Introduction

The first case of COVID-19 pandemic in India was reported on 30 January 2020. Public health measures such as quarantine, hand hygiene, face masks and maintaining appropriate social distancing can potentially minimize the infection rate and mortality. Cluster containment strategy, gearing up surveillance at point of entries, testing, isolation and quarantine were the main strategies adopted in India.\(^1,2\) Quarantine have collateral effects on other dimensions of quarantined person’s health.\(^3,4\) Social distancing may increase mental ill health, physical inactivity and misinformation lead to stigma.\(^5\)

Quarantine measures have been associated with psychological conditions including anxiety, increased anger, separation, isolation and sense of uncertainty and symptoms related to depression.\(^6\) The stressor factors include longer quarantine duration, infection fears, frustration, boredom, inadequate supplies, inadequate communication and financial insecurity.\(^7\) Urban population (53.2%) were more affected compared to rural (37.1%). 31.6% of the participants were having any form of depression with PHQ 9. Pearson’s correlation test revealed significant correlations between different factors and outcome variables. Predictors of ‘Satisfactory Practice on preventive measures’ and ‘Any depression’ were determined.\(^8\)

Conclusion: Only half of the population has satisfactory knowledge and adherence to practices. Strengthening of system to support their needs and psychosocial support should be provided.

Keywords: COVID-19, knowledge, mental health, North Kerala, practices, predictors, quarantine
asses the knowledge, perceptions and health practices regarding quarantine and COVID-19 and to determine the psychosocial profile of quarantined individuals in a rural and urban setting in North Kerala. Knowledge about this may help in promoting behavior change practices and creating awareness about the importance of protective measures, hygiene practices, social distancing, etc., to prevent the spread of disease. The compliance to the quarantine depends on various factors of the individual concerned. As COVID-19 pandemic is not a health issue alone, the social, emotional and economic domains has to be addressed.

Materials and Methods

This is a descriptive cross-sectional study focused on the population residing in Manjeri municipality and Edavanna panchayat of Malappuram district, which are urban and rural areas, respectively. The study was conducted from February 2021 to June 2021. Study participants were individuals above 18 years of age who are currently under quarantine and willing to participate. Individuals who develop COVID-19 during quarantine period were excluded from the study. 248 was the required sample size calculated from a study by Maria Casagrande et al. Participants for the study were selected from the list of individuals under quarantine, which was available at the respective health institutions. Systematic random sampling is applied for the selection of participants. Those who satisfied the selection criteria were selected to participate. Data were collected by telephonic interview using a pre-tested semi-structured proforma.

Ethical considerations: The study was approved by the Institutional Ethical Committee (Ref. No. IEC/GMCM/62 dated 19/11/2020).

Statistical analysis: All the data were entered in MS Excel and analyzed using SPSS 16 statistical software. Quantitative data were described in median, mean with SD and qualitative data in frequency and percentage. Possible associations were determined using Chi-square test. Pearson’s correlation was used to test for association between quantitative variables. Possible predictors of outcome were determined by Binary logistic regression using Backward – LR method. P values < 0.05 were considered statistically significant. Appropriate tables and figures were used to represent the data.

Results

Sociodemographic profile

This study comprises 256 participants and nearly 51% represent the rural population. All the socio demographic details are described in detail in Table 1. Females represent 40% of the study sample. The mean age (and SD) of the participants is 34.5 (13.5) years, and it is higher in the urban area. Nearly a third of the participants belong to the Muslim religious background followed by Hindu and Christian religion. Based on the ration card, nearly two-fifths of the respondents carried the APL card.

| Variables         | Rural n (%) | Urban n (%) | Total n (%) |
|-------------------|-------------|-------------|-------------|
| Study population  | 132 (51.6)  | 124 (48.4)  | 256         |
| Gender            |             |             |             |
| Female n (%)      | 53 (40)     | 50 (40)     | 103 (40.2)  |
| Male n (%)        | 79 (60)     | 74 (60)     | 153 (59.8)  |
| Age (in years)    |             |             |             |
| Mean (SD)         | 32.2 (11.8) | 37 (14.8)   | 34.5 (13.5) |
| Range             | 18-75       | 18-79       | 18-79       |
| Religion          |             |             |             |
| Christian n (%)   | 0 (0)       | 5 (4)       | 5 (2)       |
| Hindu n (%)       | 32 (24)     | 54 (44)     | 86 (33)     |
| Muslim n (%)      | 100 (76)    | 65 (52)     | 165 (65)    |
| Ration card type  |             |             |             |
| APL n (%)         | 76 (57.6)   | 86 (69.4)   | 162 (63.3)  |
| BPL n (%)         | 56 (42.4)   | 38 (30.6)   | 94 (36.7)   |
| Education*        |             |             |             |
| High school or less n (%) | 37 (28) | 49 (39.5) | 86 (33.6) |
| Higher secondary or less n (%) | 39 (29.5) | 18 (14.5) | 57 (22.3) |
| Graduate and Postgraduate n (%) | 56 (42.4) | 57 (46) | 113 (44.1) |
| Occupation        |             |             |             |
| Unemployed n (%)  | 51 (38.6)   | 51 (41.1)   | 102 (39.8)  |
| Employed n (%)    | 81 (61.4)   | 73 (58.9)   | 154 (60.2)  |
| Total monthly income** |             |             |             |
| Rs. 10000/- or less n (%) | 75 (56.8) | 53 (42.7) | 128 (50) |
| More than Rs. 10000/- n (%) | 57 (43.2) | 71 (57.3) | 128 (50) |

Considering the educational status, 44% of population were having a Graduate/Post graduate qualification, which was slightly higher in urban population compared to rural and was found to be statistically significant (p value of 0.01). Sixty percent of total population is employed, and was almost comparable in both the urban and rural population. Half of the population have a total monthly income of only ≤ Rs. 10,000. This was more in rural compared to urban population and was statistically significant.

Quarantine details of study participants

The median duration of days spent in quarantine by the study participants were eight days. The reason for quarantine were classified as Contact (Primary/Secondary), Traveler (International/interstate), tested and quarantined as they were unwell. Nearly half of the population in urban area, were travelers (45.2) and similar proportion in rural area were unwell (43.2) at that time. These differences were found to be statistically significant. Almost 90% of the study participants were spending their quarantine period at their respective homes. This proportion was similar in rural (92.4%) and urban (87.9%) settings. A tenth of the participants from the urban setting were stationed at state run COVID-19 care centers. Almost all the participants in rural area were quarantined at home. A major proportion (93%) of participants were of the opinion that their own house was appropriate for quarantine, and this proportion was similar in both urban and rural settings. The details of quarantine are described in Table 2.
Knowledge and perceptions on COVID-19 and quarantine

Knowledge about COVID-19 disease

Nearly all the participants had knowledge that COVID-19 is an airborne infection and this knowledge was similar in both settings. Only a small fraction was of the opinion that it is a mosquito-borne disease. The incubation period was correctly identified by nearly a fifth (21.5%) of the participant.

Majority of the participants consider the elderly age and persons with co-morbidity as high-risk groups for COVID-19. Other high-risk groups identified were children and pregnant women.

Nearly 90% of the participants had the knowledge that there is no specific treatment. The rural population had a significantly better knowledge regarding the availability of vaccine and the spread of the infection by an asymptomatic person. All the knowledge domains were given scores (range = 2–9). Based on the median score, graded as low risk (0–3) and high risk (4–6) based on the median value. Only 27.3% perceived that it is high risk by any means and this was slightly higher in rural population compared to urban. [Table 4]

Knowledge on preventive measures against COVID-19 disease

The knowledge on preventive measures of participants was assessed as a multiple choice question. The majority of the participants perceived, proper hand washing (96%), use of sanitizers (96.9%) and avoiding unnecessary touching (93%) as a measure to prevent the spread of COVID-19. This was comparable in both the areas. Nearly half of the population perceived the importance of maintaining cough hygiene. This was more in rural area compared to urban. Overall knowledge on use of face mask was less whereas nearly half of the rural population were aware of this. [Table 5]

Adherence to preventive measures against COVID-19

The frequency of adherence to practices for preventing COVID-19 was measured on a 5-point Likert scale from Never to Always (Never=0, Rarely=1, Sometimes=3, Often=4, Always=5). Five preventive measures were assessed. They were proper hand washing, usage of sanitizer, avoiding unnecessary touch, proper usage of facemask, maintaining cough etiquette and proper social distancing. Only nearly 70% were “always” practicing proper usage of Facemask (68.8%), maintaining cough etiquette (68.8%) and proper social distancing (68.8%). These proportions were higher among urban population (79%) compared to rural (59%). By summing the points of each statement, a scale from 0 to 24 was created for each respondent. Median is used as a cutoff point to categorize this into unsatisfactory level (0–19) and satisfactory (20–24). Only 45% of the population is practicing satisfactory adherence to preventive measures, which was almost comparable in both the areas. [Table 6a]

Factors affected the participants during their period in quarantine

Figure 1 shows the proportion of different factors affected during quarantine period. Six factors were assessed as factors affected during quarantine period. They were fear of infection, frustration, inadequate supplies, inadequate communication, social stigma and financial insecurity. These factors were measured as “experienced” and “never experienced” and experienced were given a score of 1 and never experienced
were given 0. Nearly half of the participants were affected by the fear of infection, frustration and inadequate supplies. This was more in urban compared to rural population. Nearly 40% were affected by inadequate communication, social stigma and financial insecurity due to COVID-19 and quarantine.

These six factors were scored (Range = 0–6). Based on median score, graded as two groups in to “less affected” (0–2) and “more affected” (3–6). Almost half of the population were in the “more affected” group. Urban population were more affected as compared to the rural [Table 6b].

### Mental health status based on patient health questionnaire 9 (PHQ 9)

The mental health status of the participants was assessed using the Patient Health Questionnaire version 9 (PHQ 9). The mean

### Table 3: Distribution based on knowledge of COVID-19

| Knowledge domain                          | Response | Rural n (%) | Urban n (%) | Total n (%) |
|-------------------------------------------|----------|-------------|-------------|-------------|
| Knowledge on mode of spread               | Air borne| 130 (98.5)  | 122 (98.4)  | 252 (98.4)  |
| Knowledge on incubation period            | Up to 14 days | 26 (19.7)   | 29 (23.4)   | 55 (21.5)   |
| Knowledge about high-risk groups*         | >60 years | 110 (83.3)  | 116 (93.5)  | 226 (88.3)  |
|                                           | Co-morbidity | 109 (82.6)  | 96 (77.4)   | 205 (80.1)  |
|                                           | Children <10 years | 71 (53.8)   | 90 (72.6)   | 161 (62.9)  |
|                                           | Pregnant   | 54 (40.9)   | 78 (62.9)   | 132 (51.6)  |

Based on median score, graded as two groups in to “less affected” (0–2) and “more affected” (3–6). Nearly half of the population were in the “more affected” group. Urban population were more affected as compared to the rural [Table 6b].

### Table 4: Perceived risk of COVID-19 and its grading

| Risk perception | Risk of infection to self* | Risk of serious infection to self** | Risk of infection to family or friends*** |
|-----------------|---------------------------|------------------------------------|------------------------------------------|
|                 | Rural n (%)               | Urban n (%)                        | Total n (%)                              |
| High risk       | 42 (31.8)                 | 20 (16.1)                          | 62 (24.2)                                |
| Low risk        | 80 (60.6)                 | 79 (63.7)                          | 159 (62.1)                               |
| No risk         | 10 (7.6)                  | 25 (20.2)                          | 35 (13.7)                                |

Grading on perceived risk of COVID-19 infection and locality

| Risk grade | Rural n (%) | Urban n (%) | Total n (%) |
|------------|-------------|-------------|-------------|
| High risk  | 41 (31.1)   | 29 (23.4)   | 70 (27.3)   |
| Low risk   | 91 (68.9)   | 95 (76.6)   | 186 (72.7)  |

### Table 5: Knowledge on preventive measures against COVID-19 disease

| Preventive measure (Multiple responses) | Rural n (%) | Urban n (%) | Total n (%) |
|----------------------------------------|-------------|-------------|-------------|
| Handwashing                            | 127 (96.2)  | 119 (96)    | 246 (96.1)  |
| Usage of sanitizer                     | 126 (95.5)  | 122 (98.4)  | 248 (96.9)  |
| Avoiding unnecessary touch             | 121 (91.7)  | 117 (94.4)  | 238 (93)    |
| Usage of facemask                      | 69 (52.3)   | 29 (23.4)   | 98 (38.3)   |
| Cough etiquette                        | 82 (62.1)   | 56 (45.2)   | 138 (53.9)  |
| Social distancing                      | 29 (22.0)   | 17 (13.7)   | 46 (18)     |

Grading of knowledge on preventive measures against COVID-19.
PHQ 9 score with standard deviation was $4.1 \pm 4.9$. Assessment revealed that nearly 31.6% of the participants were having any form of depression, and the prevalence was slightly more in rural compared to urban population. The assessment also revealed that the mild to moderate degree of depression was seen among 79 and 89 percent of the rural and urban of those screened to have depression, respectively. Also, the rural population had a higher prevalence of severe form of depression (20.4% versus 10.9%), though it was not statistically significant. [Table 7]

**Correlation between different factors and outcome variables**

Pearson’s Correlation between age of study subjects and outcome variables such as knowledge score on preventive measures, practice score on preventive measures and score of factors affected during quarantine period were evaluated. There exists a weak negative correlation between age and knowledge score, age and practice score on preventive measures. A weak positive correlation exists between age and score of factors affected during quarantine.

Total monthly income and practice score shows a weak negative correlation. Perceived risk score of infection versus score of factors affected and knowledge score on preventive measures versus practice score shows a weak positive correlation.

Depression score was evaluated with days spent on quarantine, score of factors affected during quarantine period and score of perceived risk of infection. All these factors were weakly positively correlated with depression score. All these correlations were found to be statistically significant ($P$ value < 0.05). [Table 8]

**Predictors of outcome such as ‘satisfactory practice on preventive measures’ and ‘any depression’ using binary logistic regression**

Binary logistic regression models between demographic characteristics and practice on preventive measures fulfilled the goodness of fit criteria. A Hosmer and Lemeshow test statistic indicated that the model fit well. Gender and age group were significant predictors of satisfactory practices on preventive measures. [Table 9a] Also between genders, experienced frustration and experienced inadequate communication versus ‘any depression’ fulfilled the goodness of fit criteria and indicated that the model fit well. [Table 9b]

**Discussion**

This cross-sectional study investigated the knowledge on COVID-19 and its preventive measures, perceptions on risk, factors affected during quarantine period, preventive measure practices and mental health status of the rural and urban quarantined adult population of North Kerala. Median quarantine duration was eight days and majority spent their quarantine period at their respective homes. The Kerala experience showed that home quarantine is as effective as institutional quarantine. [10]

Around half of the population had satisfactory knowledge about COVID-19 and was comparable to an Ethiopian study, where 42.9% of the study participants were knowledgeable. In contrast to this, 88% had an overall good knowledge score in a Kerala study. [11,12] This may be due to the impact of Television, Radio (85.9%), and Social media (81.2%) as the source of information. Source of information was comparable to an Ethiopia study. In contrast to this, only 43% and 57.1% from TV in an Indian study and a Thailand study, respectively. [13-15]

A majority had apprehension of some degree of risk perception of infection/serious infection to self/family/friends with significant rural and urban difference. Only around one fourth of population perceived that it is high risk by any means. In a South Indian study, 18% were constantly worried

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### Table 6: Grading of adherence to preventive measures of COVID-19 and severity of factors affected during quarantine period based on locality

| Grade of adherence      | Rural n (%) | Urban n (%) | Total n (%) |
|-------------------------|-------------|-------------|-------------|
| Unsatisfactory grade    | 76 (57.6)   | 64 (51.6)   | 140 (54.7)  |
| Satisfactory grade      | 56 (42.4)   | 60 (48.4)   | 116 (45.3)  |

$x^2=0.92$, $P$ value at df 1 is 0.338

### Table 7: Mental health status of study population

| Depression status according to PHQ 9 | Rural n (%) | Urban n (%) | Total n (%) |
|-------------------------------------|-------------|-------------|-------------|
| No depression                       | 88 (66.7)   | 87 (70.2)   | 175 (68.4)  |
| Any depression                      | 44 (33.3)   | 37 (29.8)   | 81 (31.6)   |

Degree of depression.

| Mild n (%)                        | 25 (56.8)   | 25 (67.6)   | 50 (61.7)   |
| Moderate n (%)                    | 10 (22.7)   | 8 (21.6)    | 18 (22.2)   |
| Severely moderate n (%)           | 6 (13.6)    | 1 (2.7)     | 7 (8.6)     |
| Severe n (%)                      | 3 (6.8)     | 3 (8.1)     | 6 (7.4)     |

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![Figure 1: Factors that affected the participants during their period in quarantine](image-url)
Table 8: Correlation matrix of selected factors and outcome variables

| Outcome variables                                      | Age       | Total Monthly Income | Days spent on quarantine | Score of factors affected during quarantine period | Perceived risk | Knowledge score on preventive measures |
|--------------------------------------------------------|-----------|----------------------|-------------------------|-----------------------------------------------|----------------|---------------------------------------|
| Knowledge score on preventive measures                 | r=-0.127, | -                    | -                       | -                                             |                | 1, n=256                              |
| Practice score on preventive measures                  | r=-0.201, | r=-0.191             | -                       | -                                             |                | r=0.215, P=0.001**, n=256            |
| Score of factors affected during quarantine period     | r=0.173,  | -                    | 1, N=256                | r=0.158                                       |                | P=0.001**, n=256                     |
| Depression score                                       | -         | r=0.216,             | r=0.339, P=0.002**, n=256| r=0.157                                       |                | P=0.012*, n=256                      |

*Correlation significant at the 0.05 level. **Correlation significant at the 0.01 level

Table 9: Predictors of ‘satisfactory practice on preventive measures’ and ‘any depression’ using binary logistic regression

a. Satisfactory practice on COVID-19 preventive measures

| Variables                                      | Satisfactory practice on preventive measures | β coefficient | Odd's ratio | 95% CI for OR | P     |
|-----------------------------------------------|---------------------------------------------|----------------|-------------|---------------|-------|
| Male gender (ref: Female)                     |                                             | 0.624          | 1.87        | 1.095-3.19    | 0.022 |
| Age - <30 years (Ref: ≥30 years)              |                                             | 0.862          | 2.37        | 1.405-3.99    | 0.001 |

Model fit: Nagelkerke R²=0.095, Hosmer and Lemeshow test with χ²=11.68, P=0.05 at df 3

b. Predictors of ‘Any depression’ using Binary logistic regression

| Variables                                      | Any depression | β coefficient | Odd's ratio | 95% CI for OR | P     |
|-----------------------------------------------|----------------|---------------|-------------|---------------|-------|
| Female gender (ref: Male)                     |                | 0.787         | 2.2         | 1.2-3.9       | 0.007 |
| Experienced frustration (ref: not experienced)|                | 0.662         | 1.94        | 1.06-3.54     | 0.032 |
| Experienced inadequate communication (Ref: not experienced) | | 1.086 | 2.96 | 1.66-5.3 | <0.001 |

Model fit: Nagelkerke R²=0.057, Hosmer and Lemeshow test with χ²=11.68, P=0.05 at df 3

about contracting the disease but in a Thailand study, 98% perceived as moderate – high risk and 67.5% considered as dangerous – seriously dangerous. In a Kerala study, 55.7% felt the risk for serious self-infection.[12,14,15]

Majority perceived hand washing, use of sanitizers, avoiding unnecessary touching and cough hygiene as a measure to prevent the spread of COVID-19. But the instead of ‘Satisfactory’ knowledge on preventive measures were only around 50%. This was comparable to a study from Andhra Pradesh, where less than half had 80% knowledge score, thus reflecting inadequate information about COVID-19 and 62% had good perceived knowledge in a Kerala study.[12,14]

The frequency of adherence to practices for preventing COVID-19 was almost comparable in rural and urban populations. Only half of the population is practicing satisfactory adherence to preventive measures. This was comparable to an Ethiopian study, where 46% of the participants did not use face mask regularly and in a Thailand study, 28% never wore a mask, 55% did not always use soap while handwashing. In contrast to this, in a South Indian study, 77% of subjects used sanitizer/soap for handwashing but only 11.3% always had this practice.[11,14,15] The adherence to practices to prevent COVID-19 needs improvement in all domains in both urban and rural areas.

Nearly half of the participants had experienced emotional problems and financial insecurity due to COVID-19 and quarantine. Similarly in a study done among quarantined Bangladeshi students, 16% had inadequate food supplies, 50% had fear of infection and 40% were affected by the thought of contracting COVID-19 infection.[17] In a Kerala study, 1/4th continuously worry about being affected and in a Thailand study, 56% reported feeling very worried to most worried about the situation.[14,18] In our study, half of the population were in the most affected group and was more faced by urban population. One fifth of the population experienced social stigma too. The overall prevalence of stress amidst the COVID-19 pandemic was 34%. In a study by Roy et al., 2/3rd of the participants felt the need to talk about their worries and more than 3/4th felt the need for support. Due to lack of awareness, stigma is observed.[19,20]

The mean PHQ 9 score in this study was comparable to a study in India with a PHQ 9 score of 4.77 ± 4.98.[21] The mental health status assessment revealed that nearly 1/3rd of participants were having any form of depression. The prevalence was higher compared to an Indian study (14%) and a Chinese study (6.2%).[21,22] There is an emergency need to address the mental health of the persons in quarantine. In a study by Hawryluck et al. among quarantined persons during severe acute respiratory syndrome (SARS) epidemic (2003), 31% had depression and in a study among quarantined Bangladeshi students, 29% had stress, 33% anxiety, 47% depression.[17,23] These differences may be because of conducting mental health assessments at different time points in a pandemic may be related to varying degrees of distress and different screening tools yields different results.[23]
Total monthly income and practice score shows a weak negative correlation. This is in contrast to a Chinese study where, people with high income had good practices toward COVID-19. In our study, knowledge score on preventive measures versus practice score shows weak positive correlation. An Andhra Pradesh study also predicts that lower knowledge score were associated with poor practices.

On prediction of models, female gender and ≥30 age group has a satisfactory practice of preventive measures. This is similar to a Chinese study where, women had good practices toward COVID-19 and contrast to an Andhra Pradesh study where the female gender associated with poor practices. Male gender, those who never experienced frustration and never experienced inadequate communication were the predictors of ‘Any depression’.

Health intervention programs should aim at improving knowledge and practices on preventive measures of COVID-19 and focus on specific demographic groups. Social, economic and psychosocial support should be made available to individuals who are affected. The mental health needs to be an integral part of rehabilitation following the COVID-19 pandemic.

Acknowledgements
We acknowledge the support and guidance given by Dr. Asma A Rahim, Professor and Head, Department of Community Medicine, Govt. Medical College Kozhikode, at all times of the study. We express our gratitude towards all the data entry operators for their technical support. We sincerely thank all the participants for sparing their valuable time by participating in this study.

Financial support and sponsorship
This work was financially supported by State Board of Medical Research, Directorate of Medical Education Kerala.

Conflicts of interest
There are no conflicts of interest.

References
1. Sharma S. Prevention and control of COVID-19 in Indian perspective. Epidemiol Int 2020;5:32-8.
2. Sathian B, Asim M, Mekkodathil A, Van Teijlingen ER, Subramanya SH, Simkhada P, et al. Impact of COVID-19 on community health: A systematic review of a population of 82 million. J Adv Intern Med 2020;9:4-11.
3. Chatterjee K, Chauhan VS. Epidemics, quarantine and mental health. Med J Armed Forces India 2020;76:125-7.
4. Jiménez-Pavón D, Carbonell-Baeza A, Lavie CJ. Physical exercise as therapy to fight against the mental and physical consequences of COVID-19 quarantine: Special focus in older people. Prog Cardiovasc Dis 2020;63:386-8.
5. Garcovich S, Bersani SI, Chiricuzzi A, De Simone C. Mass quarantine measures in the time of COVID-19 pandemic: Psychosocial implications for chronic skin conditions and a call for qualitative studies. J Eur Acad Dermatol Venereol 2020;34:e293-4.
6. Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. Lancet 2020;395:912-20.
7. Banerjee D. The COVID-19 outbreak: Crucial role the psychiatrists can play. Asian J Psychiatr 2020;50:102014.
8. Krishnamoorthy Y, Nagarajan R, Saya GK, Menon V. Prevalence of psychological morbidities among general population, healthcare workers and COVID-19 patients amidst the COVID-19 pandemic: A systematic review and meta-analysis. Psychiatry Res 2020;293:113382.
9. Casagrande M, Favieri F, Tambelli R, Forte G. The enemy who sealed the world: Effects quarantine due to the COVID-19 on sleep quality, anxiety, and psychological distress in the Italian population. Sleep Med 2020;75:12-20.
10. Pandi-Perumal SR, Gulia KK, Gupta D, Kumar VM. Dealing with a pandemic: The Kerala Model of containment strategy for COVID-19. Pathog Glob Health 2020;114:232-3.
11. Haftom M, Petrucka P, Gemechu K, Mamo H, Tsegay T, Amare E, et al. Knowledge, attitudes, and practices towards covid-19 pandemic among quarantined adults in Tigrai region, Ethiopia. Infect Drug Resist 2020;13:3727-37.
12. Jose R, Narendran M, Bindu A, Beevi N, L M, Benny PV. Public perception and preparedness for the pandemic COVID-19: A health belief model approach. Clin Epidemiol Glob Health 2021;9:41-6.
13. Mamo Y, Asefa K, Qanche Q, Dhuqum T, Wolda A, Nigussie T. Perception toward quarantine for COVID-19 among adult residents of selected towns in Southwest Ethiopia. Int J Gen Med 2020;13:991-1001.
14. Amalakanti S, Raman Arepalli K, Koppolu R. Gender and occupation predict coronavirus disease 2019 knowledge, attitude and practices of a cohort of a South Indian State Population. Indian J Med Microbiol 2020;38:144-56.
15. Srichan P, Apidechkul T, Tamornpark R, Yeemard F, Khunthason S, Kitchanaibooboon S, et al. Knowledge, attitudes and preparedness to respond to COVID-19 among the border population of northern Thailand in the early period of the pandemic: A cross-sectional study. WHO South-East Asia J Public Health 2020;9:118-25.
16. Kartheek AS, Gara KH, Vanamali DR. Knowledge, attitude and practices towards COVID-19 among Indian residents during the pandemic: A cross-sectional online survey. J NTR Univ Health Sci 2020;9:107-15.
17. Khan AH, Sultana MS, Hossain S, Hasan MT, Ahmed HU, Sikder MT. The impact of COVID-19 pandemic on mental health & wellbeing among home-quarantined Bangladeshi students: A cross-sectional pilot study. J Affect Disord 2020;277:121-8.
18. Kumar KS, T A, Thomas B. COVID-19 and mental health: A Cross-sectional study on mental health impact of COVID-19 among people in Kerala. Turk J Comput Math Educ 2021;12:33-46.
19. Das S. Mental health and psychosocial aspects of COVID-19 in India: The challenges and responses. J Health Manag 2020;22:197-205.
20. 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.
21. Singh SP, Khokhar A. Prevalence of posttraumatic stress disorder and depression in general population in India during COVID-19 pandemic home quarantine. Asia Pac J Public Health 2021;33:154-6.

22. Peng M, Mo B, Liu Y, Xu M, Song X, Liu L, et al. Prevalence, risk factors and clinical correlates of depression in quarantined population during the COVID-19 outbreak. J Affect Disord 2020;275:119-24.

23. Hawryluck L, Gold WL, Robinson S, Pogorski S, Galea S, Styra R. SARS control and psychological effects of quarantine, Toronto, Canada. Emerg Infect Dis 2004;10:1206-12.

24. Zhong B-L, Luo W, Li H-M, Zhang Q-Q, Liu X-G, Li W-T, et al. 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 J Biol Sci 2020;16:1745-52.