Research Article

Perception of Pandemic Related Anxiety Among Indian Adults: A Cross-Sectional Study During COVID-19 Pandemic

Lipilekha Patnaik[1], Saswatika Beura[2], Sibabratta Patnaik[3], Sumitra Pattanaik[4], Trilochan Sahu[5]

[1]Professor, Community Medicine, IMS and SUM Hospital, Siksha 'O' Anusandhan Deemed to be University, Bhubaneswar, India; [2]PhD Scholar, Public Health, Siksha 'O' Anusandhan Deemed to be University, Bhubaneswar, India; [3]Associate Professor, Pediatrics, Kalinga Institute of Medical Sciences, KIIT University, Bhubaneswar, India; [4]Professor, Community Medicine, IMS and SUM Hospital, Siksha 'O' Anusandhan Deemed to be University, Bhubaneswar, India; [5]Professor & Head, Community Medicine, IMS and SUM Hospital, Siksha 'O' Anusandhan Deemed to be University, Bhubaneswar, India.

ABSTRACT

Background: Coronavirus disease 2019 (COVID-19), is the biggest public health threat to the whole world to date. The whole world is in a state of severe stress and anxiety because of this deadly pandemic.

Objective: To assess the anxiety of the general public for COVID-19 and to analyse their preparedness.

Materials and Methods: It was a cross-sectional study conducted in March 2020 among Indian adults more than 18 years of age. Data of 505 persons were included in analysis. A google form was created and sent to the e-mail address and WhatsApp groups. Data were collected regarding anxiety related to COVID19, their preparedness and level of trust towards information given.

Results: Among participants, 46.1% had anxiety about being infected and 50.1% had anxiety about family members being infected and 56.7% had hesitation to meet with others. About one-third of participants had mental exhaustion and 22.8% had insomnia. More than 80% participants had purchased mask, 96.8% had purchased hand sanitizers/ hand wash, 75.8% had kept necessary medicines, 62% had kept groceries and 70% had restricted the access of outsiders to their home. About 99% follow the advice given by public health authority,92.5% of participants stay at home. More than 90% maintain a social distance of 2 metres, about 97% of participants personally comply, make children and family members comply and encourage friends to comply with official recommendations.

Conclusion: Anxiety due to COVID-19 pandemic is a matter of concern. To improve their mental health, online health education and counselling can be offered by health professionals.

Key Words: Corona, Mental health, Outbreak, Stress, COVID preparedness

INTRODUCTION

Coronavirus disease 2019 known as "COVID-19", now is the biggest public health threat to the whole world. People are trying to save themselves from this widest pandemic of the 21st century. The first case of this communicable disease was detected in December 2019[1]in Wuhan, china and now this virus has spread to more than 200 countries like including India. According to the WHO situation report up to 5th April 2020, a total of 11,33,758 were affected and 62,784 deaths occurred worldwide. As of 5th April 2020, 3,577 positive corona cases found in India and 83 deaths have been reported.[2] Fever, dry cough, fatigue, myalgia and breathing difficulty are the major symptoms. The lung is the most affected organ by COVID-19 because the virus accesses host cells via the enzyme Angiotensin-Converting Enzyme-2 (ACE2), which is abundant in type II alveolar cells.[3] As the alveolar disease progresses, respiratory failure might develop and death may follow.[4]

People desperately need preventive measures to reduce the chance of infection; which include staying at home, maintaining social distancing, avoiding crowded places, wearing masks, washing hands with soap and water, practising good

Corresponding Author:
Lipilekha Patnaik, Department of Community Medicine IMS and SUM Hospital Bhubaneswar, Odisha, Institute of Medical Sciences & SUM Hospital, Siksha 'O' Anusandhan Deemed to be University, Bhubaneswar, India; Ph: 919437322268; Email:drlipilekha@yahoo.co.in

respiratory hygiene and avoiding touching the eyes, nose, or mouth with unwashed hands.[5] Till now, there is no specific medicine to prevent or treat (COVID-19). In this life-threatening situation, people are at risk of developing psychological distress and other mental health symptoms. The ever-increasing number of confirmed and suspected cases, the stress of job security, limited availability of personal protection equipment, widespread media coverage, lack of specific drugs, and feelings of being inadequately supported may all contribute to the mental burden of people. Viral diseases and associated mental health conditions are now diagnosed among the largest categories of disease risk across the globe.[6] Some studies found that people may experience stress and anxiety for the first time during a pandemic.[7]

A study from the Ebola virus outbreak in Sierra Leone, indicated that increased numbers of people reported mental health and psychosocial problems. Similarly, during the 2009 H1N1 influenza outbreak, many people presented with a variety of emotional symptoms, including somatoform disorders.[8,9,10] So this study was conducted to assess the anxiety of general public for COVID-19 and to analyse their preparedness to fight against this disease.

MATERIALS AND METHODS

A cross-sectional study was conducted over one month in March 2020 among Indian adults. Persons more than 18 years were included in the study after taking informed consent. A total of 510 persons participated. Data of 5 persons were excluded from analysis as they were staying outside India thus data analysed for 505 persons.

The questionnaire to assess pandemic related anxiety was prepared taken into account the studies on Ebola outbreak and H1N1 pandemic.[8,9,10] It was pre-tested on 15 people to identify any difficulty in understanding and modified accordingly. These 15 people were not included in the analysis.

A google form was created through google drive of the primary investigator. One person-one response option was selected. The google form was sent to the e-mail address and WhatsApp groups with a request to fill the google form and to forward to their contacts. In this way, the responses were recorded. Doctors and other health care personnel were excluded from the study thinking that, their knowledge about the disease may influence the results. Data were collected regarding anxiety related to COVID-19, their preparedness and level of trust towards information given by the different agency. The participants were asked to rate their anxiety due to COVID-19 in a 5 point Likert scale ranging from 0 to 4. The participants were asked to rate their level of trust or confidence in a 5 point Likert scale on the information given by physicians, scientists, ministry of health, newspaper, TV, radio, internet and social media.

STATISTICAL ANALYSIS

Data were entered in Microsoft Excel and analysed by SPSS software version 20.0 licensed to the institute. The characteristics of the participants were reported as frequency, percentage, mean, standard deviation, median and interquartile range. The difference in medians was evaluated using the Mann Whitney U test. The difference was considered statistically significant when $P < 0.05$.

RESULTS

The mean age of participants was 33.85 ± 10.22 years ranged from 19 to 72 years. Among them, 66.5% were male, 59% were graduates or postgraduates followed by 34% had professional education. Majority of the participants (34%) were professionals followed by clerks, teachers or technicians. (Table 1) The participants were from Odisha, Maharashtra, Karnataka, Delhi, Assam, Bihar, Gujarat, Telangana, Jharkhand, Haryana, Kerala, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal.

The participants were told to rate their anxiety due to COVID-19 in a 5 point Likert scale ranging from 0 to 4. The mean anxiety score was 15.9 ranging from 0 to 48. The median score and interquartile range (IQR) was 15.0 (7-23). More than half (50.3%) participants had total anxiety score 15.0 or more. The median anxiety score among females was 16.0 which was significantly higher than the total anxiety score among males which was 13.0 (P=0.007, Mann Whitney U test). There was no difference in median total anxiety score between 18-60 years age group and 60 years or more age group.

Among participants, 46.1% had anxiety about being infected and 50.1% anxiety about family members being infected. Among them, 53.1% had anxiety of being infected during commuting ((travelling from home to workplace, 36% had hesitation to work and 56.7% had hesitation to meet with others. The anxiety of being avoided by others and anxiety of being isolated if infected with coronavirus was found among 34.4% participants. 22.8% had insomnia (lack of sleep) and 38.6% had anxiety due to change of quality of work (work from home, change of duty timings etc. Anxiety regarding being protected by the hospital was found in 44.2% and anxiety regarding being protected by national and local governments was found among 54.6% participants. (Table 2) Out of all, 36.4 % participants had reported that they feel mentally exhausted due to the new pandemic

It was observed that more than 80% participants had purchased mask, 96.8% had purchased hand sanitizers/ hand wash, 75.8% had kept necessary medicines, 62% had kept groceries for a long time and about 70% had restricted the access of outsiders (maid, milkman, delivery boy, driver etc) to their home. (Table 3)

When the participants were assessed regarding their behaviour regarding prevention of COVID-19, it was observed that about 99% follow the advice given by public health authorities, avoid public places, avoid gatherings and avoid swimming pools. 92.5% participants stay at home, 96% were not going outside if not essential and 96.8% were not using public transport. More than 90% maintain a social distance of 2 metres, about 95% of participants were using sanitizer and 97% wash hands frequently with disinfectants. 88.7% of participants were trying not to touch face by hand, 86.9% wear a mask in public areas and 93.1% accepted to be quarantined if required. About 97% of participants personally comply, make children/ family members comply and encourage friends to comply with official recommendations. (Table 4)

When the level of confidence regarding different sources of information about COVID-19 was assessed, it was observed that about 65% participants showed their trust on the information given by physicians, scientists and ministry of health followed by newspapers, television and radio. Only 31.9% showed confidence in social media. (Figure 1)

DISCUSSION

COVID-19 is declared as a pandemic which has affected millions and thousands are dying every day all over the world. The Indian government has announced a 21-day lockdown to prevent the spread of COVID-19 in the country. This study was conducted among the general public of India to understand their anxiety and preparedness during the initial stage of this pandemic.

The mean age of participants was 33.85 ± 10.22 years. Among them, 66.5% were male, 59% were graduates or postgraduates followed by 34% had professional education which may be attributed as the study was online in nature. Majority of the participants (34%) were professionals followed by clerks, teachers or technicians. The participants were from all over India.

In our study, we found that more than half (50.3%) participants had total anxiety score 15 or more and the rest half had low-stress score during this health crisis. Taking into consideration the seriousness of the disease, the stress in the Indian public is found to be less. The reason may be many. Most importantly, the incidence of the disease is still not very high in our country and the mortality rate is also low. Secondly, maybe the public is well prepared in advance because the disease came to India about a month later than in other countries, and the government is also continuously educating people. People are also getting lots of information from the media. Staying with family also may have contributed to the low stress. Still another half of the participants were having more stress which is the matter of concern. Speculating the stress and psychological problems, psychiatrists

in India offered free counselling over the phone. A study of mental health summarized that there were important linkages between anxiety and depression and viral diseases such as influenza, varicella-zoster virus, herpes simplex virus, human immunodeficiency virus and hepatitis C.[11] The median anxiety score among females was 16.0 which was significantly higher than the total anxiety score among males which was 13.0 (P=0.007). There was no difference in median total anxiety score between 18-60 years age group and more than 60 year age group. Male gender was significantly associated with lower scores in the revised impact of event scale (IES-R). Other sociodemographic variables including age, parental status, marital status, and household size were not associated with IES-R.[12]

Among participants, 46.1% had anxiety about being infected and 50.1% had anxiety about family members being infected. Among them, 53.1% had anxiety of being infected during commuting. It was observed that 36% had hesitation to work and 56.7 had hesitation to meet with others. The anxiety of being avoided by others and anxiety of being isolated found among 34.4% participants. In a study in china it was found that, when epidemics arise, people with mental health disorders were generally more susceptible to infections for several reasons. Mental health disorders can increase the risk of infections, including pneumonia.[13] About 36.4% had mental exhaustion and 22.8% had insomnia, which may be due to stress-related to this pandemic and 77.2% had adequate sleep. A study on social capital and sleep quality in individuals, those who self-isolated for 14 days during COVID-19 in China found that increased social capital was able to improve sleep quality by reducing anxiety and stress. These findings are supported by previous studies, including the findings reported in 2012 by Valencia-Garcia et al., which confirmed that increased social capital reduced the levels of depression and anxiety.[14,15] About 38.6% had anxiety due to change of quality of work Anxiety regarding being protected by the hospital was found in 44.2% and anxiety regarding being protected by national and local governments was found among 54.6% participants.

When the participants were assessed regarding their behaviour regarding prevention of COVID-19, it was observed that about 99% avoid public places, avoid gatherings and avoid swimming pools. 92.5% of participants stayed at home, 96% were not going outside if not essential and 96.8% were not using public transport. More than 90% maintain a social distance of 2 metres, about 95% of participants were using sanitizer and 97% wash hands frequently with disinfectants. 88.7% of participants were trying not to touch face by hand, 86.9% wear a mask in public areas and 93.1% accepted to be quarantined if required. About 97% of participants personally comply, make children/ family members comply and encourage friends to comply with official recommendations. These satisfactory results may be attributed to steps

taken by Government to motivate public and also awareness campaign by media. This findings of our study were similar to a KAP study on COVID-19 that, the majority of the participants had not visited any crowded place (96.4%) and wore masks when going out (98.0%) during these days.[16] It was a satisfactory result that, 99.2% of respondents were following advice given by the public health authorities of India. According to the Pan American Health Organisation (PAHO), authorities should inform and make people aware of the pandemic. By this, people will prepare and can help to prepare those around them. The community can collaborate with official efforts by the government and other authorities. Once the epidemic is underway, informed people can act more appropriately and better protect themselves and their families. It is essential for communicating risk, and the basic strategy is to create an atmosphere of mutual trust among the population, the public health authorities, and communicators.[17] Indian government have taken proactive measures for national lockdown and expansion of focussed testing, to identify hotspots for isolation, quarantining and care.[18] In this study maximum people (41.8%) had trust (only very confident) on the statement of Health Ministry of India regarding COVID-19 and few participants (14.9%) respondents had trust on social media.

However, realising the stress and anxiety of the people about COVID-19, World Health Organisation and public health authorities around the world shared their support to the general population for their mental and psychological well-being.[19]

CONCLUSION

Anxiety during COVID-19 pandemic was found among half of the participants which is a matter of great concern. To improve their mental health and psychological wellbeing, online health education and counselling can be offered by health professionals. Mental health professionals need to educate the public about common psychosocial consequences, promote healthy behaviour and advice people to lower the exposure to negative news. Media should be advised not to focus on negative aspects of the COVID-19 only on the public platform and to provide positive news coverage with equal importance. Each individual should be encouraged to practice physical exercise and yoga at home for relief of stress and anxiety. It is advisable to the general public; they should be more careful instead of being anxious during the pandemic.

Limitation: This study was online in nature so those people who were not using the internet could not be included and representation of study population was not proportionate from all states of the country, so the results cannot be generalised to all Indians.

REFERENCES

1. World Health Organization. Novel Coronavirus – China - WHO. Disease outbreak news: Update; 12 January 2020. Available at: https://www.who.int/csr/don/12-january-2020-novel-coronavirus-china/en/
2. World Health Organization. Coronavirus disease 2019 (COVID-19). Situation report-76. April 2020. Available at: *www.who.int* › docs › 20200405-sitrep-76-covid-19
3. Letko M, Marzi A, Munster V (2020). "Functional assessment of cell entry and receptor usage for SARS-CoV-2 and other lineage B beta coronaviruses". Nature Microbiology. 5 (4): 562–9.
4. Xu H, Zhong L, Deng J, Peng J, Dan H, Zeng X, et al. "High expression of ACE2 receptor of 2019-nCoV on the epithelial cells of oral mucosa". International Journal of Oral Science. 2020; 12 (1):8.
5. Centres for Disease Control. "Coronavirus Disease 2019 (COVID-19): Prevention & Treatment". Archived from the original on 15 December 2019. Retrieved on 10 February 2020.
6. Prince M, Patel V, Saxena S, Maj M, Maselko J, Philips MR et al. No health without mental health. Lancet. 2007;370:859-77.
7. Morin A. How to Cope With Anxiety About Coronavirus (COVID 19)Learn strategies for managing stress during a pandemic By Amy Morin, LCSW. Verywell Mind. Updated on March 20, 2020. Available at: *www.verywellmind.com* › News › Coronavirus News
8. Kamara S, Walder A, Duncan J, Kabbedijk A, Hughes P, Muana A. Mental health care during the Ebola virus disease outbreak in Sierra Leone. Bulletin of the World Health Organization. 2017;95(12):842-7.
9. Page LA, Seetharaman S, Suhail I, Wessely S, Pereira J, Rubin GJ. Using electronic patient records to assess the impact of swine flu (influenza H1N1) on mental health patients. J Ment Health. 2011;20(1):60–9.
10. Taha S, Matheson K, Cronin T, Anisman H. Intolerance of uncertainty, appraisals, coping, and anxiety: the case of the 2009 H1N1 pandemic. Br J Health Psychol. 2014;19(3):592–605.
11. Coughlin SS. Anxiety and depression: linkages with viral diseases. Public Health Reviews. 2012;34(2):7.
12. Cuiyan Wang, Riyu Pan, Xiaoyang Wan, Yilin Tan, LinkangXu, Cyrus SH and Roger CH. Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China. Int. J. Environ. Res. Public Health.2020;17(5):1729.
13. Seminog OO, Goldacre MJ. Risk of pneumonia and pneumococcal disease in people with severe mental illness: English record linkage studies. Thorax.2013; 68(2): 171–76.
14. Xiao H, Zhang Y, Kong D, Li S, Yang N. Social Capital and Sleep Quality in Individuals Who Self-Isolated for 14 Days During the Coronavirus Disease 2019 (COVID-19) Outbreak in January 2020 in China. Med Sci Monit. 2020;26:e923921.
15. Valencia-Garcia D, Simoni JM, Alegría M, Takeuchi DT. Social capital, acculturation, mental health, and perceived access to services among Mexican American women. J Consult Clin Psychol. 2012;80(2):177-85.

16. Bao-Liang Zhong, Wei Luo, Hai-Mei Li, Qian-Qian Zhang, Xiao-Ge Liu, Wen-Tian Li, Yi Li. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. Int JBiol Sci. 2020;16(10):1745-52.

17. Sandman PM, Lanard J. Bird Flu: Communicating the Risk. Perspectives in Health, the Magazine of the Pan American Health Organization. 2005; 10(2).

18. Narahari VK, Sowjanya M, Vishwanath BA, Saravanan J. COVID-19 – A Pandemic & a Policy Driver to Healthcare System in India. International Journal of Current Research and Review. 2020; 12(14):77-82.

19. World Health Organisation. Mental health and psychosocial considerations during the COVID-19 outbreak.18th March 2020. Available at: www.who.int › docs › default-source › coronavirus

Table 1: Socio-demographic profile of the participants (n = 505)

Variable	Number (%)
Age (Mean ± SD)	33.85 ± 10.22
Gender	
Male	336 (66.5)
Female	169 (35.5)
Education status	
Professional	175 (34)
Graduate or postgraduate	304 (59)
Intermediate or diploma	15 (2.9)
Matric	11 (2.1)
Occupation	
Professionals	175 (34)
Clerks, teachers and technicians	159 (31.4)
Skilled worker or sales worker	52 (10.3)
Business	24 (4.8)
Homemaker	43 (8.5)
Student	45 (8.9)
Unemployed	7 (1.4)

Table 2: Anxiety regarding COVID-19 (n = 505)

Anxiety (%)	Not at all	Rarely	Sometimes	Often	Always
Anxiety about being infected	179 (35.4)	93 (18.4)	140 (27.7)	40 (7.9)	53 (10.5)
Anxiety about family members being infected	178 (35.2)	74 (14.7)	134 (26.5)	54 (10.7)	65 (12.9)
Feeling of being infected during commuting	174 (34.5)	63 (12.5)	129 (25.5)	64 (12.7)	75 (14.9)
Hesitation to work	233 (46.1)	90 (17.8)	99 (19.6)	41 (8.1)	42 (8.3)
Hesitation to meet with others	122 (24.2)	97 (19.2)	145 (28.7)	70 (13.9)	71 (14.1)
Feeling of being avoided by others	240 (47.5)	91 (18.0)	102 (20.2)	35 (6.9)	37 (7.3)
Anxious of being isolated if infected with corona virus	240 (47.5)	91 (18.0)	102 (20.2)	35 (6.9)	37 (7.3)
Insomnia (lack of sleep)	301 (59.6)	89 (17.6)	61 (12.1)	30 (5.9)	24 (4.8)
Burden of change of quality of work (work from home, change of duty timings etc)	225 (44.6)	86 (17.0)	107 (21.2)	48 (9.5)	39 (7.9)
Feeling of being protected by hospital	193 (38.2)	89 (17.6)	106 (21.0)	49 (9.7)	68 (13.5)
Feeling of being protected by national and local governments	148 (30.2)	81 (16.0)	128 (25.3)	51 (10.1)	97 (19.2)

Table 3: Preparedness (n = 505)

Preparedness	Yes	No
Purchased mask	405 (80.2)	100 (19.8)
Purchased hand sanitizers/ hand wash	489 (96.8)	16 (3.2)
Kept necessary medicines	383 (75.8)	122 (24.2)
Kept groceries for a long time	313 (62.0)	192 (38.0)
Restricted the access of outsiders (maid, milkman, delivery boy etc) to their home	353 (69.9)	152 (30.1)

Table 4: Behaviours in the event of COVID-19 (n = 505)

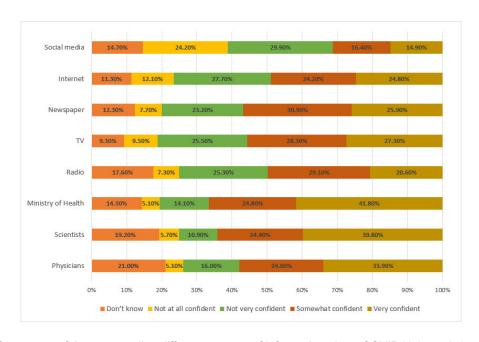| Preparedness	Yes	No
Follow advice given by public health authorities	501 (99.2)	4 (0.8)
Avoid public places (restaurants, stadiums, theatres)	500 (99.0)	5 (1.0)
Avoid gatherings	501 (99.2)	4 (0.8)
Avoid swimming pools	501 (99.2)	4 (0.8)
Stay at home	467 (92.5)	38 (7.5)
Not going outside if not essential	485 (96.0)	20 (4.0)
Not using public transport	489 (96.8)	16 (3.2)
Maintain distance of 2 met from others	458 (90.7)	47 (9.3)
Using sanitizer	479 (94.9)	26 (5.1)
Wash hands frequently with disinfectants	490 (97.0)	15 (3.0)
Trying not to touch face by hand	448 (88.7)	57 (11.3)
Wear a mask in public areas	439 (86.9)	66 (13.1)
Accept to be quarantined	470 (93.1)	35 (6.9)
Would personally comply	490 (97.0)	15 (3.0)
Would make children/ family members comply	488 (96.6)	17 (3.4)
Would encourage friends to comply with official recommendations	494 (97.8)	11 (2.2)

Figure 1: Level of trust or confidence regarding different sources of information about COVID19 (n = 505).