

Perceived risk of COVID-19 in Central Indian population

Noopur Kokane (✉ nkokanegupta@gmail.com)

Dr. Rajesh Ramdasji Kambe Dental College and Hospital, Akola.

Vandana Kokane

V.S.P.M Dental College Nagpur

Jasleen Kaur

V.S.P.M Dental College Nagpur

Research Article

Keywords: COVID-19, risk perception, trust in authorities

Posted Date: March 11th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-287603/v1>

License:  This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Background: risk perception influences the behavior of the people. With gradual unlocking in India it is important to understand the perceived risk of people for COVID-19 issue as it might influence number of new positive cases in India.

Material and method: this was an online survey which measured the perceived risk under two domain, risk perception of disease and trust people have in authorities and themselves to fight against COVID-19. SPSS 23.0 was used for data analysis.

Result: Total sample size is 797. Only participants above age of 60 have high risk perception. But overall risk perception is low. All have high trust in scientist to develop an effective vaccine soon. The overall trust of participants is high which resulted in low risk perception. According to our study participants have low perceived risk.

Conclusion: with low perceived risk, there are chances of increase of cases in COVID-19 positive patients. And people should not be misled by false sense of immunity and authorities should be prepared for second wave.

Introduction

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which causes coronavirus disease (COVID-19), was first identified in December 2019 in Wuhan city China, which latter spread globally. The first SARS-CoV-2 positive case in India was reported on January 30th, on same day the WHO declared COVID-19 a Public Health Emergency of International Concern¹.

India implemented a complete national lockdown on March 25 2020. The lockdown continued till 68 days.

But this lockdown has severely affected everyone emotionally, as well as financially. Hence on June 1, 2020, the complete lockdown was lifted and relaxations provided through federal (union) directives to the states and union territories (UT). During this period the COVID-19 cases were on rise, but instead going for lockdown 2.0 India went for unlocks 2.0 and 3.0 with restriction. This was followed by unlock 4.0 in September.

Now the fate of COVID-19 is in hands of people and how they adapt to this new normal. Preventive behavior developed by the population is essential in the face of the risk of COVID-19 infection. However, preventive measures will depend on the risk perception acquired².

Risk perceptions refer to people's beliefs and feelings about the possibility of disease or other harms to health. Perceived risk is a key predictor of both motivation to take protective action, and subsequent performance of health behaviors geared at alleviating the threat³. From the previous pandemic, we have

learned that people's behavior can fundamentally influence and alter the spread of a pandemic which is influenced by the public having accurate perceptions of personal and societal risk factors⁴.

The literature has shown that in times of the COVID-19 people may behave so differently than their normal behaviors. Thus, risk perception of COVID-19 is potentially a significant determinant of the pandemic evolution, as it could influence the number of new positive cases⁵. Hence accurate public risk perceptions are critical to effectively managing public health risks. In this study, we tried to find out the perceived risk of the general public by checking two parameters their risk perception and their trust in agencies to fight COVID-19 infection.

Methods

Sample

The survey was conducted in Maharashtra state using convenience sampling method. The original perceived risk questionnaire was modified according to Indian population, and was validated a pilot study was conducted to test its readability and content validity. Sample size was 797

Measure

Questionnaire was divided into three domains. First Domain consisted demographic data of participants. The second and third domain consisted of 5 questions in 5-point Likert scale. Second domain asked about perceived likelihood of contracting the virus in near future by themselves, and family members, and their present seriousness and worry about the disease. The third domain measured the trust in government, scientist and medical professionals and efficacy collective and personal both. Higher the trusts lower the perceived risk.

Survey

A Google form of the questionnaire was created. The questionnaire and a small message explaining the aims and objectives of the study were sent to participants. Participants were approached by principal investigator and co-investigator via personal connections and WhatsApp groups from 1 September to 30th September. Timely reminders were sent as well. The participation was voluntary and all had an option of opting out of the study by not filling the questionnaire.

Statistical analysis

Descriptive statistics, frequency, mean and standard deviation were used to describe the data. ANOVA was used to examine the difference between variables. P-value of <0.05 was considered statistically significant. Spss 23.0 was used for data analysis.

Result

Out of 797 responses, majority were male graduates between age group 20-40. Of all respondents 21% of participants, either they themselves or theirs family members have suffered from COVID-19 infection. To analyze the risk perception towards COVID-19, the score of 1-3 was considered as low risk and 4-5 were considered high risk perceived.

Table 1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
I worry about COVID-19 issue	797	1	5	2.61	1.225
I can be affected by COVID-19 in coming days	797	1	5	2.18	1.169
My friends and family will be affected by COVID-19 in coming days	797	1	5	2.21	1.214
COVID-19 will affect many people in my city	797	1	5	3.41	1.420
Getting infected by COVID-19 can be serious	797	1	5	2.53	1.271
I trust the government to deal effectively with the pandemic	797	1	5	3.26	1.239
I trust the Scientists to develop effective vaccine soon	797	1	5	4.22	.997
I trust Medical doctors and nurses	797	1	5	3.72	1.122
The personal actions I take to prevent the spread of COVID-19 are enough	797	1	5	3.65	1.029
Actions taken by my city are enough to prevent spread of COVID-19	797	1	5	3.11	1.163
Total perceived risk	797	1.00	5.00	2.9975	.83575
Total trust	797	1.00	5.00	3.9912	.91122

Note; 1=strongly disagree, 5= strongly agree.

Table 1 shows data on overall mean score for all questions. Participants are not worried about COVID-19 anymore and have a neutral behavior towards being worried about COVID-19 issue. Majority do not think that they or their family members could get infected by COVID-19 virus in coming days. However majority think that many people in their city may get infected by COVID-19 virus in coming days. Majority do not

think that getting infected by virus can be serious. Participants have a positive response towards the government and city administrates to handle the COVID-19 issue. Majority have high level of trust in scientist to develop effective vaccine very soon. Participants have trust on medical doctors and nurses as well as themselves. Overall perceived risk is low among the participants and the trust is high.

Table 2 Distribution of risk perception.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	P- value
Age	20-40	7	97	176	60	2	0.001
	40-60	7	103	167	39	5	
	Above 60	0	4	39	65	28	
Gender	Male	7	109	237	80	18	0.043
	Female	7	95	145	84	15	
Education	Intermediate and below	0	12	25	15	3	0.237
	Graduate and below	9	120	193	66	20	
	Postgraduate	5	72	164	83	10	
Have you or your family member suffered from COVID-19	No	12	171	302	123	19	0.008
	Yes	2	33	80	41	14	

Table 3 Distribution of trust

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	P- value
Age	20-40	2	23	57	142	118	0.825
	40-60	0	27	50	144	98	
	Above 60	1	11	26	57	41	
Gender	Male	2	40	78	190	141	0.582
	Female	4	21	55	153	116	
Education	Intermediate and below	0	1	22	12	20	
	Graduate and below	3	53	35	174	143	0.001
	Postgraduate	0	7	7	157	94	
Have you or your family member suffered from corona	No	3	56	107	269	192	0.045
	Yes	0	5	26	74	65	

Table 2 shows distribution of total perceived risk and demographic data. There is statistical significance in perceived risk and age (p-value 0.001) participants above 60 have higher perceived risk as compared to others. There is also statistical significance in group who has suffered from COVID-19 before and total perceived risk (0.008). However no statistical significance was seen in gender and education with total perceived risk. Table 3 shows distribution of trust and demographic data. Statistical significance was seen only between education and over all trust (0.001). No statistical significance was seen between age, gender or previous history of COVID-19 infection and total trust.

Discussion

By now almost everybody is aware of the COVID-19 issue and acquired enough knowledge to prevent the spread of disease, the government has made various law like mandatorily wearing a mask in public places, and penalties for violating the terms of quarantine or not wearing a mask when in public or other such advisories like frequently washing hands. But now what is needed from the public is a change in attitude which influences precautionary behavior. Risk perception is a feature of protection-motivation theory⁶. That might influence the public's willingness to adopt health-protective behaviors during

pandemics, including frequent hand washing, physical distancing, avoiding public places, and wearing face masks.

The worry of acquiring a disease can influence the perceived risk of a pandemic. It is a response to a threat, which can predict perceived risk influencing protective behaviors⁷. According to our study, the majority are not worried about the COVID-19 issue. the majority are not worried that they themselves or their family member may be infected by the virus. Our finding does not match with previous studies which state that people are worried about getting infected by COVID-19⁸. According to our study, people think that getting infected by COVID-19 cannot be serious, this may be because the majority of our participants were of age group 20-40 and the symptoms of corona are not too severe in the young age group. An ironic finding of our study is the majority feel that many people of their city may get infected by the COVID-19 virus but they themselves or their friends and family cannot get infected by the virus. With this attitude, people are less likely to adopt self-protective behavior.

Trust is one major factor that contributes to shaping an accurate risk perception of the disease. According to the Trust and Confidence Model, trust plays an important part in managing a threat by affecting the person's judgments about the risks and the related benefits. Trust can influence the behavior for adopting recommended measures⁹. In our study majority of participants have shown trust in the government to deal effectively with the pandemic. Participants have a huge amount of trust in scientists to develop an effective vaccine soon. Our findings are consistent with previous studies where people have a positive attitude towards the COVID-19 vaccine¹⁰.

Previously researchers have found that in the past few weeks, doctors across India have been experiencing a lot of unsolicited behavior from the general population¹¹. But in our study, we found that people have trust in doctors and nurses to provide proper treatment for corona patients. The majority of people feel that the personal actions taken to prevent the spread of COVID-19 are enough but as compare to this the trust in Actions taken by the city are not enough to prevent the spread of COVID-19. The overall trust in government, scientists, doctors, city administrative, people, and themselves is high. Previous studies have shown that the more general trust the less is perceived risk of the person⁴. With low risk perception and high trust, it can be said that total perceived risk is low among people. Similarly he study conducted in Europe also suggested that the perceived risk for COVID-19².

Conclusion

According to our study, the total perceived risk is less and the trust domain is high this shows that the overall perceived risk is very low in people, during unlocking. Hence it will be difficult to observe the precautionary behavior of people. Since major coronavirus outbreaks often occur in waves, surviving the primary wave could also be amid a misleading sense of immunity. So the only hope in the near future is developing herd immunity and the development of a vaccine. Otherwise, the rise in COVID positive patients will be uncontrollable.

Limitation

As the study was online, and the questionnaire was in English we could not reach to masses especially the vulnerable class of less educated and aged people.

Declarations

Ethics: This study was approved by ethical committee of V.S.P.M DCRC. As the study is questionnaire based study no approval letter was given.

Consent: As far statement of participants consent is concern, there was a short message attached with questionnaires that agree to fill the form is giving consent.

Competing Interest: Authors declare no competing interests.

References

1. Kumar SU, Kumar DT, Christopher BP, Doss CGP. The Rise and Impact of COVID-19 in India. *Front Med (Lausanne)*. 2020;7:250. Published 2020 May 22. doi:10.3389/fmed.2020.00250
2. Orte, C.; Sánchez-Prieto, L.; Domínguez, D.C.; Barrientos-Báez, A. Evaluation of Distress and Risk Perception Associated with COVID-19 in Vulnerable Groups. *J. Environ. Res. Public Health* **2020**, *17*, 9207.)
3. Ferrer RA, Klein WMP, Avishai A, Jones K, Villegas M, Sheeran P. When does risk perception predict protection motivation for health threats? A person-by-situation analysis. *PLoS One*. 2018;13(3):e0191994. Published 2018 Mar 1. doi:10.1371/journal.pone.0191994
4. Sarah Dryhurst, Claudia R. Schneider, John Kerr, Alexandra L. J. Freeman, Gabriel Recchia, Anne Marthe van der Bles, David Spiegelhalter & Sander van der Linden(2020) Risk perceptions of COVID-19 around the world, *Journal of Risk Research*, 23:7-8, 994-1006, DOI: [10.1080/13669877.2020.1758193](https://doi.org/10.1080/13669877.2020.1758193)
5. Yıldırım M, Güler A. Factor analysis of the COVID-19 Perceived Risk Scale: A preliminary study. *Death Stud.* 2020 Jun 25:1-8. doi: 10.1080/07481187.2020.1784311. Epub ahead of print. PMID: 32584201.
6. Ferrer RA, Klein WMP, Avishai A, Jones K, Villegas M, Sheeran P. When does risk perception predict protection motivation for health threats? A person-by-situation analysis. *PLoS One*. 2018;13(3):e0191994. Published 2018 Mar 1. doi:10.1371/journal.pone.0191994
7. Goodwin R, Gaines SO, Myers L, Neto F. Initial psychological responses to swine flu. *Int J Behav Med.* 2011;18(2):88-92. <https://doi.org/10.1007/s12529-010-9083-z> PMID: 20195809 PMCID: PMC7090401.
8. He, S., Chen, S., Kong, L. et al. Analysis of Risk Perceptions and Related Factors Concerning COVID-19 Epidemic in Chongqing, China. *J Community Health* (2020). <https://doi.org/10.1007/s10900-020-01090-0>

00870-4

9. Khosravi M. Perceived Risk of COVID-19 Pandemic: The Role of Public Worry and Trust. Electron J Gen Med. 2020;17(4):em203. <https://doi.org/10.29333/ejgm/7856>
10. Pogue K, Jensen JL, Stancil CK, Ferguson DG, Hughes SJ, Mello EJ, Burgess R, Berges BK, Quaye A, Poole BD. Influences on Attitudes Regarding Potential COVID-19 Vaccination in the United States. Vaccines (Basel). 2020 Oct 3;8(4):582. doi: 10.3390/vaccines8040582. PMID: 33022917; PMCID: PMC7711655.
11. Jakhar, Deepak, and Ishmeet Kaur. "Callous attitude toward doctors during COVID-19." Dermatologic therapy, e13885. 23 Jun. 2020, doi:10.1111/dth.13885

Figures

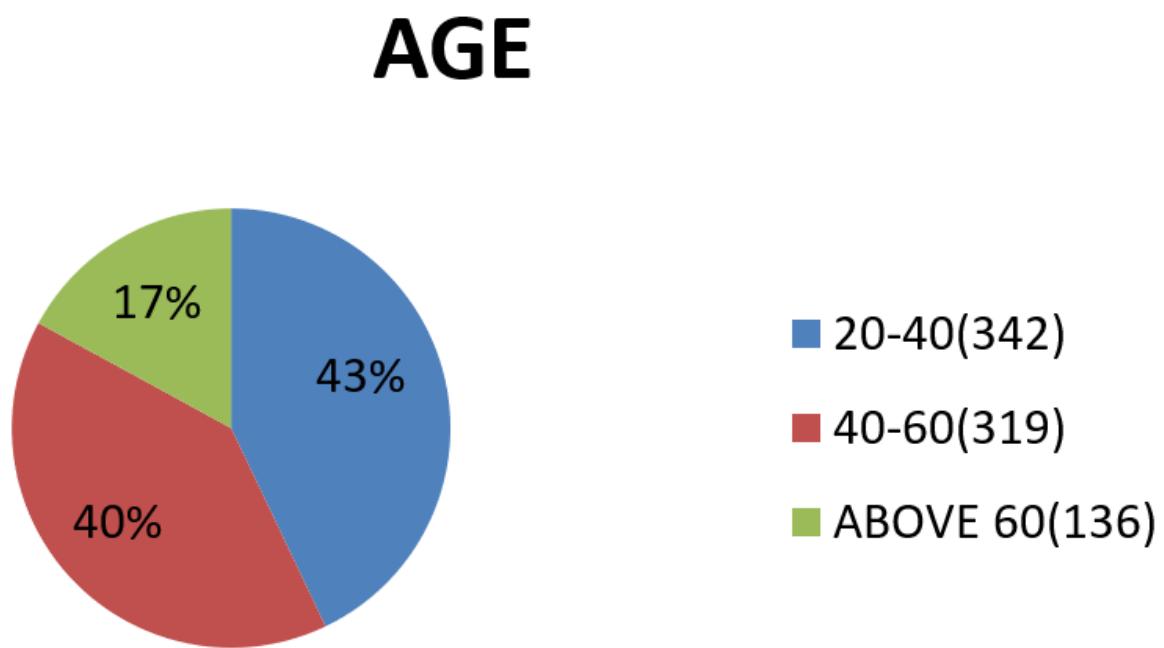


Figure 1

Distribution of age group

GENDER

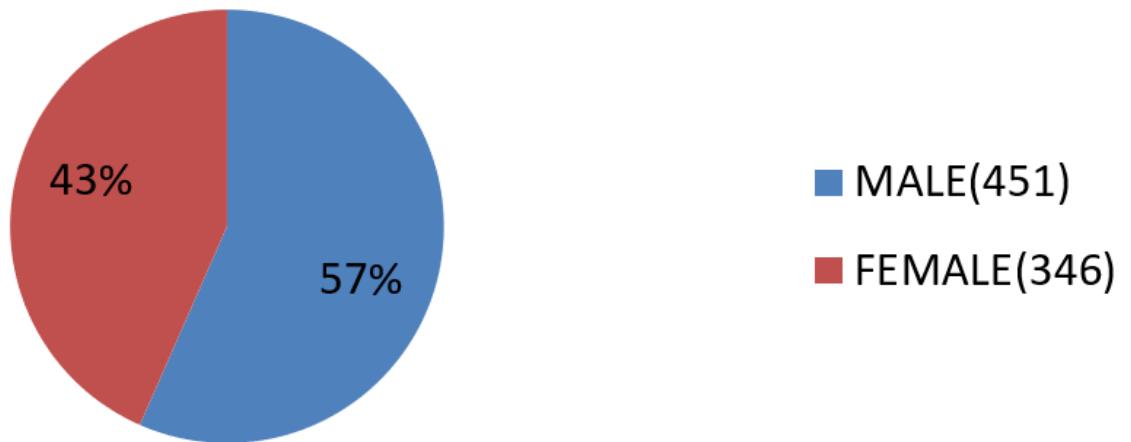


Figure 2

Distribution of gender

EDUCATION

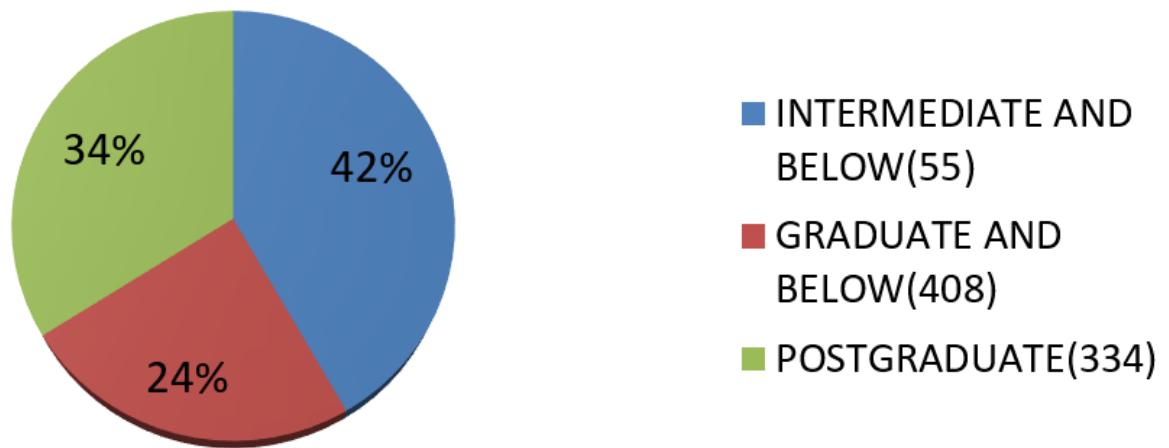


Figure 3

Distribution of data by education

SUFFERED FROM COVID-19

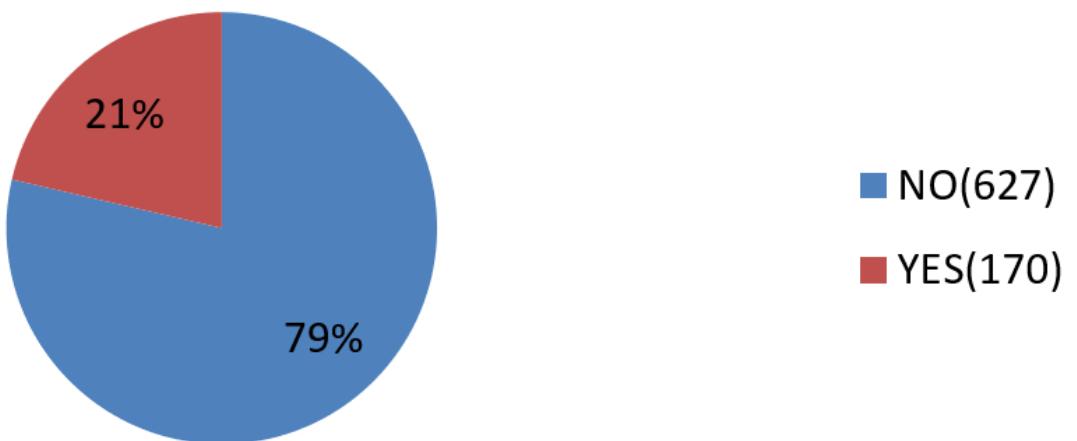


Figure 4

Distribution on previous history of COVID-19 infection