*Research report*

# MENTAL HEALTH CONSEQUENCES OF ISOLATION – A MIXED-METHODS STUDY FROM A TERTIARY COVID CARE SETTING

Mithila George[1], Priya Govindankutty Menon[2], K Vidhukumar[3*]

[1]Senior Resident, Department of Psychiatry, Government Medical College, Ernakulam, Kerala
[2]Assistant Professor, Department of Psychiatry, Government Medical College, Ernakulam, Kerala
[3]Professor & HOD, Department of Psychiatry, TD Medical College, Alappuzha, Kerala
*Professor & HOD, Department of Psychiatry, TD Medical College, NH 66, Vandanam, Alappuzha, Kerala, PIN – 688005. Email address: kumarv68@gmail.com

**Abstract**

**Background:** Isolation of infected people is one of the strategies adopted to contain the spread of the COVID-19 pandemic. Understanding people's mental health issues in hospital isolation is important because many are likely to develop psychological problems that need early intervention. Through this study, investigators aimed to assess the experiences and perceptions of people who had undergone hospital isolation for COVID-19 as well as the proportion of patients with symptoms of anxiety and depression and the factors associated with them. **Methods:** A mixed-methods study was conducted in a tertiary COVID care setting among inpatients of the COVID-19 isolation ward. A quantitative study was done among 75 inpatients. Symptoms of anxiety and depression were assessed using Hospital Anxiety and Depression scale. The data obtained were analyzed using R software. In-depth interviews (IDI) and focus group discussions (FGD) were the research methods used. Free listing, coding and creating coding categories of the transcribed and translated information were done using the R package for Qualitative Data Analysis (RQDA). **Results:** 22.67% of study participants had scores suggesting anxiety and 24% had depression. 14.67% had both. There was a significant association between marital status and levels of anxiety or depression ($\chi^2$=7.86, *df*=3, p=0.04). The predominant themes that emerged from the qualitative study were psychological effects of isolation, positive coping, stigmatisation, fear of transmitting disease, concerns about the future, need for information, the necessity of isolation and the need for recreation. **Conclusions:** Isolation has both social and psychological impact. The study highlights the potential areas of impact which could help one to plan appropriate interventions. The need for providing adequate information about the details of isolation and efforts to alleviate stigma is also evident from the study.

**Keywords**

COVID-19, mental health, isolation, mixed-methods study

## INTRODUCTION

An outbreak of a novel coronavirus disease (COVID-19) occurred in Wuhan, China, in December 2019 and spread globally. It was declared a public health emergency of international concern by the World Health Organization (WHO) in January 2020. WHO

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formally declared the COVID-19 outbreak as a pandemic in March 2020. The pandemic has resulted in a socio-economic crisis and profound psychological consequences among people globally. Various strategies were devised to contain disease spread; isolation of infected people is one of them. Isolation is defined as separating people affected by a contagious disease from those unaffected.[1]

Patients may experience both physical and psychological distress while being treated in isolation. Previous studies showed that isolated patients with COVID-19 experienced various mental health problems, including insomnia, anxiety and depression.[2,3] Other psychological issues that may or may not amount to a diagnosable mental health disorder, like fear, nervousness, irritability, anger, frustration, boredom and emotional exhaustion, were also reported.[4] Fears have ranged from those based on facts to unfounded fears based on misinformation circulating in the media. There are also worries about job losses during the pandemic.[4]

Social stigma is another issue in which people with a diagnosis of COVID-19 are facing cruel societal responses leading them to avoid disclosing their symptoms and seeking medical care. It can further induce fear and sadness and make them feel unsupported.[4]

Although many studies have addressed the psychological impact of COVID-19 on the population and healthcare workers, studies among hospitalised isolated patients are limited. In the study, investigators aimed to assess the experiences and perceptions of people who had undergone isolation in a tertiary care hospital for COVID-19 which could be better explored by a qualitative study. The proportion of study participants with symptoms of anxiety and depression and the factors associated with them were also assessed by the quantitative arm.

## MATERIALS AND METHODS

A mixed-methods study was conducted in the hospital attached to a Government Medical College in August 2020 among inpatients of the COVID-19 isolation ward. The Institutional Ethics Committee approved the study. Informed consent was obtained from all study participants through Google web form before participation. Only Indian nationals and those who could read and use electronic media to give responses to the questionnaires were included in the study. Patients with severe comorbid medical conditions interfering with assessment were excluded.

### Quantitative Study

The sample for the quantitative analysis consisted of the first 75 consecutive persons from the start of the study who gave informed consent. A questionnaire was created using Google web form for the study. It included the consent form, details of the patient, socio-demographic variables, and the Hospital Anxiety and Depression Scale (HADS) in English and Malayalam. Patients were requested to complete the online questionnaire using the link shared using WhatsApp and messaging services.

The HADS, developed by Zigmond and Snaith (1982), is widely used for assessing anxiety and depression in hospitalised patients.[15] It is a brief self-administered questionnaire consisting of 14 questions with excellent reliability and validity. The HADS questionnaire has seven items each for depression and anxiety subscales. Scoring for each item ranges from zero to three, with three denoting the highest anxiety or depression level. A total subscale score of 8 to 10 suggests a possible state of depression or anxiety, and 11 or more indicates a disorder. The data obtained were analysed using R statistical software.

### Qualitative Study

The qualitative arm was based on a phenomenological approach, and in-depth interviews (IDI) and focus group discussions (FGD) were the research methods used. An interview schedule and an FGD guide were

developed based on the study's objective, which consisted of open-ended questions and issues to be explored during the interview. The study instruments were prepared by the principal investigators, refined and finalised after expert review and pilot testing.

IDIs & FGDs were carried out on purposively recruited patients so that the sample represented different age groups, both sexes and test positivity. Informed consent was taken through a Google web form. Each IDI lasted for 30-35 minutes. FGDs were conducted on a homogenous group of patients through WhatsApp group video calling. About six to eight patients were recruited conveniently for each FGD after obtaining informed consent. Both males and females were included. Four FGDs were carried out, two of which consisted of patients who tested positive for COVID-19, and two included patients who tested negative for COVID-19. The investigator moderated all sessions, each lasting for 45-60 minutes. The junior resident conducted interviews and FGDs under the supervision and training of the second and third investigators. The second investigator was a psychiatrist with experience of more than ten years. The third investigator was a psychiatrist with experience of more than 20 years in psychiatry and formal training in qualitative research.

IDIs and FGDs continued until the information was saturated. All the FGD and IDI sessions were audio-recorded, anonymised and transcribed. The transcription and translation of the recorded interview to English were done by a research assistant, maintaining the local language's content and spirit of expression. Free listing, coding, and creating coding categories were done by the third investigator using the R package for Qualitative Data Analysis (RQDA, version 0.3-2), the qualitative component of R statistical software.

## RESULTS

**Quantitative Study:** Out of the 96 people who were contacted, 75 gave consent for the quantitative study. The age of the participants ranged from 17 to 63 years, with an average of 35.68 (standard deviation [SD] = 10.53) years. 62 (82.67%) participants considered that hospital isolation was necessary, while only two persons (2.67%) felt that isolation was unnecessary for anyone. 11 (14.67%) thought they did not require isolation though necessary in some cases. Other background characteristics of the sample are summarised in Table 1.

HADS was administered to the participants on different days after admission ranging between 1 and 22 days. The mean time for test administration was 5.33 (SD = 4.77) days. 17 (22.67%) of them had a score suggestive of anxiety. Of these, 10 (13.33%) had borderline anxiety, while 7 (9.33%) had high scores indicating anxiety disorder. 18 (24%) participants had depression, of which 10 (13.33%) had a borderline score and 8 (10.67%) had high scores indicative of depressive disorder. 11 (14.67%) people had symptoms of anxiety and depression at the time of administration, of which 3 (4%) had high scores for both.

Pearson's chi-squared test and paired t-test were used to find an association between different variables and anxiety or depression. There was a significant association between marital status and levels of anxiety or depression ($\chi^2 = 7.86$, $df = 3$, p-value = 0.04). No association was found between age, gender, employment status, educational status, duration of hospital stay, past and family history of psychiatric illness, physical comorbidity, substance use and anxiety or depression.

**Qualitative Study:** Four FGDs were conducted on 30 participants, and IDIs were carried out on 14 of them. Out of the 30 participants, 18 (60%) were males, and 12 (40%) were females. All the participants belonged to the age group of 20-60 years. 20 (66.66%) were married, whereas 10 (33.33%) were unmarried. 16 (53.33%) participants were graduates, 5 (16.66%) were

Table 1. Background characteristics of study participants

| Variable | Frequency (%) (N=75) |
|---|---|
| *Reason for isolation* | |
| Travel history | 54 (72.0) |
| Primary Contact | 11 (14.67) |
| Health worker | 4 (5.33) |
| Others | 6 (8.0) |
| *Test status (RTPCR)* | |
| Positive | 33 (44) |
| Negative | 20 (26.67) |
| Pending | 18 (24.0) |
| *Gender* | |
| Male | 54 (72.0) |
| Female | 21(28.0) |
| *Marital status* | |
| Married | 50 (66.67) |
| Unmarried | 23 (30.67) |
| *Education* | |
| SSLC | 16 (21.33) |
| Twelfth grade | 12 (16.0) |
| Graduates | 40 (53.33) |
| Post-graduates | 6 (8.0) |
| *Occupation* | |
| Unskilled jobs | 10 (13.33) |
| Skilled jobs | 29 (38.67) |
| Professionals | 9 (12.0) |
| Students | 5 (6.67) |
| *Comorbidity* | |
| Diabetes or hypertension | 8 (10.67) |
| Other physical illness | 5 (6.67) |
| No comorbidity | 54 (72.0) |
| *Substance use* | |
| Alcohol use | 18 (24.0) |
| Tobacco use | 7 (9.33) |
| *History of (h/o)* | |
| Psychiatric illness | 3 (4.0) |
| Suicide attempt | 1 (1.33) |
| Family h/o psychiatric illness | 4 (5.33) |
| Suicidal thoughts/death wishes | 7 (9.33) |

postgraduates, 6 (20%) had studied up to twelfth grade, and 3 (10%) had up to tenth grade. Among them, 8 (26.66%) were professionals, 13(43.33%) were doing skilled jobs, 5 (16.66%) were doing unskilled jobs, 2 (6.66%) were unemployed and 2 (6.66%) were students. FGDs and IDIs were carried out on different days after admission, ranging between 1 and 22 days.

The major themes and subthemes identified in the IDI and FGD are summarised in Table 2. Verbatim records (quotable quotes) of these themes are summarised in Appendix No.1.

In addition to the phenomena of anxiety and depression, the psychological effects of isolation included worries regarding their test results & illness, suffocation in a closed room and loneliness, fear of getting the infection from the ward and fear and guilt of having infected the kith and kin. Insomnia was another significant problem.

Some reported effective coping strategies. A few patients considered the isolated life a new experience, while others were coping with the situation effectively by prayers, listening to music and video chatting with family and friends. Some also suggested that viewing the outside world through a window provided them relief from boredom. Many patients experienced psychological distress during the initial few days after admission. Most of them were gradually able to adapt to the isolated life in the hospital in the following days.

Many patients were Gulf returnees and felt reassured returning to their native land where the health facilities were much higher than the places they were coming from.

Responses from patients highlighted the stigmatising attitude of people towards them. People were spreading misinformation and rumours about patients through social media, discriminating against their families also. Most patients reported that they had more fear of being stigmatised than the fear of getting the infection. Some patients experienced rude behaviour from their own family.

Many patients lost their job due to the COVID-19 pandemic. They expressed their worries regarding their uncertain future during the interview. They were very much concerned about their survival in the post-COVID era.

Many patients reported that they were not getting adequate information regarding their treatment details. The patients were not updated with their test results and illness status. This made them anxious as they were unaware of the isolation procedures. They also felt that a communication gap existed between the decision-makers and the staff who took shift duties in the isolation ward. Some were frightened that the results were hidden because of their worsening health condition. During the discussion, some shared their bad experience related to misinformation also.

On the other hand, a few patients did not want to know every detail of their treatment as they thought this might increase their stress. Some thought that as the treatment team was busy, it was unnecessary to inform detailed treatment reports, while a few others felt that the treatment team's communication was satisfactory. Few patients suggested that it would be better if they were counselled regarding the rationale of isolation, isolation procedures, stress management etc., on the day of admission. This may help reduce their uncertainty of isolated life.

Most patients felt that hospital isolation is necessary as it reduces the spread of COVID-19. Some expressed their willingness to extend the quarantine period even after discharge from the hospital in view of family members' safety. A few patients considered isolation unnecessary because they were sure that they had no contact with positive cases. During FGDs, some expressed their desire to read books to relieve boredom. They also suggested that it would be better to have training sessions of breathing exercises, meditation etc.

Table 2. Themes identified through In-depth Interviews and Focus Group Discussions

| |
|---|
| Psychological effects of isolation<br>*Subthemes:*<br>• Anxiety and depression<br>• Loneliness<br>• Fear of getting the infection<br>• Insomnia |
| Positive psychological reactions<br>*Subthemes:*<br>• Effective coping strategies<br>• "Back home"<br>• Adaptation |
| Stigmatisation |
| Fear of transmitting disease |
| Concerns about future |
| Need for information |
| Necessity of isolation |
| Facilities in the hospital |
| Need for recreation |

## DISCUSSION

The qualitative study explored the experiences and perceptions of patients in the COVID-19 isolation ward. Patients in isolation experienced both negative and positive feelings. Depression and anxiety symptoms, loneliness, fear of getting the infection from the ward and insomnia were the adverse psychological consequences identified in the study. Similar results were found in previous studies also.[2,3,5,6] Negative psychological outcomes associated with isolation may be due to uncertainty and loss of control. The presence of anxiety or depression has been implicated in more extended hospitalisation, non-adherence to treatment and reduced quality of life.[2] Previous studies demonstrated that patients felt helpless and lonely, staying in the isolation ward and needing more physical and psychological assistance from relatives, friends, and treatment staff to cope with the situation.[3] Closed room for isolation was stressful for some patients. Other studies also described similar discomfort experienced by patients in isolation, and they opted for rooms with better outside view.[7]

Most of these patients could adapt to the situation and felt better later. A study conducted among hospitalised COVID-19 patients in China showed that psychological support led to a gradual acceptance of the need for isolation in the later stages.[6] Early fear and denial of the disease could be seen in patients during previous epidemics also.[8] But this can

develop into fear-related behaviour if timely intervention is not given.[9] This highlights the need for psychological support during the initial days of isolation. A few patients also suggested the same.

Studies showed that the migrants are more vulnerable to social, psychological, and emotional trauma in a crisis due to fear of neglect by the local community, absence of family support and concerns about their families in their native places.[10] Here, many of the participants were repatriates from Gulf countries. They felt great relief even in the isolation as they returned to the safe lap of the homeland.

Another major problem is the stigmatisation experienced by the patients. In previous studies also, isolated patients highlighted this issue.[7] Social stigma can adversely affect the person having the disease and his family. It may prevent people from seeking health care or cause them to hide the illness to avoid discrimination and discourage them from adopting healthy behaviour. So, it is essential to reduce the stigma attached to COVID-19. The government and media alike have a vital role to play in preventing the stigma surrounding this pandemic. The disease and its impact have to be discussed openly, honestly and effectively to tackle this problem.[11] Yet, it has to be explored whether the stigma is perceived or real.

Patients also shared their fear of transmitting the infection to family members and worries regarding their loved one's health. A Chinese study reported that infection of family members and deep concern about other family members lead to depression and anxiety.[3]

Job loss is a stressful experience, and studies have shown that COVID-19-related job insecurity and financial concern are associated with greater depressive and anxiety symptoms.[12] Some of the responses in the study included the loss of daily means and fear about the challenging, uncertain future.

A literature review has shown that, according to patients, isolation experience would improve if adequate information is provided. In this study, also similar concern was raised by patients. Giving information about treatment and care is very effective in enhancing patient satisfaction. Providing accurate health information may reduce the negative psychological impact of the illness.[7]

From this study, the prevalence of anxiety and depression among inpatients of the COVID isolation ward was obtained as 22.67% and 24%, respectively. These findings are lower than those found in a study from Wuhan, China, where 34.72% and 28.47% of patients in COVID isolation had anxiety and depression, respectively.[3] Another study evaluating the mental health status of hospitalised patients with coronavirus disease in Wuhan, China, reported much higher findings, with 45.9% and 38.8% having depression and anxiety symptoms.[2] Similar high rates were revealed in a study conducted during the 2015 MERS epidemic in Korea, in which 47.2 % and 52.8% of patients had feelings of anxiety and anger, respectively.[9] Other studies obtained higher scores for anxiety and depression in isolated individuals for various infectious diseases.[5,10,11]

Another study found that HADS scores for patients in isolation increased in proportion to the duration of isolation.[11] In our study, the questionnaire was administered to most participants in the first few days after admission. This could be a reason for lower anxiety and depression scores in the study. Chinese studies have shown that during the COVID-19 epidemic, anxiety is higher among females in the general population and among patients. A lower number of females in our sample may contribute to the lower rate of anxiety symptoms.[2]

The study was conducted when several COVID cases in our state were under control compared to the escalating numbers in the rest of the

country. Most patients were Gulf returnees who felt reassured returning to their native land where the health facilities were much better than the places they were coming from.

Social support is a key factor linked to anxiety and depression.[3] Our patients were provided physical and psychological assistance by family members, friends, and medical staff, all of which were coordinated by the psychiatric team in charge of dealing with the psychological impact of COVID-19 on patients. Our subjects had a positive perception of doctors' and nurses' attitudes and facilities in the isolation ward. These may also contribute to the lower anxiety and depression scores obtained in our study.

The case fatality rate of COVID (1.3%-3.4%) is less compared to other epidemics like MERS (34.3%) and SARS (9.68%), which reported higher rates of psychological issues during the epidemic.

Increasing age,[3] female sex[2] and history of psychiatric illness[16] were also associated with anxiety and depression. But in our study, such associations were not found. Only 5 (6.66%) patients were over 50 years of age, and only 21 (28%) were females. Only three subjects reported a history of psychiatric illness. There could be an element of underreporting of past psychiatric history due to the stigma surrounding it.

In this study, a significant association was found between marital status and levels of anxiety or depression. It may be due to high levels of concern about spouses and children. A study reported that family member infection is a factor causing patients to be depressed. High levels of concern about other family members and lack of family care may magnify pessimism over the illness.[3]

Thus, this mixed-methods study could identify symptoms of anxiety and depression using established tools. The qualitative arm could identify the specific themes of distress in this special population of isolated people due to COVID-19.

## CONCLUSION

COVID-19 has a profound negative psychological impact on people worldwide, especially isolated individuals. This affects people's quality of life and leads to mental health problems like anxiety, depression, loneliness, fear, insomnia, and issues related to stigmatisation, as observed in this study. While addressing the mental health issues of isolation, the above-identified aspects should be considered. These symptoms may evolve into long-term PTSD, even suicide without early intervention. So, it should be recognised early, and appropriate intervention needs to be implemented. In the current scenario, as psychological interventions cannot be performed face-to-face due to epidemic prevention and control, telepsychiatry possibilities have to be exploited. The study's findings can also be used to develop instruments for assessing the psychological impact of isolation.

### Strength and Limitations

The study was done using smartphone and social media platforms during the isolation period. This could bring out, the authors believe, much more information than in vivo interaction with COVID protocol. The use of social media platforms is an emerging research method in qualitative research.[13,14]

One of the limitations is the small sample size, consisting of only 75 subjects. Since it is a cross-sectional study, the anxiety and depression were assessed at a certain point and were unable to monitor the progress of symptoms with time.

Patients with severe physical comorbidities were excluded. It has been found that anxiety is high in this subset of patients. If these patients were included, it might have reflected higher anxiety rates. No children happened to be a part of the sample. Children are a population with special psychological needs, especially high levels of anxiety and depression, as revealed in various studies. Females and elderly persons

Appendix 1. Specific themes identified and corresponding quotable quotes

| | |
|---|---|
| Anxiety and depression | "My mind is not well. The mood is dull. So, it will be difficult to turn the test negative. We can achieve physical health only if we have good mental health. I am not able to see a video on my phone. Not interested in anything." (IDI 12) |
| Suffocation in a closed room | "Now, I have tension whether I will turn positive. When tension spikes, I feel an increased heart rate. Usually, it feels at night. Then I will walk through the room. I already have fear when staying alone in a closed room, even at home. Yesterday night for a moment, thinking about my family, I became scared. Also, this closed room suffocated me. That moment I felt it would be better to die. Then I asked to keep the door open for some time. They kept the door open. Then I felt better." (IDI 10) |
| Loneliness | A 30-year-old female, on the sixth day of her isolation, remarked that "This is the first time I am living separated from my family. I can't live without seeing my children. Besides that, no one is there to talk. It's better to put us in a ward." (IDI 6) |
| “Back home” | "Only relief is that I have reached Kerala. Even if I die, I am happy that I can die from here" (IDI 5). |
| Stigmatisation | "My family itself is against me. My mother-in-law told me not to come home directly after discharge. Neighbors and all other people have the same attitude. They are behaving as if I got an infection due to my wrong deeds. I have no place to go from here." (FGD 4) |
| Concerns about future | "I lost my job. My family is fully dependent on my income. I don't know how my future will be. I desired to go back again to Dubai. But job offers will be less." (IDI 9) |
| Need for information | "Doctors are not communicating all details of my illness or swab results properly. I don't know why. But this is causing more worries. I think they are hiding details because there might be some problem with the result." (IDI 3) |
| Necessity of isolation | "The isolation of all people coming from high-risk regions is very much necessary. Otherwise, it may affect the whole community." (IDI 7) |

IDI – In-depth interview, FGD – Focus group discussion

made up only a third of the sample size. Anxiety and depression levels are more in this population, as suggested by multiple studies.

Transcribed information was translated from the vernacular to English, which might have produced some problems with the interpretation. The generalisation of the results may not be possible as the study is restricted to the state of Kerala. There is a possibility that the psychological impact may change with the stage of the pandemic, which couldn't be assessed in this study. The quality of the study may be affected as the interactions were in virtual means.

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