nationwide lockdown of 21 days.⁽⁸⁾ The people were subjected to mandatory physical distancing measures which led to social and psychological stress as well as severe economic repercussions.^(9,10,11)

This study was undertaken to assess the knowledge, attitude and practices regarding COVID 19 in the urban population of district Ghaziabad and the factors associated with it. Lastly, suggest the preventive measures and promote the same among the study population.

2. Materials and Methods

This community based cross sectional study was undertaken from January 2021 to September 2021 among the adult population of urban areas of Ghaziabad city. After conducting a pilot study house to house survey was undertaken for data collection. Approval from the institutional ethics committee of was taken prior to starting the survey. Since the data regarding the awareness level for COVID 19 among the general population was not readily available at the beginning of the study sample size was

calculated by taking 50% as general awareness regarding COVID 19 with relative precision of 10%. Total sample size was calculated to be 384.

Multi stage sampling technique was adopted to conduct the study. Out of the 100 wards in five urban administrative zones of district Ghaziabad^(12,13), five wards were selected randomly one from each zone, namely Nandgram (City Zone), Duhai (Kavi Nagar), Arthala (Mohan Nagar), Rahul Vihar (Vijay Nagar) and Indirapuram (Vasundhara). One locality under the selected ward was chosen at random and then from each zone 80 houses were selected randomly. A total of 400 households (one adult above the age of 18 years per house) were interviewed.

“A pre designed, pre tested and semi structured questionnaire was used for collecting the data. The questionnaire had four sections: the first section included socio demographic information; the second, third and fourth sections had knowledge, attitude and practice related questions about COVID 19 since the pandemic started”.

Total Knowledge score ranged from 3 to 46. Total Attitude score ranged from 0 to 21. Total Practice score ranged from 0 to 27.

Mean of the knowledge, attitude and practice score was calculated and set as the cut off for categorising the study participants as having good and poor knowledge, attitude and practice regarding COVID 19. Total KAP score was also calculated by adding all the three sections. Total score ranged from 3 to 94. Mean of the total KAP score was calculated and set as the cut off for dividing the respondents as having good and poor overall awareness regarding COVID 19.

MS Excel 2020 was used for data collection and entry. Use of SPSS software trial version 16 was made for statistical analysis. With a p value of 0.05 being considered statistically significant, the Chi Square test was employed to discover connections between categorical variables. Additionally, regression analysis was carried out with a 95% confidence interval to find significant correlations between the dependent and independent categorical variables.

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3. Results

Demographic characteristics

Majority of the study participants 277 (69.25%) were males and 123 (30.75%) were females. Maximum number of study participants 146 (36.50%) were in the age group of 31-40 years. Three fourth of the study participants, 300 (75%) lived in a nuclear family. Almost two fifth of the study participants, 153 (38.25%) had finished

graduation. More than half of the study participants 213 (53.25%) were self employed or had their own business. Almost one fourth of the study participants 94 (23.50%) were unemployed. As the study was conducted in the urban area of city Ghaziabad, "Modified Kuppuswamy scale" ⁽¹⁴⁾ was used to calculate the socio economic status. Maximum number of the participants, 150 (37.5%) belonged to the Lower middle class. The complete "socio demographic" are depicted in Table 1 below.

Table 1 Socio demographic characteristics of the study population

Socio demographic characteristics	Number (n=400)	Percentages (%)
Gender		
Male	277	69.25
Female	123	30.75
Age (in years)		
18-30	139	34.75
31-40	146	36.50
41-50	69	17.25
51-60	30	7.50
61 and above	16	4.00
Type of family		
Nuclear	300	75
Joint	100	25
Education		
Illiterate	25	6.25
Up to Primary school	23	5.75
Up to middle school	29	7.25
High school	42	10.50
12 pass	121	30.25
Graduate	153	38.25
Post graduate	7	1.75
Marital status		
Married	303	75.75
Unmarried	93	23.25
Divorced or Separated	4	1.00
Employment		
Government job	26	6.50
Private job	67	16.75
Self employed	213	53.25
Unemployed	94	23.50
Socioeconomic status		
Upper	7	1.7
Upper Middle	102	25.5
Lower Middle	150	37.5
Upper Lower	139	34.8
Lower	2	0.5

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Table 2 Mean KAP scores of the study population

Variable (Total Score)	Mean	Standard Deviation (SD)	Minimum	Maximum
Knowledge score (46)	25.09	6.85	4	41
Attitude score (21)	17.52	3.22	3	21
Practice score (27)	18.47	3.80	4	26
Total KAP Score (94)	61.07	11.03	22	87

“The mean COVID 19 knowledge score of the study participants came out to be 25.09 (SD = 6.85, range: 4 to 41); the mean attitude score was 17.52 (SD = 3.22, range: 3 to 21) and mean practice score was

18.47 (SD = 3.80, range: 4 to 26). The mean total KAP score of the study participants was 61.07 (SD = 11.03, range: 22 87)” [Table 2].

Table 3 Factors associated with knowledge, attitude and practices regarding COVID 19

“Socio Demographic Characteristics		Total (n, %)	Good Knowledge	χ^2 , p value	Good Attitude	χ^2 , p value	Good Practice	χ^2 , p value	Total KAP score	χ^2 , p value
Gender	Male	277(69.25 %)	143(51.6)	0.051, 0.829	169(61)	6.301, 0.013 *	161(58.1)	5.018, 0.026 *	142(51.3)	3.237, 0.082
	Female	123(30.75 %)	62(50.4)		91(74)		86(69.2)		75(61)	
Age group (in years)	18–30	139	65(46.8)	8.590, 0.072	94(67.6)	3.778, 0.437	99(71.2)	15.742, 0.003 *	77(55.4)	2.327, 0.676
	31 40	146	82(56.2)		99(67.8)		93(63.7)		82(56.2)	
	41 50	69	41(59.4)		42(60.9)		31(44.9)		37(53.6)	
	51 60	30	10(33.3)		16(53.3)		15(50)		15(50)	
	Above 60	16	7(43.8)		9(56.3)		9(56.3)		6(37.5)	
Marital status*	Married		155(51.2)	0.005, 1.000	203(67)	2.190, 0.144	182(60.1)	1.500, 0.232	165(54.5)	0.021, 0.907
	Not Married		50(51.5)		57(58.8)		65(67)		52(53.6)	
Family Type	Nuclear	300	163(54.3)	4.566, 0.038 *	200(66.7)	1.465, 0.229	189(63)	0.794, 0.406	170(56.7)	2.824, 0.105
	Joint	100	42(42)		60(60)		58(58)		47(47)	
Education n**	Illiterate		4(16)	52.939, 0.000 *	11(44)	5.656, 0.130	10(40)	5.453, 0.141	8(32)	23.775, 0.000 *
	Up to High School		32(34)		60(63.8)		60(63.8)		38(40.4)	

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	12 th Pass		54(44.6)		80(66.1)		75(62)		63(52.1)	
	Graduate and above		115(71.9)		109(68.1)		102(63.8)		108(67.5)	
Occupation***	Employed		158(51.6)	0.077, 0.814	197(64.4)	0.221, 0.711	177(57.8)	8.415, 0.004*	161(52.6)	1.404, 0.287
	Unemployed		47(50)		63(67)		70(74.5)		56(59.6)	
Socioeconomic status	Upper		3(100)	11.530, 0.021*	2(66.7)	7.147, 0.128	2(66.7)	2.935, 0.569	2(66.7)	6.782, 0.148
	Upper Middle		79(57.2)		97(70.3)		83(60.1)		85(61.6)	
	Lower Middle		80(53.3)		91(60.7)		90(60)		79(52.7)	
	Upper Lower		41(40.2)		68(66.7)		69(67.6)		49(48)	
	Lower		2(28.6)		2(28.6)		3(42.9)		2(28.6)	

Significant association was found between family type, education, socioeconomic status and knowledge of the study participants regarding COVID 19. Attitude of the study participants regarding COVID 19 was found to be significantly associated with gender.

Age, gender and occupation were found to be significantly associated with practices of the study participants during the COVID 19 pandemic. We found total KAP score of the study participants was significantly associated with their education [Table 3].

Table 4 Regression analysis of factors significantly associated with knowledge, attitude, practices and total KAP score of COVID 19

Variables under study		Good n (%)	Poor n(%)	Total n (100%)	p value	aOR	95% CI
Knowledge regarding COVID 19							
Family type	Nuclear	163 (54.3)	137 (45.7)	300	0.079	Reference	
	Joint	42 (42)	58 (58)	100		0.648	0.399 1.051
Education	Upto 12 th Pass	90 (37.5)	150 (62.5)	240	0.000*	Reference	
	Graduate and above	115 (71.9)	45 (28.1)	160		4.194*	2.717 6.474
Socioeconomic status	Upper	2 (66.7)	1 (33.3)	3	0.999	1413540506.28	0.000

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Variables under study		Good n (%)	Poor n(%)	Total n (100%)	p value	aOR	95% CI
	Upper Middle	79 (57.2)	59 (42.8)	138	0.505	1.172	0.736 1.866
	Lower Middle	80 (53.3)	70 (46.7)	150		Reference	
	Upper Lower	41 (40.2)	61 (59.8)	102	0.041*	0.588*	0.353 0.979
	Lower	2 (28.6)	5 (71.4)	7	0.218	0.350	0.066 1.861
Attitude regarding COVID 19							
Gender	Male	169(61)	108(39)	277	0.013*	Reference	
	Female	91(74)	32(26)	123		1.817*	1.136 2.907
Practice regarding COVID 19							
Gender	Male	161(58.1)	116(41.9)	277	0.203	Reference	
	Female	86(69.2)	37(30.1)	123		1.370	0.843 2.226
Age group (in years)	18 30	99(71.2)	40(28.8)	139		Reference	
	31 40	93(63.7)	53(36.3)	146	0.176	0.709	0.431 1.167
	41 50	31(44.9)	38(55.1)	69	0.000*	0.330*	0.181 0.601
	51 60	15(50)	15(50)	30	0.027*	0.404*	0.181 0.903
	Above 60	9(56.3)	7(43.8)	16	0.223	0.519	0.181 1.490
Occupation	Employed	177(57.8)	129(42.2)	277	0.024*	Reference	
	Unemployed	70(74.5)	24(25.5)	123		1.879*	1.085 3.254
Total KAP score of COVID 19							
Education	Up to 12 th Pass	109(45.4)	131(54.6)	240	0.000*	Reference	
	Graduate and above	108(67.5)	52(32.5)	160		2.496*	1.645 3.788

“On regression analysis it was seen that study participants who had completed graduation had four times better knowledge about COVID 19 (OR 4.194 [95% CI, 2.717 6.474]). Women had 1.8 times better attitude than men regarding COVID 19 [OR 1.817 (95% CI 1.136 2.907) [Table 4].

On regression analysis practices followed by 18 to 30 year old were three times better than 41 to 50 year olds (OR 0.330 [95% CI, 0.181 0.601]) and almost 2.5 times better than 51 to 60 year olds [OR 0.404 (95% CI 0.181 0.903) respectively. It was also seen that unemployed people had almost twice as good practices regarding COVID 19 on a day to day basis

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than people who were employed [OR 1.879 (95% CI 1.085 3.254)] [Table 4].

Those who had completed graduation and higher studies had almost two and a half times better KAP scores (OR 2.496 [95% CI, 1.645 3.788]).

Table 5 Correlation between score of knowledge, attitude and practices regarding COVID 19

	Correlation	P Value
Knowledge Attitude	0.176*	0.000
Knowledge Practice	0.148*	0.003
Attitude Practice	0.523*	0.000
*Correlation is significant at the 0.01 level (2 tailed)		
P<0.05 statistically significant		

“We found significant but weak positive correlation between knowledge and attitude ($r=0.176$, $p=0.000$) and between knowledge and practice ($r=0.148$, $p=0.003$) of the study participants regarding COVID 19. It also shows a strong positive correlation between attitude and practice ($r=0.523$, $p=0.000$) [Table 5].”

4. Discussion

COVID 19 has emerged as a rampantly spreading infectious disease over the last two and a half years. The disease was first identified in Wuhan, China in December 2019.⁽¹⁾ Unprecedented efforts have been made by governments all around the globe to prevent the transmission of the COVID 19.⁽¹⁵⁾ Though vaccines are available for quite some time now, the fear of a new mutant variant still looms large. Therefore, the cardinal public health measures still remain as the mainstay in preventing its spread.⁽¹⁶⁾

More than half of the study participants (51.25%) had good knowledge scores regarding COVID 19. Better knowledge regarding all aspects of COVID 19 from epidemiology to transmission, symptoms, treatment and prevention were significantly associated with higher education of the study participants. It was seen that participants who had completed graduation and higher studies had four times better knowledge regarding COVID 19 [Table 4]. A study done by Bawazir A et al. (2017)⁽¹⁷⁾ also found increasing education levels to be a factor associated with better knowledge regarding new and emerging infections among the general population.

Similar findings were seen by Zhong et al. (2020)⁽¹⁸⁾ in China and Al Hanawi MK et al. (2020)⁽¹⁹⁾ in Saudi Arabia as well.

In the present study no significant association was found between gender, age, marital status, occupation and knowledge levels of the respondents regarding COVID 19. But, Zhong et al. (2020)⁽¹⁸⁾ found that male sex, marital status, age group (16–29 years) and occupation were significantly associated with knowledge levels of their study participants about COVID 19.

In this study, people belonging to Lower middle class according to Modified Kuppuswamy scale had 1.7 times better knowledge than Upper lower socio economic class (OR 0.588 [(95% CI, 0.353 0.979)] [Table 4]. But no such association was seen with the higher socio economic strata of the society. Al Hanawi MK et al. (2020)⁽¹⁹⁾ also found that higher money earners had a better knowledge about COVID 19. Higher levels of income have been associated with better resources to gather, understand and scrutinize information.⁽²⁰⁾

We found that 65% of the respondents had above average attitude score [17.52 ± 3.22 (range 3–21)] suggesting positive attitudes towards COVID 19 [Table 2]. In a Saudi Arabian study⁽¹⁹⁾, the mean attitude score for COVID 19 came out to be 28.23 ± 2.76 (range 6–30) indicating positive attitudes towards COVID 19 as well. Attitude of women regarding COVID 19 was 1.8 times better and more optimistic than men (OR 1.817 [95% CI, 1.136 2.907]) [Table 4]. Similar findings were present in

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studies from China by Zhong BL et al. (2020)⁽¹⁸⁾ and by Al Hanawi MK et al. (2020)⁽¹⁹⁾ in Saudi Arabia. This can be attributed to a more casual attitude and lack of understanding about the gravity of the situation at the part of male population. Mohamed AA et al. (2020)⁽²¹⁾ found similar associations in the Sudanese population.

As attitudes impact the practices related to prevention of communicable diseases therefore, promotion of correct knowledge inculcating right beliefs is important. In this study, 35% of the study population had poor attitude towards the new viral disease. In an Iranian study⁽⁵⁾ as well, 31.4% of the study population had poor attitude towards COVID 19.

More than three fifths, 247 (61.75 %) of the study population followed appropriate practices during the time of pandemic. Significant association was found between gender ($p=0.026$) and practices followed by the respondents during the pandemic. But on regression analysis no such association was found. Although, Rehman R et al. (2020)⁽²²⁾ in their study in Pakistan found females to have better practices than men.

In this study, overall practices followed by 18-30 year olds were three times better than 41-50 year olds [OR 0.330 (95% CI 0.181-0.601)] and almost 2.5 times better than 51-60 year olds [OR 0.404 (95% CI 0.181-0.903)] [Table 4]. This can be explained by better awareness levels in this age group owing to increased time spent on the internet. Thus, the younger age group can easily access the updated information easily. On the contrary, in a study done in Bangladesh by Ferdous MZ et al. (2020)⁽²³⁾ older age was found to be associated with better practices. Tomar BS et al. (2020)⁽²⁰⁾ also found older age to be significantly associated with good practices among Indians. This can be attributed to increased perceived risk of developing serious life threatening conditions due to the infection by this age group.

In the present study no significant association was found between education levels and practices followed by people ($p=0.141$) [Table 4]. Whereas, in a study done by Ferdous MZ et al. (2020)⁽²³⁾ higher education was significantly associated with good practices. Similarly, in a Pakistani study⁽²⁴⁾ respondents with master's degrees were found to

have healthier practices during the COVID 19 pandemic.

In this study, people who were unemployed had almost twice as good practices related to COVID 19 than people who were employed [OR 1.879 (95% CI 1.085-3.254)] (Table 4). This can be attributed to the fact that unemployed people stayed home during the unlocking phases of the pandemic and thus, followed the guidelines regarding physical distancing better than the working population.

Total awareness about COVID 19 of the study subjects was much better among graduates and postgraduates. They had almost two and a half times better overall KAP score. [OR 2.496 (95% CI 1.645-3.788)].

Females had better KAP score towards COVID 19 than males in a global study done by Masoud AT (2021)⁽²⁵⁾. Lau JTF et al. (2003)⁽²⁶⁾ in their study during the SARS outbreak also found females to have better attitudes and preventive practices in Hong Kong. In studies done by Azlan et al. (2020)⁽²⁷⁾ in Malaysia and Al Hanawi et al. (2020)⁽¹⁹⁾ in Saudi Arabia as well females were found to have better overall awareness regarding COVID 19.

We found a positive correlation between knowledge with attitude and practices followed by the respondents during COVID 19. Tomar BS et al. (2020)⁽²⁰⁾ found similar associations in their study. A strong positive correlation between attitude and practices of the study participants regarding COVID 19 was also found. This restates the fact that people with good knowledge have a positive attitude and follow good practices.

Limitations

The limitation of this study was that it was conducted in only urban areas of one district in India. Therefore, more studies with a wider demographic base profile are needed to support and reiterate the KAP findings of this study. Due to the paucity of time a more detailed and thorough assessment of the validity and reliability of the questionnaire could not be done. The participants had to self-report thus, there is a strong possibility of positive answering based on what is socially acceptable.

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5. Conclusion

Any preparation for the future pandemics would be of no use in a vast country like India until people start behaving responsibly. Right attitude and positive behaviour can be translated into better practices only through continuous education. Thus, information, education and communication (IEC) strategy of public health authorities needs to be targeted at the vulnerable sections of the society. KAP studies are known to find gaps in the policies of the government and their implementation among the general population. The findings of this study can thus, help policymakers in furthering interventions, education programs and create awareness among the people of the nation regarding basics of public health for prevention and control of outbreaks.

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