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Behaviour for covid-19 prevention – A cross sectional study among youths of Haryana, India

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ABSTRACT

Background

Corona Virus Disease 2019(COVID-19) is a big threat globally. Youths empowered with knowledge are our present and future shield from COVID-19 infections. The objective of our study is to assess the knowledge, perception and practices of youths towards COVID-19 prevention. This will inform communication strategies for the future.

Methods

A questionnaire-based online study was conducted on 531 graduate students .Participation was voluntary, and consent obtained. Data was presented with descriptive statistics. Correlation and regression were applied to draw statistical inferences. The reliability of the various constructs in the questionnaire were assessed using the Cronbach alpha coefficient with a value above 0.8 found.

Results

The majority(43%) of respondents were aged between 19 and 22 years. 54% were female, and 46% males. 72% of respondents gained health information from digital sources. The majority (>71 %), were well aware of signs and symptoms ,modes of transmission and strategies for prevention of COVID-19. 96% agreed masks were a key preventive measure . Social distancing and hand washing were practiced by only 52%. 35% did not agree that vaccination prevented COVID-19. The correlation coefficient between knowledge regarding Covid behaviour and perception is higher (r = 0.73) than that between Covid behaviour and practice. Regression analysis (r=0.64) predicted positive perception and determined the desired preventive action.

Conclusion

Most participants exhibited good knowledge, a positive perception and practiced prevention based on information gained through digital media especially social media. The carelessness in the practice of precaution towards COVID-19 by some youths highlights the need for youth focused communication by national authorities. The health messages should address the prevalent misconceptions, so that misconceived behaviours are avoided.

Keywords: COVID-19, Knowledge, Perception Practices, Youth

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INTRODUCTION

Coronavirus Virus Disease (COVID-19) is by far the most pressing global tragedy and challenge of our lifetimes. The COVID-19 pandemic has greatly exposed the shortcomings of worldwide public health systems, casting a shadow of danger on the society and creating an unfathomable situation. New variants of COVID-19 are potential threats and the population is likely to confront more risk in the future as stated by the World Health Organisation.[1] Currently, we are unsure about everything including the prospective outcomes of the emerging virus variants and the people at risk. However, if we keep on working to prevent any transmission of these infectious agents, morbidity and mortality will remain low. Keeping in mind the challenges that India has faced since the first case of COVID-19 was reported on January 27, 2020 [2]and the threat is still persisting as the threat of an epidemic from the new variants of COVID-19 is also reported to be 6133 in India.[3] As per the World Health Organization ,Global Influenza Surveillance and Response System (GISRS) from sentinel surveillance sites has reported a surge in cases driven by variant NB1.8 mainly from Southeast Asia, Eastern Mediterranean and Western Pacific region .[4] Thus, it is necessary to be prepared for new waves of COVID-19. There are three pillars that guide preventative practices: knowledge, perception and practice, (KPP). Knowledge influences the formation of a perception, and attitude influences how we practice disease prevention. Youths constitute a vital link in the disease prevention cycle. They have higher economic independence, higher autonomy, have formed a set of beliefs about their environment, and are highly mobile. They are also more likely to absorb current information, and translate it into action. They are the bridge between the external world and their families in both the urban and the rural areas. They are technologically savvy, and quickly read and disseminate information digitally. Their large population base is an added reason why their knowledge, perceptions and practices should be studied. That our youths played a major role in society during the COVID-19 pandemic in 2021 has been reported in a publication by United Nations International Children Emergency Fund.[5] Thus, this study has been done with the objective to assess the knowledge, perception and preventive practices among youths in graduate courses in various colleges and universities of Haryana in the context of COVID-19 . The data will be important for preparing risk communication messages and strategies. This, in turn, will direct the course of future epidemics of COVID-19 or similar flu like illnesses in the country.

Methods: A cross-sectional study was conducted among graduate students pursuing various courses in colleges and universities in Haryana from July 2022 to August 2022. Participation was voluntary with informed consent. The participants were informed about the study in the initial part of the questionnaire and given the option to leave if desired. The survey questionnaire for the study was developed in steps. The first step was to develop the questionnaire by using the Google platform and distribute the google questionnaire through emails.The form consisted of four parts; namely the participant`s socio-demographic profile, knowledge, perception and preventive practices related to COVID-19. Information on signs, symptoms and approaches towards prevention of COVID-19 were incorporated in the questionnaire, according to the guidelines issued by the Ministry of Health &Family Welfare.[6] **T**he socio-economic scale used in the survey for assigning categories to the participants is based on the Modified B. G. Prasad socioeconomic scale: 2022 update of India.[7] The perception tool was developed based on a Likert scale with responses as Strongly Agree, Agree, Not Sure, Disagree, and Strongly Disagree.. Pretesting of the questionnaire was done on 20 graduates and modifications done based on the responses. The anonymity of the participants was ensured with no personal identifiers used during analysis. 538 forms were collected in total, but only 531 were used in the final analysis, as the rest were incomplete.

Statistical analysis:

Data cleaning and finalisation of tables were performed using Microsoft Excel 2019. IBM SPSS Statistics version 28.0 was used for application of the statistical tests namely T-test, correlation and regression. The reliability of the questionnaire was tested with the application of Cronbach's alpha coefficient above 0.8 was accepted as good.

Ethical consideration: Our study was carried out in accordance with accepted guidelines for on human subjects. Formal approval was granted by the ethical review board of the research ethics committee in the Medical College. The Ethical Committee No. Given was SEC/FMHS/UG/22/1/21-77.

RESULTS:

A total of 538 Google forms were received but, as only 531 graduates had completed the form fully, the final analysis was done on 531 graduates. The majority of respondents 118 (23%) were aged between 21 and 22 years. 101 (19.7%) were aged between 19 and 20 years. Females were 54% and males 46%. Ninety eight 19.1% belonged to Socioeconomic Class I followed by 27.9% (143) t from Class II, 32% were from Class III & IV and 20.9% (107) belonged to Class V.

Knowledge about COVID-19 infection.

Knowledge about the signs and symptoms of Covid-19 infection was present amongst students. The majority (91%) were aware of symptoms including fever and 70% stated loss of smell and taste and shortness of breath, as other distinctive symptoms of Covid-19. Abdominal discomfort, malaise, and sore throat were others stated by 20 to 50% of the students. (Table 1).

Awareness about the mode of airborne transmission was known to 56% of participants, but knowledge that transmission could take place by contaminated objects or surfaces was present in only 51% graduates. The use of masks as the prime method of precaution was known to 97% and 71% were cognizant about the use of sanitizer and maintaining a social distance of 1 meter in public places amongst each other. 30% did not believe in maintaining social distance as a means of preventing transmission. Awareness about hand washing frequently for a minimum of 20 seconds, a salient behaviour for prevention of COVID-19 infection, was known to 36% of the students. The need for isolating a COVID-19-positive patient was known to 65%. Vaccination as a measure for raising immunity against COVID-19 was known by 63%. (Table 1)The major source of information was social media for 72% of participants, followed by the Internet. Only 53% accessed the WHO or government website for information on COVID-19. Nearly 35% of the youths were doubtful about the benefits of vaccination for prevention of COVID-19 infection. Testing by RTPCR (Reverse transcriptase polymerase chain reaction) to diagnose SARS-CoV2 infection was stated by 93%.A gender differential was noted as females had better knowledge than males regarding the need for prevention by social distancing, hand washing practices, getting vaccinated and the proper use of masks Females scored better (mean score 16.57) than males (mean score 15.25). This difference was statistically significant ($p < 0.05$)

No.	Knowledge	Total No. of Respondents (531)	Percentage
1.	**Symptoms of the coved 19 infection**		
	Fever	466	90.80%
	Malaise and sore throat	262	51.10%
	Dry Cough	288	56.10%
	correlation coefficient between knowledge regarding Covid behaviour and perception is higher (r = 0.73) than that between Covid behaviour and practice	359	70%
	Loss of Smell and taste	360	70.20%
	Abdominal discomfort	147	28.70%
2.	**Modes of covid 19 transmission**		
	Person to Person airborne transmission	439	85.60%
	Droplet transmission	289	56.30%
	indirect contact with contaminated objects	261	50.90%

	Not isolating any Covid-19 patient	329	64.10%
3.	**Prevention of transmission of Covid 19infection**		
	Masks with nose mouth and chin covered	497	96.90%
	Hand washing for 20 seconds	183	45.22%
	Avoid crowded places if possible	276	53.80%
	Using Sanitizer with 60% alcohol	366	71.30%
	Social distancing of 1 metre	364	71.00%
4.	**Source of information regarding covid 19**		
	Newspaper/posters/bill boards	193	37.60%
	Television	248	48.30%
	Whats app, Facebook, Instagram, twitter	371	72.30%
	Information by WHO/Government health authorities.	272	53.00%
5.	**Need for Vaccination**		
	Prevents Covid-19 infection	268	52.20%
	Prevent severe disease with Covid-19	65	12.70%
	Does not prevent Covid infection	180	35.10%
6.	**Tests for Diagnosing Infection**		
	RT-PCR	476	92.60%

Table 1: Knowledge about Covid-19 amongst youths of Haryana

Perception and practice regarding COVID-19 preventive behaviour.

The reliability of the response data for perception and practice were analysed separately and the Cronbach alpha coefficient of 0.943 was obtained for both. This calculation indicated that responses were consistent within the groups. Guidelines to avoid getting infected from COVID-19 were practiced by 55 to 60% of participants, while the rest were either not sure or disagreed with the guidelines. Maintaining social distance amongst friends was reported by 40% youths. Though masks should be used to cover nose, mouth and chin, 156 (30.40%) strongly perceived that it was alright to keep the nose open often. A notion 48% youths harboured was that since they were young and had better immunity they will recover soon if infected, without any complication. (Table 2).

The social distancing of at least 1 meter in crowded places, workplaces, and offices was maintained by only 271 respondents. (51%). Only 160 (31.20%) practiced washing hands for the prescribed 20 sec. Others were either not sure or did not follow guidelines. Youths including 314 respondents (59%) went to crowded markets with masks and 287 (54%) used sanitizers always.

Table 2: Perception regarding Covid-19 preventive behaviour

	Number (N=531)	Percentage (100%)
1.Amongst friends there is no need to wear mask and maintain distance		
Strongly agree	182	35.50%
Agree	30	5.84%
Not sure	16	3.11%
Disagree	131	25.50%
Strongly disagree	152	29.60%
2.College students are young people so even if they fall sick will not have complications		
Strongly agree	170	33.10%
Agree	76	14.80%
Not sure	100	19.30%

Disagree	119	23.20%
Strongly disagree	49	9.60%
3. It is ok to open the nose often while using the masks		
Strongly agree	156	30.40%
Agree	52	10.13%
Not sure	35	7.00%
Disagree	145	28.30%
Strongly disagree	130	25.30%
4.It is safe to eat or drink while continuously touching the mask		
Strongly agree	158	30.80%
Agree	4	0.77%
Not sure	29	5.65%
Disagree	153	29.80%
Strongly disagree	143	27.90%
5.It is safe to go to a crowded market with a mask on		
Strongly agree	186	36.30%
Agree	116	22.60%
Not sure	72	14.00%
Disagree	81	15.80%
Strongly disagree	58	11.30%
6.No need to wear a mask if a party is being held in the open		
Strongly agree	158	30.80%
Agree	43	8.38%
Not sure	23	4.48%
Disagree	170	33.10%
Strongly disagree	119	23.20%
7.It is sufficient to use a mask to prevent covid, hand washing /sanitizers not required		
Strongly agree	152	29.60%
Agree	44	8.60%
Not sure	19	3.70%
Disagree	165	32.20%
Strongly disagree	133	25.90%
8.Washing hands for less than 20 seconds is sufficient for prevention		
Strongly agree	160	31.20%
Agree	85	16.60%
Not sure	86	16.80%
Disagree	124	24.20%
Strongly disagree	58	11.30%
9.Social distancing is not needed in the classroom or at work		
Strongly agree	154	30.00%
Agree	50	9.70%
Not sure	40	7.79%
Disagree	179	34.90%
Strongly disagree	90	17.50%
10.Young persons have less chances of getting serious illness than older people		
Strongly agree	167	32.60%
Agree	134	26.10%
Not sure	71	13.80%
Disagree	97	18.90%

Strongly disagree	44	8.60%
11.Patients with difficulty in breathing should receive treatment at hospital		
Strongly agree	101	19.70%
Agree	160	31.20%
Not sure	112	21.80%
Disagree	82	16.00%
Strongly disagree	58	11.30%
12.A patient who is suspected of being covid positive should be isolated		
Strongly agree	228	44.40%
Agree	165	32.20%
Not sure	70	13.60%
Disagree	13	2.53%
Strongly disagree	37	7.20%

Overall a positive correlation between knowledge, perception, and practice was observed among the graduate youths irrespective of gender. The correlation between knowledge and perception (r= 0.73) was higher as compared to the correlation between knowledge and practice. (r=0.64)

Table.3: Regression analysis for prediction of practice based on knowledge & perception

No.	Unstandardized Coefficients		Standardized Coefficients	t-value	p-value	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1.(Constant)	12.148	0.269		45.093	0.0001**	11.619	12.677
2.Score perception among graduates	0.208	0.009	0.834	23.731	0.0001**	0.19	0.225
3.Knowledge Score among graduates	0.007	0.02	1.10	0.323	0.747	-0.033	0.047

.437, p= .000 indicating the responses within the questions are consistent or similar. Data shows practice can be predicting by taking perception by regression analysis.

Regression analysis predicted that practice of COVID-19 preventive action is based on perception (score B.208) more than knowledge (score B 0.007) Table 3. An observation matching with data. The data for practice habit is consistent with Cronbach alpha.903, p= .000 based on 12 questions on practice. The intraclass correlation coefficient is

DISCUSSION

Covid-19 has been and still is a big threat globally and to our country. Youths empowered with correct knowledge and perception are our present and future fighting force for managing COVID-19

epidemics.

Knowledge perception and practice

In our study graduates had good knowledge about the causes, risks, and modes of transmission of COVID-19. The majority of graduates (91%) knew that fever is the most common symptom of Covid-19, followed by 71% who knew about the shortness of breath and loss of smell and taste. Knowledge about airborne transmission as the chief mode of spread, use of sanitizers, and masks, and the need for social distancing were reported by between 70% to 97% of graduates as noted from India[8,9] ,Kenya[10] Nigeria [11], Southeast Asia[12] Afghanistan [13]and China [14] . Females demonstrated significantly better knowledge than males in our study. Similar observations are reported from India[8], Nigeria [11], Jordan[15], Ethiopia [16]Vietnam [17]South Korea[18], Southeast Asia [12], China[14] and USA [19]. but it was the reverse in a study amongst students from Afghanistan [13]. The reason for females having better knowledge may be due to caregiving responsibilities.

The majority of respondents were aware of the importance of masks to prevent infection, as per World Health Organization guidelines. However, carelessness around their use, such as not covering the nose, was reported by 46% graduates in our study. The reasons given were discomfort and difficulty in breathing. Similar issues have been noted in studies across the globe. Other preventive practices such as the use of sanitizer for surface disinfection and social distancing were observed by 71% of participants in a report from UAE. However, only 54% of participants reported following these practices in our study. [22] In our study, only 45.22% of participants practiced hand washing for 20 seconds. This was similar to 44.6% reported in a study from Afghanistan [13] but less than figures from Kenya [10], UAE [22] and Malaysia (88%) [20]. Such differences arose as many of our participants thoroughly washed their hands frequently but not for the prescribed 20 seconds. The practice of avoiding crowded places was high in studies from Malaysia (84%) .[20] However, the same preventive practice was not observed in our study, similar to findings from Afghanistan[13]. Knowledge about the importance of vaccination was high, 65% in our study and 70% in youths from Bangladesh.[23] However, the remaining participants had a resistance to take the vaccine especially if they suffered from COVID-19. An explanation for such behaviour given by the young graduates was their perception that infected young persons will recover easily, a mindset labelled "Optimism Bias". Similar findings were reported in a study from Taiwan [24] and in another from Southeast Asia.[12]The introduction of vaccines in 2022 in India, may be the basis for prevailing misconceptions, and also the reason for an observed reduction in precautions taken to avoid infection. Adequate and appropriate scientific knowledge which dismantle the misconceptions, facilitate decision-making around preventive behaviours.[25]. A global survey [has] explicitly explained that preventive behaviours are influenced by the socioeconomic status of the population residing in the country. The awareness among the population about COVID-19 and the knowledge about effective behavioural strategies are highly diversified due to cultural and regional variations across the country amongst the youths.[26] Behaviours are determined by the strength of the relationship between knowledge, perception and practice (KPP). The final outcome is governed by the belief about the effectiveness of the preventive behaviour vis a vis the perceived risk to the individual. Some participants, though aware of the morbidity caused by COVID-19, were ready to take calculated risks by not practicing preventive behaviour. In our study, a positive correlation existed between these three factors (KPP). However, perception was significantly more associated with practicing preventative behaviours than knowledge. In contrast, this phenomenon did not exist in studies from Southeast Asia [11], South Korea [17 and Indonesia [26]. Here, knowledge was the predictor, directly affecting both perception and practice. A scooping review based on studies from many countries in sub-Sahara Africa [27] interpreted that disseminating scientific knowledge to youths by the health authorities was the key to build confidence and a positive attitude towards practice of preventive behaviour . As youths are digitally savvy 73% reported preferring social and electronic media as a source of information regarding COVID-19. However, trustworthy sources such as the WHO site were accessed by only 53%. The same [pattern] was noted amongst university students across Asia,[11] Africa[27] and UAE [21]. Figures varied from 73% to 90%. Social media can be a problem due to information overload and

misleading statements, also reported from South Korea[17 and] Malaysia [19]. These factors also contribute to the development of a negative attitude amongst the youths. Thus, the national authorities should ensure that credible information is being circulated across all types of media with some legislation in place to control misinformation.

CONCLUSION & RECOMMENDATIONS

COVID-19 helped to expose the strengths and weaknesses in the public health system of every country and the readiness to deal with epidemics of unknown organisms. Among youths, social media emerged as the most sought after platform. National Health Authorities should direct their messages accordingly and have legislation to thwart wrong information circulating on social media. Once armed with accurate knowledge the youths will contribute to and support the activities towards containment of any epidemic or pandemic. For future reference, the awareness among the youths could be strategized as the youths are the future of the generation. Their behaviour could impact the Nation's health and thus disability adjusted life years among any kind of pandemic hit in the nation.

LIMITATIONS

The limitation of this study was that we could analyse the association between various demographic variables affecting the Covid- 19 behaviour of the youths during Pandemic. This could have made the significance of the article much more.

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