

ORIGINAL ARTICLE

Knowledge, attitudes, and practices towards COVID-19 among blood donors during the COVID-19 outbreak

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Abstract

Background: Assessments of the blood donors' knowledge, attitudes, practices, and perceptions of this infection are essential for controlling the spread of COVID-19. **Aim and objectives:** This study aimed to evaluate the KAP among blood donors towards COVID 19 pandemic and how to increase the number of blood donations during pandemic. **Materials and Methods:** This study was conducted among 630 blood donors at the Department of Transfusion Medicine, at a tertiary care center in North India. It was an observational study. **Statistical analysis:** The data were analyzed using Kruskal-Wallis and Mann-Whitney test. To correlate variables Chi-square test was used. **Results:** The knowledge score of demographic variables marital status, education & occupation showed a significant association, while its association with age, gender, and religion was insignificant. The entire demographic variables under study showed a significant association with Attitude questionnaire 1. According to univariate analysis, the variables Intercept, Unemployed and Physical Labour showed significant impact on knowledge level with the corresponding effect size 0.10 and 0.022. **Conclusions:** This study reveals that blood donors have good knowledge with positive attitudes and practices. By improving the knowledge with the help of health education platforms, the number of blood donations will also increase.

Keywords

Blood Donors; COVID-19; Practices

Introduction

Coronavirus disease-19 (COVID-19) was acknowledged as a pandemic in 2019. A total of 4,599,706 deaths worldwide and 441749 deaths in India have been reported till September 2021.(1, 2) Virus belongs to enveloped RNA viruses. They are generally pathogenic to mammals and birds and cause mild upper respiratory tract infections in humans. They infrequently can be spread to bigger social inhabitants and can cause severe breathing diseases. The disease presented itself with symptoms of viral breathing disease.(3,4) Raised d- dimer levels, higher sequential

organ failure assessment (SOFA score), elevated IL-6, increased Lactate Dehydrogenase, hyperferritinemia, and lymphopenia on admission were usually findings.(5, 6) In the year 2003 SARS and 2012 MERS-CoV novel coronavirus had shown cases. Now the pandemic of 2019 is the third instance.(7,8) No cases have been reported due to blood product transfusion, but the risk cannot be ignored. The disease has affected blood donations worldwide, so planning and assessment are needed. (9) Quick calculations of the blood donor's knowledge, attitudes, practices, and awareness of this contagion are

important for improving the number of blood donations during the COVID-19 pandemic. (10)

Aims & Objectives

1. to evaluate the KAP among blood donors towards COVID 19 pandemic
2. to suggest measures to increase the number of blood donations during pandemic

Material & Method

The present observational study was conducted among 630 healthy blood donors who fulfilled the criteria as per the Drugs and Cosmetics Act 2020(11) in the Department of Transfusion Medicine, a tertiary health care centre in North India during the COVID-19 pandemic. The duration of study was one-month and blood donors were selected every day by simple random sampling. The major criteria for donation includes(11).

- Donor shall be in good health, mentally and physically fit
- Donor should be between the age of 18 and 65 years.
- Weight of the donor should be ≥ 45 kg with Hb ≥ 12.5 g/dL
- Donation Interval should be more than 90days for male and 120 days for female.
- Donor shall be free from any disease which can be transmitted by blood transfusion.
- Physiological status of women for blood donation should be
 - Defer for 12 months after delivery and 6 months after abortion
 - Defer for total period of lactation and period of menstruation

After obtaining consent, total of 630 participants were recruited for the study. The study was permitted by the Institutional Ethics Committee (Ref. code: IV PGTSC-IIA/P49) before enrolment of the blood donors.

Blood donors who decided to take part in the study were instructed to finish the inquiry form. The inquiry form consisted of two parts: demographic variables and questions related to KAP. Demographic variables comprised of age groups (in years), Sex, Marital status, Faith, Schooling, Profession, Inhabitant. COVID-19 knowledge inquiry form had 12 queries: 4 related to medical presentations (knowledge questionnaire 1 – 4), 3 related to spread modes (knowledge questionnaire 5-7), and 5 related to preventive measures (knowledge questionnaire 8 -12) of COVID-19. The responses were in form of Yes/No basis with an added "Have no idea" choice. One mark is assigned to the correct answer and 0 mark for wrong/unknown answer. Attitude and practices towards COVID-19 were evaluated by 2 queries each. The study tool was validated by the experts. (Table 1)

Statistical Analysis: Data was analyzed with Statistical Package for the Social Sciences(SPSS) version 23.0 (SPSS, Inc., Chicago,IL, USA). Frequency tables, percentages, independent samples T-TEST, one-way analysis of

variance (ANOVA) and Chi-square test were used to report the study results. P values less than 0.05 were considered significant.

Results

All of the 630 participants completed the survey inquiry forms. In the study, the maximum respondents were of the age 18- 29 years (55.1%), most respondents were males(93.2%). Hindus were relatively more than the Muslim (Hindu 61.4% vs. Muslim 38,6%) and most of them were married (69.0%). 27.9 % and 33.3% participants had High school and intermediate school education respectively. In profession category the physical labourer was most common followed by students and unemployed.

(Table 2)

57.3% were shown positive attitude with Attitude questionnaire 1 while 30.3% have no idea about it and the maximum response of Attitude questionnaire 2 was in yes i.e.75.9%.

In practice questionnaires 1and 2, most of the respondents were given positive responses i.e. 77.6% and 87.3% respectively. (Table 3)

The knowledge score of demographic variables marital status, education & occupation showed a significant association, while its association with age, gender, and religion was insignificant. (Table 4)

The entire demographic variable under study showed a significant association with Attitude questionnaire 1. (Table 5)

Age, sex, faith, schooling, and profession showed significant association with Attitude questionnaire 2. (Table 6)

Practice questionnaire 1 showed significant association all the demographic variables except sex. (Table 7)

Similarly association of Practice questionnaire 2 was also significant with various demographic variables except gender and age. (Table 8)

According to univariate analysis, the variables Intercept, Unemployed and Physical Labour showed significant impact on knowledge level with corresponding effect sizes 0.10 and 0.022. (Table 9)

Discussion

The objective of this study was to evaluate the KAP among blood donor towards COVID 19 pandemic. Our study has observed that knowledge about COVID-19 infection and its preventive measures among blood donor was good.

In this study knowledge scores of age group, 30-49 years and females were slightly better in their respective categories but it was statistically insignificant. While in previous studies knowledge score was better in more than 50 years age group and it was statistically significant. The result of the female knowledge score was consistent with previous studies. (8) There was a significant association of knowledge score with marital status, education, and occupation. In marital status, 'Others' had a better knowledge score which was in contrast to previous studies in which it was better in 'Married'.(8) Knowledge score was better in Master degree holders and it was consistent

with other studies. (8) In 'Faith', no significant difference was found in knowledge about COVID-19.

In this study, 57.3% of blood donors showed a positive attitude that COVID-19 will be controlled while a study conducted in China it was 90.8%. (8) However during the SARS epidemic, 70.1-88.9% of the affected inhabitants thought that SARS can be effectively controlled or prevented. (12, 13, 14) A good number of blood donors i.e. 75.9% had agreed that if we remove the fear of COVID 19 from the blood donors, the number of blood donations can be increased to pre-COVID-19 period.

A large number of blood donors (77.6%) were not avoiding crowded places but wore masks(87.3%) when going to the blood bank, markets, etc. while a study from China showed that only 3.6% of the study population went to crowded places. (8) Unfortunately a great number of blood donors in the present study (i.e. 12.7%) did not wear the mask. This high-risk practice is not good and makes our fight against the COVID-19 pandemic more difficult. The results of the study specify the significance of COVID-19 knowledge in blood donor via education, which can also consequence in perfections in their attitudes and practices towards COVID-19. Our results of the demographic features related to KAP in the direction of COVID-19 are usually steady with preceding research on SARS in 2003. (15, 16) Minjung Lee et al in their study found that attitudes (perceived risk and efficacy belief) and practices (e.g., individual cleanliness practices and social distancing) have a direct association with knowledge. (17) Sociodemographic variables were causing variations in the level of knowledge. Knowledge with higher levels was seen in females and subjects with higher education. (18,19)

Conclusion

During the COVID -19 pandemic, the blood donation is markedly reduced worldwide. To increase blood donation again, the fear and doubts of blood donor have to be removed. The findings of the present study suggest that blood donor of the Indian population have good knowledge with positive attitudes and practices. Better COVID-19 knowledge is related to hopeful attitudes and suitable practices. This can happen only when the health education platforms are able to spread the right knowledge and this will encourage a hopeful attitude and uphold safe practices which in turn increases the number of blood donations.

Recommendation

There is a lot of information available on the internet, some of which are misleading. Give all the information through a reliable medium, so that the blood donors are not confused.

Limitation of the study

There was limited representation of different types of blood donors due to COVID 19 related restrictions and

fears. Because of which most of the donors in this study were replacement donors.

Relevance of the study

Voluntary blood donation has come down significantly during the COVID-19 pandemic. This is mainly due to lack of knowledge and fear of pandemics. We have to constantly update the blood donor's knowledge and practices so that blood donation won't affect again during any pandemic in the future.

Authors Contribution

All authors have contributed equally

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Tables

TABLE 1 QUESTIONNAIRE OF KNOWLEDGE, ATTITUDE & PRACTICES TOWARDS COVID 19 PANDEMIC IN BLOOD DONORS

KNOWLEDGE	
1. The chief medical features of COVID-19 are raised body temperature, exhaustion, whoop, and myalgia.	Yes, No, Have no idea
2. In COVID-19 virus infection runny nose, nasal congestion and sneezing are less as compared to common cold.	Yes, No, Have no idea
3. In absence of definitive treatment early symptomatic treatment can improve the prognosis.	Yes, No, Have no idea
4. Only certain categories of patients such as immunocompromised, old age, having chronic diseases and obese can develop severe form of COVID -19 illness.	Yes, No, Have no idea
5. COVID 19 disease can be transmitted by blood transfusion	Yes, No, Have no idea
6. Afebrile COVID-19 patients can not transmit COVID -19 virus to other individuals.	Yes, No, Have no idea
7. The COVID-19 virus can spreads through the respiratory secretions of the infected persons.	Yes, No, Have no idea
8. People can wear surgical masks for prevention.	Yes, No, Have no idea
9. Disease is very mild in children, so it is not necessary for them to take safety measures for COVID-19 virus.	Yes, No, Have no idea
10. To avoid the infection, persons should avoid going to crowded places like markets, Railway stations and avoid use of public transportations.	Yes, No, Have no idea
11. Segregation and management COVID-19 patient is most step in preventing the spread of the disease.	Yes, No, Have no idea
12. A person who is exposed to a COVID-19 patient, should immediately quarantine for 14 days under supervision.	Yes, No, Have no idea
ATTITUDE	
1. Do you think that this pandemic will be effectively controlled finally?	Yes, No, Have no idea
2. After removing fear of COVID 19 from blood donors, we can increase the blood donations to pre COVID 19 period.	Yes, no
PRACTICE	
1. Have you visit any crowded place during pandemic?	Yes, no
2. Have you always worn a mask while donating blood in blood bank/hospital?	Yes, no

TABLE 2 DISTRIBUTION OF CASES ACCORDING TO DEMOGRAPHIC VARIABLES (N =630)

Variable	Category	No.	%
Age	18 - 29 year	347	55.1
	30 - 49 year	241	38.3
	50-65year	42	6.7
SEX	Male	587	93.2
	Female	43	6.8
MARITAL STATUS	Married	435	69.0
	Never Married	188	29.8
	Others	7	1.1
FAITH	Hindu	387	61.4
	Muslim	243	38.6
SCHOOLING	Primary & below	117	18.6
	High School	176	27.9
	Intermediate	210	33.3
	Bachelor's degree	93	14.8
	Master's degree	34	5.4
PROFESSION	Student	153	24.3
	Unemployed	141	22.4
	Physical laborer	228	36.2
	Office Employed	108	17.1

TABLE 3 DISTRIBUTION OF CASES ACCORDING TO ATTITUDE AND PRACTICE (N =630)

Variables	Yes	No	Have no idea	Total
Attitude questionnaire 1: Do you think that this pandemic will be effectively controlled finally?	361 (57.3%)	78 (12.4%)	191 (30.3%)	630 (100%)
Attitude questionnaire 2: After removing fear of COVID 19 from blood donors, we can increase the blood donations to pre COVID 19 period.	478 (75.9%)	152 (24.1%)	-	630 (100%)
Practice questionnaire 1: Have you visit any crowded place during pandemic?	489 (77.6%)	141 (22.4%)	-	630 (100%)
Practice questionnaire 2: Have you always worn a mask while donating blood in blood bank/hospital?	550 (87.3%)	80 (12.7%)	-	630 (100%)

TABLE 4 COMPARISON OF KNOWLEDGE SCORE IN VARIOUS DEMOGRAPHIC VARIABLES(N =630)

Demographic variables		Number	Knowledge Score (mean ± SD)	p-value
Age (years)	18 - 29	347	6.45±1.33	0.585 ^a
	30 - 49	241	6.69±1.84	
	50-65	42	6.48±1.57	
Sex	Male	587	6.54±1.59	0.402 ^b
	Female	43	6.63±1.02	
Marital status	Married	435	6.57±1.60	0.004 ^a
	Never married	188	6.41±1.41	
	Others (divorced/separated)	7	8.71±1.50	
Faith	Hindu	387	6.53±1.58	0.612 ^b
	Muslim	243	6.56±1.53	
Education	Primary & below	117	5.93±1.13	0.001 ^a
	High school	176	6.19±1.34	
	Intermediate	210	6.69±1.48	
	Bachelor's degree	93	6.57±1.46	
	Master's degree	34	9.44±1.33	
Occupation	Students	153	6.34±1.38	0.001 ^a
	Unemployed	141	6.7±1.56	
	Physical Labourer	228	6.08±1.27	
	Office Employed	108	7.6±1.82	

a = p value is calculated by Kruskal Wallis test, b = p value is calculated by Mann-Whitney test

TABLE 5 ASSOCIATION OF DEMOGRAPHIC VARIABLE WITH ATTITUDE QUESTIONNAIRE 1(N=630)

Variable		Attitude questionnaire 1: Do you think that this pandemic will be effectively controlled finally?						Chi-square	p-value
		Agree		Disagree		Don't Know			
		No.	%	No.	%	No.	%		
Age	18 - 29 year	169	48.7%	53	15.3%	125	36.0%	27.15	<0.001
	30 - 49 year	162	67.2%	25	10.4%	54	22.4%		
	50+ year	30	71.4%	0	0.0%	12	28.6%		
SEX	Male	361	61.5%	74	12.6%	152	25.9%	82.30	<0.001
	Female	0	0.0%	4	9.3%	39	90.7%		
MARITAL STATUS	Married	225	51.7%	37	8.5%	173	39.8%	67.46	<0.001
	Never Married	132	70.2%	40	21.3%	16	8.5%		
	Others	4	57.1%	1	14.3%	2	28.6%		
FAITH	Hindu	239	61.8%	52	13.4%	96	24.8%	14.43	0.001
	Muslim	122	50.2%	26	10.7%	95	39.1%		
SCHOOLING	Primary & below	69	59.0%	11	9.4%	37	31.6%	110.35	<0.001
	High School	105	59.7%	28	15.9%	43	24.4%		
	Intermediate	77	36.7%	23	11.0%	110	52.4%		
	Bachelor's degree	81	87.1%	11	11.8%	1	1.1%		
	Master's degree	29	85.3%	5	14.7%	0	0.0%		
PROFESSION	Student	79	51.6%	13	8.5%	61	39.9%	183.99	<0.001
	Unemployed	24	17.0%	23	16.3%	94	66.7%		
	Physical Labourer	166	72.8%	26	11.4%	36	15.8%		
	Office Employed	92	85.2%	16	14.8%	0	0.0%		
RESIDENCE	UP	361	57.3%	78	12.4%	191	30.3%	NA	NA

TABLE 6 ASSOCIATION OF DEMOGRAPHIC VARIABLE WITH ATTITUDE QUESTIONNAIRE 2(N=630)

Variable		Attitude questionnaire 2: After removing fear of COVID 19 from blood donors, we can increase the blood donations to pre COVID 19 period.				Chi-square	p-value
		No		Yes			
		No.	%	No.	%		
Age	18 - 29 year	98	28.2%	249	71.8%	16.96	<0.001
	30 - 49 year	54	22.4%	187	77.6%		
	50+ year	0	0.0%	42	100.0%		
SEX	Male	150	25.6%	437	74.4%	9.56	0.002
	Female	2	4.7%	41	95.3%		

Variable		Attitude questionnaire 2: After removing fear of COVID 19 from blood donors, we can increase the blood donations to pre COVID 19 period.				Chi-square	p-value
		No		Yes			
		No.	%	No.	%		
MARITAL STATUS	Married	114	26.2%	321	73.8%	4.83	0.089
	Never Married	38	20.2%	150	79.8%		
	Others	0	0.0%	7	100.0%		
FAITH	Hindu	108	27.9%	279	72.1%	7.83	0.005
	Muslim	44	18.1%	199	81.9%		
SCHOOLING	Primary & below	34	29.1%	83	70.9%	61.75	<0.001
	High School	76	43.2%	100	56.8%		
	Intermediate	28	13.3%	182	86.7%		
	Bachelor's degree	10	10.8%	83	89.2%		
	Master's degree	4	11.8%	30	88.2%		
PROFESSION	Student	28	18.3%	125	81.7%	16.94	0.001
	Unemployed	44	31.2%	97	68.8%		
	Physical Labourer	66	28.9%	162	71.1%		
	Office Employed	14	13.0%	94	87.0%		
RESIDENCE	UP	152	24.1%	478	75.9%	NA	NA

TABLE 7 ASSOCIATION OF DEMOGRAPHIC VARIABLE WITH PRACTICE QUESTIONNAIRE 1(N=630)

Variable		Practice questionnaire 1: Have you visit any crowded place during pandemic?				Chi-square	p-value
		No		Yes			
		No.	%	No.	%		
Age	18 - 29 year	128	36.9%	219	63.1%	104.06	<0.001
	30 - 49 year	3	1.2%	238	98.8%		
	50+ year	10	23.8%	32	76.2%		
SEX	Male	131	22.3%	456	77.7%	0.02	0.887
	Female	10	23.3%	33	76.7%		
MARITAL STATUS	Married	19	4.4%	416	95.6%	272.24	<0.001
	Never Married	121	64.4%	67	35.6%		
	Others	1	14.3%	6	85.7%		
FAITH	Hindu	121	31.3%	266	68.7%	45.60	<0.001
	Muslim	20	8.2%	223	91.8%		
SCHOOLING	Primary & below	47	40.2%	70	59.8%	173.48	<0.001
	High School	26	14.8%	150	85.2%		
	Intermediate	7	3.3%	203	96.7%		
	Bachelor's degree	60	64.5%	33	35.5%		
	Master's degree	1	2.9%	33	97.1%		
PROFESSION	Student	23	15.0%	130	85.0%	87.47	<0.001
	Unemployed	20	14.2%	121	85.8%		
	Physical Labourer	37	16.2%	191	83.8%		
	Office Employed	61	56.5%	47	43.5%		
RESIDENCE	UP	141	22.4%	489	77.6%	NA	NA

TABLE 8 ASSOCIATION OF DEMOGRAPHIC VARIABLE WITH PRACTICE QUESTIONNAIRE 2 (N=630)

Variable		Practice questionnaire 2: Have you always worn a mask while donating blood in blood bank/hospital?				Chi-square	p-value
		No		Yes			
		No.	%	No.	%		
Age	18 - 29 year	41	11.8%	306	88.2%	0.55	0.758
	30 - 49 year	33	13.7%	208	86.3%		
	50+ year	6	14.3%	36	85.7%		
SEX	Male	76	12.9%	511	87.1%	0.48	0.488
	Female	4	9.3%	39	90.7%		
MARITAL STATUS	Married	34	7.8%	401	92.2%	55.50	<0.001
	Never Married	40	21.3%	148	78.7%		
	Others	6	85.7%	1	14.3%		

Variable		Practice questionnaire 2: Have you always worn a mask while donating blood in blood bank/hospital?				Chi-square	p-value
		No		Yes			
		No.	%	No.	%		
FAITH	Hindu	70	18.1%	317	81.9%	26.29	<0.001
	Muslim	10	4.1%	233	95.9%		
SCHOOLING	Primary & below	18	15.4%	99	84.6%	132.20	<0.001
	High School	25	14.2%	151	85.8%		
	Intermediate	1	.5%	209	99.5%		
	Bachelor's degree	12	12.9%	81	87.1%		
	Master's degree	24	70.6%	10	29.4%		
PROFESSION	Student	24	15.7%	129	84.3%	52.72	<0.001
	Unemployed	4	2.8%	137	97.2%		
	Physical Labourer	18	7.9%	210	92.1%		
	Office Employed	34	31.5%	74	68.5%		
RESIDENCE	UP	80	12.7%	550	87.3%	NA	NA

TABLE 9 UNIVARIATE ANOVA TO ESTIMATE PARAMETERS TO PREDICT SIGNIFICANT DEMOGRAPHIC VARIABLES

Parameter	B	SE	T	p-value	Effect Size
Intercept	8.750	.662	13.218	<0.001	.222
Married	1.250	.725	1.724	.085	.005
Never Married	-.150	.783	-.192	.848	<0.001
Others	Ref.				
Primary & below	-.547	.703	-.779	.436	.001
High School	-.049	1.289	-.038	.970	<0.001
Intermediate	-1.689	.583	-2.899	.004	.014
Bachelor's degree	4.296	1.654	2.597	.010	.011
Master's degree	Ref.				
Student	-2.046	.739	-2.770	.006	.012
Unemployed	-1.311	.530	-2.473	.014	.010
Physical Labourer	-1.944	.521	-3.733	<0.001	.022
Office Employed	Ref.				