Palestinian Medical and Pharmaceutical Journal (PMPJ). 2023; 8(3): 289-296

# Perception of risk, fear, compliance, and social stigma associated with COVID-19 pandemic among dental patients of Bhubaneswar, Odisha

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Received: (6/12/2022), Accepted: (25/12/2022). DOI: https://doi.org/10.59049/2790-0231.1248

## Abstract

While the ongoing COVID-19 (Coronavirus disease of 2019) pandemic has destabilized the health system worldwide, its psychological and social impact on those affected by the virus cannot be undermined. This study aimed to assess compliance to following general preventive measures, risk, and stigma associated with COVID-19 among the study population. The present study was a cross-sectional study, and it was conducted among 300 patients from a dental hospital in Bhubaneswar through interviewing patients in the hospital based on a 22-item questionnaire collecting socio-demographic data and consisting of questions concerning patients' perception of risk and social stigma regarding COVID-19. The statistical analysis was performed using the Chi-square test using SPSS version 23 at a 5% significant level. Females were found to be apprehensive about buying fruits and vegetables from vendors and going to their place of work due to the risk of COVID infection. Socioeconomic status (SES) was significantly associated with compliance, risk, fear, and stigma. Risk of infection was seen among 41.6%, and 10% agreed to treat those who had symptoms, tested positive, or recovered from COVID-19 infection differently. Even though the risk for infection and compliance to follow preventive measures in the study population was low, stigma towards those who had symptoms or recovered from COVID was observed. Hence, steps should be taken to highlight the importance of following preventive measures and addressing the stigma associated with the infection.

**Keywords:** COVID-19, SARS-COV-2 Infection, Stigma, Risk, Fear.

**Running title:** Risk, Fear, Compliance and Social Stigma Associated with Covid-19 Outbreak.

## INTRODUCTION

Most countries have been affected by the novel coronavirus 2019, which WHO (World Health Organisation) on 11th March 2020 declared a pandemic. COVID-19 (Coronavirus disease of 2019) spread worldwide and took millions of lives. The rapid spreading of novel Coronavirus cases is challenging worldwide public health [1]. As it is a new disease, immunity against COVID-19 is still not developed; hence most people are prone to developing the infection. Neither treatment nor vaccine is available yet, so social distancing measures and hand hygiene are common approaches to reduce the rate of infection. Different countries have issued guidelines to be followed [2]. Lockdown was declared in almost every country for the first 2 months. India also imposed a lockdown from 22nd March 2020 till 31st May 2020. To avoid infection of this disease, governmental health agencies recommended quarantine, social distancing, and hand hygiene protocols. Following the rules and regulations has been shown to have the greatest success rates in avoiding the disease [2,3].

Social distancing measures effectively stop the ongoing spread of COVID-19 [3]. The distancing rule for India is one meter (three feet) from others [4]. The closure of schools and colleges, bans of large gatherings, and suspension of non-essential businesses were implemented to restrict the transmission of the virus. With time, the severity of the virus successfully reduced the wave of infection by "flattening the curve" [5,6]. The universal use of masks also helped reduce disease transmission [7, 8]. Risk perception is different for

different cultural backgrounds. Perception of risk may affect people's behavior and attitude toward health (2). Less knowledge regarding pandemics may lead to failure in following preventive measures. People need to know the root cause of the problem to deal with this pandemic [9]. The outbreak of severe acute respiratory syndrome coronavirus (SARS-COV-2 (COVID-19)) crossed over 9 crores of confirmed cases of infections by January 2021 in the world [10]. Fear of getting affected by this disease may lead to depression. Fear, anxiety, and physical stress also cause psychological stress, panic attacks, and post-traumatic stress [11]. Success in breaking the chain of transmission depends upon public compliance and wearing masks [12]. Stigma related to the disease is often seen towards an infected person, and usually, it is due to fear of social isolation and discrimination [13]. We conducted a cross-sectional study to assess risk, fear of testing and social isolation, compliance for social distancing and personal hygiene, and stigma related to COVID-19 among the patients coming to a dental Outpatient Department (OPD).

## METHODS

### *Study design*

A cross-sectional study for compliance, risk and fear associated with the COVID-19 outbreak was conducted among 300 patients coming for check-ups in a private dental institution in Bhubaneswar, India. The sample size was estimated with the prevalence of stress due to COVID-19 estimated at 26% using the formula $n = z^2 (p \times q) / d^2$ (where $z = 1.96$ and $d = 5$). Survey questions were prepared using an internet platform (www.google-forms.com), and data were collected by purposive sampling. The study was conducted from August to October 2020.

### *Data collection*

The initial part of the questionnaire included demographics like age, gender, socio-demographic data, education, and occupation were recorded according to the Socioeconomic scale (SES). [14] The questionnaire containing 22 items was used to assess the compliance, risk, and fear associated with COVID-19 among the study population. In this, compliance was assessed by 8 items, 1 item measures risk, fear by 8 items, and stigma by 5 items. The questionnaire from a study conducted by Samuel Tomczyk et al. [15] was used, and modifications were made after conducting the pilot study of 25 participants. Responses to the questions were recorded on the form of a 5-point Likert scale with categories ranging from 1= "Highly unlikely"/"Not apprehensive at all" to 5= "Highly likely"/"Very apprehensive."

### *Ethical clearance*

The study protocol was reviewed by the Ethical Committee of the affiliated institution, and ethical clearance was obtained. The study was completely anonymous, with no disclosures of personal details. Informed consent was taken from all the participants before filling up of questionnaire. Those who did not give consent were unwilling to participate or incompletely filled out questionnaires were excluded. This study was approved by the Institutional Review Board of the Institute of Dental Sciences vide letter number SOA/IDS/IRB 2022/9-I.

### *Statistical analysis*

The collected data were analyzed using a statistical package for social sciences (SPSS) software, version 23.0 (SPSS Inc., Chicago, IL, USA). The Kolmogorov-Smirnov test was used to check the normality of the data collected. Descriptive statistics were done. Chi-square tests were used to associate the responses with age, gender, and socioeconomic status. A less than 5% p-value was considered statistically significant.

## RESULTS

### Socio-demographic profile

The present study was undertaken amongst patients visiting a dental hospital in Bhubaneswar. The study population comprised 300 subjects from the dental Out Patients Department with a mean age of 38.60±0.91 years. The majority of the patients were males (60.3%), while the female participants constituted (39.7%) of the sample. Among the respondents, most were young people; 38% belonged to the age group of 20–30 years and the upper-lower (56.67%) socioeconomic group (Table 1).

**Table (1):** Socio-demographics of the study population.

| VARIABLES | NUMBER(n) | PERCENTAGE (%) |
|---|---|---|
| AGE GROUP (in years) | | |
| <20 | 20 | 6.67 |
| 20-30 | 114 | 38.00 |
| 31-40 | 44 | 14.67 |
| 41-50 | 36 | 12.00 |
| 51-60 | 55 | 18.33 |
| >60 | 31 | 10.33 |
| Total | 300 | 100.00 |
| GENDER | | |
| Male | 181 | 60.33 |
| Female | 119 | 39.67 |
| Total | 300 | 100.00 |
| SOCIO ECONOMIC STATUS | | |
| Upper | 1 | 0.33 |
| Upper Middle | 72 | 24.00 |
| Lower Middle | 44 | 14.67 |
| Upper Lower | 170 | 56.67 |
| Lower | 13 | 4.33 |
| Total | 300 | 100.00 |

***Compliance, fear, stigma, and risk concerning covid-19***

The study population was low in compliance, as can be seen from table no 2 where half of them did not follow social distancing, and only 16.3% wanted to avoid crowded places. However, hand hygiene was considered important and adhered to by 49.3%. Higher compliance was seen in higher socioeconomic classes. The risk of being infected with COVID-19 was seen in 41.6% of the study population and was found to be influenced by SES. Females were found to be apprehensive about buying fruits and vegetables from vendors and going to their place of work due to the risk of COVID infection. Reluctance about disclosing the test results was seen in 47.3%, and 10% agreed to treat those who had symptoms, tested positive, or recovered from COVID-19 infection differently. The stigma associated with COVID-19 was found to be 48.2%. Fear and stigma regarding COVID-19 were significantly associated with socioeconomic status (SES) (Table 2).

**Table (2):** Association variables according to gender and socioeconomic status.

| Variables | Highly Unlikely n(%) | Unlikely n(%) | Neutral n(%) | Likely n(%) | Highly Likely n(%) | GENDER(p-value) | SES(p-value) |
|---|---|---|---|---|---|---|---|
| **COMPLIANCE** | | | | | | | |
| **Social distancing** | 29 (9.6) | 120 (40) | 58 (19.3) | 83 (27.6) | 12 (4) | 0.45 | 0.001[a] |
| **Covering mouth while coughing** | 96 (32) | 115 (38.3) | 48 (16) | 41 (13.6) | 2 (0.6) | 0.76 | 0.001[a] |

| Variables | Highly Unlikely n(%) | Unlikely n(%) | Neutral n(%) | Likely n(%) | Highly Likely n(%) | GENDER(p-value) | SES(p-value) |
|---|---|---|---|---|---|---|---|
| **Avoid handshake** | 94 (31) | 115 (38.3) | 54 (18) | 39 (13) | 0 | 0.43 | 0.001[a] |
| **Avoid touching face** | 53 (17.6) | 103 (34.3) | 71 (23.6) | 61 (20.3) | 14 (4.6) | 0.24 | 0.001[a] |
| **Disposal of used materials** | 124 (41.3) | 104 (34.6) | 48 (16) | 25 (8.3) | 0 | 0.52 | 0.001[a] |
| **Frequent ventilation** | 98 (32.6) | 114 (38) | 64 (21.3) | 26 (8.6) | 0 | 0.52 | 0.001[a] |
| **Frequent hand hygiene** | 12 (4) | 76 (25.3) | 66 (22) | 102 (34) | 46(15.3) | 0.39 | 0.001[a] |
| **Avoid crowded places** | 76 (25.3) | 111 (37) | 66 (22) | 49 (16.3) | 0 | 0.18 | 0.001[a] |
| RISK | | | | | | | |
| **Risk of being affected by covid19** | 8 (2.6) | 76 (25.3) | 93 (31) | 109 (36.3) | 16 (5.3) | 0.09 | 0.001[a] |
| **FEAR** | | | | | | | |
| **Fear of covid19 and its outcomes** | 25 (8.3) | 153 (51) | 62 (20.6) | 53 (17.6) | 9 (3) | 0.35 | 0.001[a] |
| **Fear of reporting symptoms** | 42 (14) | 142 (47.3) | 61 (20.3) | 47 (15.6) | 10 (3.3) | 0.37 | 0.001[a] |
| **Fear of testing for covid19** | 51 (17) | 135 (45) | 62 (20.6) | 46 (15.3) | 8 (2.6) | 0.62 | 0.001[a] |
| **Fear it is covid19 each time you develop similar symptoms** | 92 (30.6) | 115 (38.3) | 54 (18) | 37 (12.3) | 4 (1.3) | 0.81 | 0.005[b] |
| **Fear of using transportation** | 84 (28) | 139 (46.3) | 37 (12.3) | 39 (13) | 3 (1) | 0.06 | 0.001[a] |
| **Purchasing fruits and vegetables** | 181 (60.3) | 94 (31.3) | 22 (7.3) | 5 (1.6) | 0 | 0.001[a] | 0.001[a] |
| **Risk of infection from workplace** | 123 (41) | 65 (21.6) | 46 (15.3) | 54 (18) | 14 (4.6) | 0.001[a] | 0.001[a] |

| Variables | Highly Unlikely n(%) | Unlikely n(%) | Neutral n(%) | Likely n(%) | Highly Likely n(%) | GENDER(p-value) | SES(p-value) |
|---|---|---|---|---|---|---|---|
| **Contamination of phones and laptops at work** | 209 (69.6) | 71 (23.6) | 13 (4.3) | 9 (3) | 0 | 0.35 | 0.001[a] |
| **STIGMA** | | | | | | | |
| **Disclosing about family testing positive** | 21 (7) | 121 (40.3) | 70 (23.3) | 84 (28) | 6 (2) | 0.22 | 0.001[a] |
| **Apprehensive about neighbor's reaction** | 99 (33) | 130 (43.3) | 48 (16) | 24 (8) | 0 | 0.30 | 0.001[a] |
| **Treat friends/colleagues differently if they have COVID-19-like symptoms** | 40 (13.3) | 78 (26) | 72 (24) | 30 (10) | 0 | 0.74 | 0.001[a] |
| **Treat them differently if they test positive** | 40 (13.3) | 77 (25.6) | 73 (24.3) | 30 (10) | 0 | 0.74 | 0.001[a] |
| **Treat those differently who have recovered from infection** | 40 (13.3) | 79 (26.3) | 71 (23.6) | 30 (10) | 0 | 0.74 | 0.001[a] |

[a] **Highly significant, p = 0.001** [b] significant, p = 0.005

## DISCUSSION

Pandemics of communicable diseases lead to public health emergencies associated with social isolation, stigma, and fear. Hence, this study was conducted to assess stigma related to the Coronavirus outbreak among patients attending a dental OPD and their compliance, apprehensions about testing, and symptoms [16]. The spread of infection was contained during the lockdown, and with the end of the lockdown, preventive measures were relaxed, and people returned to work. Strict measures were required to break the chain of transmission and contain the spread of infection by following proper health behaviors [17]. Therefore, this study assessed risk, fear, compliance, and social stigma associated with the COVID-19 outbreak by measuring the compliance of social distancing, hygiene, and associated factors. Most of the current study population belonged to a younger age group and hence disregarded the preventive measures in place to control the spread of infection, like social distancing, similar to a study conducted by Sohee Kwon et al. [18] in

the United States of America. The current study observed low compliance concerning covering the mouth and nose when coughing or sneezing, opening windows for ventilation, and avoiding crowded public places, which were like findings by Nina B. Masters et al. [19] in the United States of America where risk was high, and compliance was low.

Nevertheless, this was not like what was observed by Jie Liu et al. [17] and Kefan Xie et al. (20) in China, and Amy Nivette et al. [21] in Switzerland in March-May 2020. In our study, compliance was low, with 41.6% risk, and stigma was found to be high, contrasting with the findings of Samuel Tomczyk et al. [15] in Germany, where they observed high compliance and low risk. Kartikey Yadav et al. [16] reported that 70% of the participants perceived some stigma, and 50% perceived some form of stigma in their residential colony, which was similar to the findings of our study. About half of our study participants believed in the importance of hand hygiene but disregarded social distancing, which contrasts with the findings of Deblina Roy et al. [22]. Most participants acknowledged that washing hands frequently thought social distancing is essential to stop the virus from spreading. This difference of opinion could be because the current study was conducted in August 2020, when people had already adapted to living with the pandemic. Hence in the current study, we found a careless attitude towards social distancing and most preventive measures though there was a risk, fear, and stigma related to COVID-19 infection. This could be because our study was conducted on a younger age group when the pandemic was not considered a formidable threat. However, the study's findings should be cautiously generalized as the participants were part of the dental OPD. Efforts to conduct further studies on a larger representative population should be undertaken as there is a dearth of studies exploring the stigma associated with COVID-19.

## CONCLUSION

Even though the risk for infection and compliance to follow preventive measures in the study population was low, stigma towards those who had symptoms or recovered from COVID was observed. Hence, steps should be taken to highlight the importance of following preventive measures and addressing the stigma associated with the infection. This can be done by disseminating positive media coverage regarding reduced mortality and higher recovery rates while stressing the importance of following basic preventive measures.

**Author Contribution:** DS & RN conceptualized and framed the questionnaire for the study. MJ and UD conducted the study and collected the data. DS and RN analyzed the data and did the statistical tests. DS and SR drafted the manuscript, and SR finalized the manuscript and is responsible for the communication process.

**Acknowledgment:** The authors' deepest appreciation goes to the Institute of Dental Sciences, Siksha' O' Anusandhan (Deemed to be University).

**Competing Interests:** All authors declare that they have no conflict of interest regarding the publication of the current study.

**Funding:** The current research project did not receive any grant from any organization.

## REFERENCES

1] O'Connell K, Berluti K, Rhoads SA, Marsh AA. Reduced social distancing early in the COVID-19 pandemic is associated with antisocial behaviours in an online United States sample. PLoS One 2021;16(1): e0244974.

2] Huynh TLD. Does culture matter in social distancing under the COVID-19 pandemic? Safety Science. 2020; 130:104872.

3] Jaja IF, Anyanwu MU, Iwu Jaja CJ. Social distancing: how religion, culture and burial ceremony undermine the effort to curb COVID-19 in South Africa. Emerging Microbes & Infections. 2020; 9(1): 1077-1079.

4] Coronavirus Disease (COVID-19) Advice for the Public.2020. Available online: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public

5] Gatto M, Bertuzzo E, Mari L, Miccoli S, Carraro L, Casagrandi R, Rinaldo A.

spread and dynamics of the COVID-19 epidemic in Italy: Effects of emergency containment measures. Proceedings of the National Academy of Sciences of the United States of America. 2020; 117(19): 10484-10491.

6] Islam N, Sharp SJ, Chowell G, Shabnam S, Kawachi I, Lacey B, Massaro JM, D'Agostino RB Sr, White M. Physical distancing interventions and incidence of coronavirus disease 2019: natural experiment in 149 countries. BMJ. 2020; 370: m2743.

7] Wang X, Ferro EG, Zhou G, Hashimoto D, Bhatt DL. Association Between Universal Masking in a Health Care System and SARS-CoV-2 Positivity Among Health Care Workers. Journal of the American Medical Association. 2020;324(7):703-704.

8] Chu DK, Akl EA, Duda S, Solo K, Yaacoub S, Schünemann HJ. Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis. Lancet. 2020;395(10242):1973-1987.

9] Marchiori M. COVID-19 and the social distancing paradox: Dangers and solutions. 2020; arxiv:2005.12446v1.

10] COVID-19 Data Repository by the Centre for Systems Science and Engineering (CSSE) at Johns Hopkins University. 2020. available from https://github.com/CSSE-GISandData/COVID-19

11] Qiu J, Shen B, Zhao M, Wang Z, Xie B, Xu Y. A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations (published correction appears in General Psychiatry. 2020 Apr 27;33(2): e100213corr1. General Psychiatry 2020;33(2): e100213.

12] Ajagbe AO, Onigbinde OA, Oyeniran OI, Chia T. Mental morbidity arising from social isolation during the COVID-19 outbreak. Ulutas Medical Journal 2020; 6, 97–100.

13] Luiggi-Hernández JG, Rivera Amador. AI Reconceptualizing social distancing: Teletherapy and social inequality during the COVID-19 and loneliness pandemics. Journal of Humanistic Psychology. 2020; 60, 626–638.

14] Saleem SM. Modified Kuppuswamy socioeconomic scale updated for the year 2020. Indian Journal of Forensic and Community Medicine. 2020;7(1):1-3.

15] Tomczyk S, Rahn M, Schmidt S. Social Distancing and Stigma: Association Between Compliance with Behavioural Recommendations, Risk Perception, and Stigmatizing Attitudes During the COVID-19 Outbreak. Frontiers in Psychology. 2020; 11:1821.

16] Yadav K, Laskar AR, Rasania SK. A study on stigma and apprehensions related to COVID-19 among healthcare professionals in Delhi. International Journal of Community Medicine and Public Health. 2020;7(11):4547-4553

17] Liu J, Tong Y, Li S, Tian Z, He L, Zheng J. Compliance with COVID-19-preventive behaviours among employees returning to work in the post-epidemic period. BMC Public Health. 2022;22(1):369.

18] Kwon S, Joshi AD, Lo CH, Drew DA, Nguyen LH, Guo CG, Ma W, Mehta RS, Warner ET, Astley CM, Merino J, Murray B, Wolf J, Ourselin S, Steves CJ, Spector TD, Hart JE, Song M, VoPham T, Chan AT.Association of social distancing and face mask use with risk of COVID-19. Nature Communications. 2021;12(1):3737.

19] Masters NB, Shih SF, Bukoff A, Akel KB, Kobayashi LC, Miller AL, Harapan H, Lu Y, Wagner AL. Social distancing in response to the novel coronavirus (COVID-19) in the United States. PLoS One. 2020;15(9): e0239025

20] Xie K, Liang B, Dulebenets MA, Mei Y. The Impact of Risk Perception on Social Distancing during the COVID-19 Pandemic in China. International Journal of

Environmental Research and Public Health. 2020;17(17):6256.

21] Nivette A, Ribeaud D, Murray A, Steinhoff A, Bechtiger L, Hepp U, Shanahan L, Eisner M. Non-compliance with COVID-19-related public health measures among young adults in Switzerland: Insights from a longitudinal cohort study. Social Science & Medicine. 2021; 268:113370.

22] Roy D, Tripathy S, Kar SK, Sharma N, Verma SK, Kaushal V. Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. Asian Journal of Psychiatry. 2020; 51:102083.