

Original Research Article

Prevalence of stress and anxiety among parents of COVID-19 positive children admitted in Kempegowda hospital, Bengaluru

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ABSTRACT

Background: COVID-19 pandemic has led to rise in fear, anxiety, stress among population. Parents of COVID-19 positive children are most vulnerable of all, since they have to bear the economic burden and the fact that there is no definitive treatment which might end up with fear of uncertainty of bad outcome added to their stress. The aim of the study was to assess the level of stress and anxiety among parents of COVID-19 positive children admitted in Kempegowda hospital, Bangalore.

Methods: Cross-sectional study was done in Kempegowda hospital. Total of 50 COVID-19 positive children were admitted in Kempegowda Hospital. 23 were boys and 27 were girls. Parents were explained about the DASS-21 questionnaire to assess stress and anxiety and relevant options were marked by the paediatrics post graduate posted in the COVID-19 ward. Association of mental health disorders such as stress and anxiety with symptoms, contact history, nutritional status and other demographic factors were analyzed using Chi square test.

Results: Female to male ratio was 1.1:1. Among the 50 children, 80% had contact history with COVID-19 positive individuals. 24 (48%) were symptomatic, among which 7 individuals had fever, 7 individuals had cough, 3 individuals had cold, 2 children had respiratory distress and remaining had myalgia (2), loose stools (2) and pain abdomen (1). 82% parents had stress and 60% had anxiety.

Conclusions: Severe stress and moderate anxiety levels was majorly seen in parents of symptomatic COVID-19 positive children during the hospital stay suggesting the need for counselling of parents and awareness of impact of COVID-19 infection in children.

Keywords: Stress, anxiety, COVID-19 in children

INTRODUCTION

COVID-19 is the biggest pandemic the world has faced in the recent past after Spanish flu in 1918-1920. It has caused a substantial concern among frontline medical staff, patients and general population. Global coronavirus disease 2019 has led families across the globe experience a new range of stressors that threaten their health, safety, economic well-being. A large extent of psychological outcomes has been observed during COVID-19 pandemic

at individual, community, national and world wide. At the individual level, factors influencing stress and anxiety include fear of getting sick or dying, feeling helplessness and being stereotyped by others, especially in metropolitan cities like Bangalore, where population density is high resulting in high rates of infection.

Stress is a feeling of emotional or physical tension. It is the degree to which one person feels overwhelmed or unable to cope as a result of pressure that are

unmanageable. Stress can lead to a variety of symptoms that include changes in mood, clammy or sweaty palms, difficulty sleeping, low energy, palpitations.

Anxiety is a feeling of apprehension and fear, characterized by palpitations, sweating, nervousness, restlessness.

On daily basis, we face stress and anxiety most of which can be coped up by the end of the day. However, during the crisis like pandemic, flood, earthquake, in which every individual and every community is affected/where we are not able to cope, stress/anxiety can have a detrimental effect on our mental and physical health.

The COVID-19 virus pandemic has caused a significant number of deaths worldwide, resulting in approximately 23 million deaths till December 2020.¹ While in India, it has resulted in mortality of approximately 1.48 lakhs till December 2020.²

This study aimed to assess the stress and anxiety among parents of COVID-19 positive children.

Parents have a pivotal role in promoting their child's health as they are primarily involved in direct care such as breastfeeding, complementary feeding, nurturing the baby, providing access to health services and influence child's well-being in our country. During this 2019-2020 pandemic, exposure to stressors can lead to cognitive, emotional and physical fatigue which may in turn cause undue strain on the parent-child relationship.^{3,4} In this context it is important to assess the stress and anxiety levels in parents, recognize early and thereby providing warmth care by counselling the parents, reassuring and help them in coping with covid outcome and provide a healthy atmosphere to the child and reduce family, community and nation burden at large. In children, COVID-19 infection is mostly asymptomatic or causes mild symptoms. But parents had apprehension regarding losing their child to COVID-19 infection and it was hard to convince the parents that COVID-19 will not affect children as it does in adults.

Aim

The aim of the study was to assess the prevalence of stress and anxiety among parents of COVID-19 positive children admitted in Kempegowda hospital, Bengaluru from July 2020 to December 2020.

METHODS

This is a cross-sectional study where demographics of the patient admitted from July 2020 to December 2020 was obtained from covid wards, hospital data of Kempegowda hospital, Bengaluru. When the children were admitted in the covid wards, patient's demographics including symptoms, age, sex, weight, contact history was noted in the covid ward and survey was done with the parent

accompanying the child. Participants were explained about the objectives of the study, written informed consent obtained and confidentiality maintained. Questionnaires handed to the parent was explained in English and local language (Kannada) and the pediatric post graduate doctors posted in the covid wards marked the questionnaire forms. Parent's individual perception of stress and anxiety was investigated using 7 items each from stress and anxiety subscale of the depression anxiety stress scale, short form (DASS-21) as shown in DASS-21 questionnaire below.⁵ DASS-21 items is a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress. The scale provides on a 4-point rating scale, a measure of individual symptoms indicating stress or anxiety.⁶⁻⁸ To obtain total score, items were summed. Scores on the DASS-21 is multiplied by 2 to calculate the final score.

All parents of COVID-19 positive children admitted were included.

Statistical analysis

Patient characteristics were summarized as mean (SD) and frequencies with percentages. Prevalence of mental health disorders classified as per DASS-21 scale were presented as frequencies and percentages. Association of mental health disorders such as stress and anxiety with symptoms, contact history, nutritional status and other demographic factors were analyzed using Chi square test.

RESULTS

Out of the 50 covid positive children admitted in Kempegowda hospital, 23 were boys and 27 were girls. The mean±SD for age was 10.54 (4.97) years with youngest was 3 days old newborn and oldest was 17 years adolescent. 24 (48%) were symptomatic and 26(52%) were asymptomatic. 40 children had contact history (80%) and in 10 children contact history was not present (20%).

24 (48%) were symptomatic, among which 7 individuals had fever, 7 individuals had cough, 3 individuals had cold, 2 children had respiratory distress and remaining had myalgia (2), loose stools (2) and pain abdomen (1).

35 (70%) children had normal weight for age and 15 children had protein energy malnutrition/underweight (Table 2). Of these children, 10 children were less than 5 years of age and 4 had protein energy malnutrition.

Table 3 shows the distribution of stress and anxiety among parents.

Among the 50 participants, 9 (18%) did not experience stress. 41 (82%) participants had stress, of which 11 (22%) had mild stress, 11(22%) had moderate stress, 17 (34%) had severe stress and 2 (4%) had extremely severe stress.

Among 50 participants, 20 (40%) did not experience anxiety. 30 (60%) participants had anxiety, of which 5

(10%) had mild anxiety, 12 (28%) had moderate anxiety, 6 (12%) had severe anxiety and 5 (10%) had extremely severe anxiety.

Table 1: Scores on the DASS-21 is multiplied by 2 to calculate the final score.

DASS-21	Stress	Anxiety
Normal	0-14	0-7
Mild	15-18	8-9
Moderate	19-25	10-14
Severe	26-33	15-19
Extremely severe	34+	20+

Table 2: Characteristics of study participants (N=50).

Characteristics	Number (%)
Age in years mean (SD)	10.54 (4.97)
Sex	
Male	23 (46)
Female	27 (54)
Weight in kg mean (SD)	31.22
Nutritional status	
Normal	35 (70)
Protein energy malnutrition	15 (30)
Contact history	
Present	40 (80)
Absent	10 (20)
History of symptoms	
Present	24 (48)
Absent	26 (52)

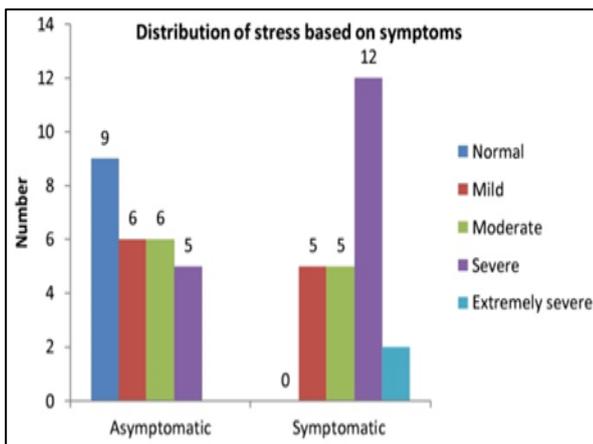


Figure 1: Distribution of stress based on symptoms.

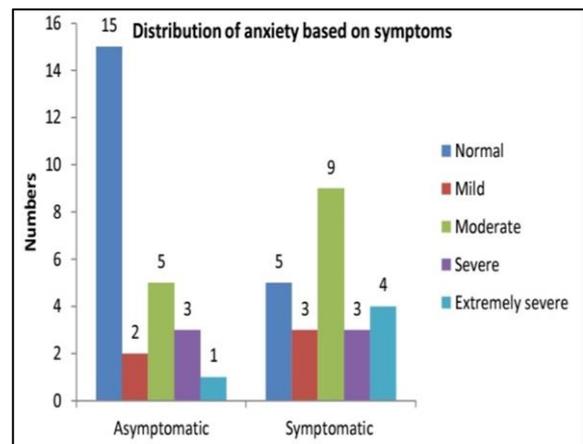


Figure 2: Distribution of anxiety based on symptoms.

Table 3: Distribution of stress and anxiety among study participants.

Stress	Number (%)	Anxiety	Number (%)
Normal	9 (18)	Normal	20 (40)
Mild	11 (22)	Mild	5 (10)
Moderate	11 (22)	Moderate	14 (28)
Severe	17 (34)	Severe	6 (12)
Extremely severe	2 (4)	Extremely severe	5 (10)

Figure 1 shows the distribution of the stress based on symptoms. 9 attenders of covid positive children without symptoms were normal, whereas 6 (23.1%) and 5 (20.8%) among asymptomatic and symptomatic children respectively had mild stress, 6 (23.1%) and 5 (20.8%) among asymptomatic and symptomatic children had moderate stress, 5 (19.2%) and 12 (50%) among asymptomatic and symptomatic respectively had severe stress, 2 (8.3%) had extremely severe stress with symptomatic child.

Figure 2 shows the distribution of the anxiety based on symptoms. 15 (57.7%) attenders of covid positive children without symptoms and 5 (20.8%) with symptoms were normal, whereas 2 (7.7%) and 3 (12.5%) among asymptomatic and symptomatic children respectively had mild anxiety, 5 (19.2%) and 9 (37.5%) among asymptomatic and symptomatic children had moderate anxiety, 3 (11.5%) and 3(12.5%) among asymptomatic and symptomatic respectively had severe anxiety, 1 (8.3%) and 4 (16.7%) among asymptomatic and symptomatic respectively had extremely severe anxiety.

DISCUSSION

Severity of COVID-19 infection, mortality and need for hospitalization are more in the older age. While severe disease and death are relatively rare in children. Studies have shown that most children infected with COVID-19 infection are asymptomatic or have mild symptoms like fever, cough, pharyngitis, gastrointestinal symptoms.^{9,10} Few studies have suggested children to be spreaders of COVID-19 infection, while remaining asymptomatic. Large epidemiological studies suggest that children comprise only 1 to 2% of all COVID-19 cases.¹¹⁻¹³ These numbers are usually dependent on testing criteria and in many cases, testing was done only in individuals who were symptomatic or in children with COVID-19 positive contacts.

However, studies report that children are less likely to get infected after contact with COVID-19 positive individual.

Factors that protect children from COVID-19 infection are differences in innate and adaptive immunity, more frequent recurrent and concurrent infections, higher levels of melatonin.

Children have a stronger innate immunity response with a higher number of NK cells, which is the first line defence against COVID-19 infection. Proposed immunological explanation is that children are less capable of mounting pro-inflammatory cytokine storm, which plays an important role in the pathogenesis of severe COVID-19 infection and is responsible for multiorgan failure in critically ill patients.¹⁴⁻¹⁷

Children infected with SARS-CoV2 often have co-infection with other viruses. These viruses could interfere

with the replication of the SARS-CoV2. Frequent recurrent viral infections could also induce an enhanced state of activation of the innate immune system, including epigenetic changes in trained immunity, making it easier to clear SARS-CoV2.¹⁸⁻²⁰

Another proposed theory is higher levels of melatonin. Melatonin has anti-inflammatory and anti-oxidative properties through several mechanisms such as increasing proliferation and maturation of NK cells, T and B lymphocytes, granulocytes and monocytes in both bone marrow and other tissues. Melatonin protects against ARDS and haemorrhagic shock during viral infection.²¹

In our study, prevalence of stress and anxiety was assessed among parents of COVID-19 positive children admitted in Kempegowda hospital. It was observed that COVID-19 affects boys and girls almost equally with no significant statistical differences among the gender. As high as 80% of children had positive contact history (p=0.01). 48% of children were symptomatic who most commonly presented with flu like symptoms including fever, cough, cold and acute gastroenteritis.

Two children, 10 year old boy and 13 year old girl had respiratory distress and required non-invasive ventilation, treated with antibiotics and supportive management. Both were discharged after 15 days of hospital stay after they were clinically better and COVID-19 test was negative. No deaths reported in our study.

The present study suggests that 82% of participants had stress and 60% had anxiety.

Of the 24 symptomatic children, 21 participants had stress, which was statistically significant (p<0.05).

5 (19.2%) and 12 (50%) among asymptomatic and symptomatic respectively had severe stress.

Majority of participants that experienced severe stress had children less than 5 years of age. There was also a mother with covid positive newborn. Mother had severe stress as she had no caretaker with her and had difficulty in nursing the child.

Of the 24 symptomatic children, 19 participants had anxiety, which is indicative that participants of COVID-19 symptomatic children are more likely to have anxiety but the smaller sample size precludes statistical significance.

The present study suggests that 30% children admitted with COVID-19 positive status had protein energy malnutrition/undernutrition. Protein energy malnutrition/undernutrition was slightly high among symptomatic cases (33.3%) as compared to asymptomatic cases (26.9%).

Since stress and anxiety was significantly high among the participants, they were counselled regarding preventive and precautionary measures such as hand hygiene, respiratory hygiene, sanitization, social distancing and reassured about vaccination against COVID-19 for children to prevent stress and anxiety in parents. Since undernourished children are more susceptible, dietary advice given pertaining to balanced diet, adequate calories, macronutrients, micronutrients and hydration.

CONCLUSION

Prevalence of stress and anxiety during the hospital stay is high among parents of COVID-19 positive children, owing to the fact that nobody can predict the course of illness. Exposure to stressors can lead to cognitive, emotional and physical fatigue among caretakers which may in turn cause undue strain on the parent-child relationship during this pandemic.

Thus, it is important to recognise and assess stress and anxiety levels in parents at the earliest, provide counselling regarding preventive and precautionary measures like hand hygiene, respiratory hygiene, sanitization, social distance and inculcating positive attitude in the parents and help them cope with covid outcome. By providing nutritional support in the form of supplements of vitamins, zinc and vitamin D during hospital stay and assuring that the vaccine will be available shortly in the market help them have a normal stress-free life and thereby provide a healthy atmosphere to the child and thereby a stress-free future.

The limitation of this study included a relatively small sample size and lack of assessment of other factors that could influence stress and anxiety in parents. Also, since our hospital attracts more patients of middle-class socioeconomic status, a significant lower and upper-class population may not have been surveyed.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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QUESTIONNAIRE

DASS Questionnaire

DASS Questionnaire					
1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of mouth	0	1	2	3
3	I experienced breathing difficulty	0	1	2	3
4	I tended to over react to situations	0	1	2	3
5	I experienced trembling	0	1	2	3
6	I felt that I was using a lot of nervous energy	0	1	2	3
7	I was worried about the situations in which I might panic and make a fool of myself	0	1	2	3
8	I found myself getting agitated	0	1	2	3
9	I found it difficult to relax	0	1	2	3
10	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
11	I was close to panic	0	1	2	3
12	I felt that I was rather touchy	0	1	2	3
13	I was aware of the action of my heart in the absence of physical exertion	0	1	2	3
14	I felt scared without any good reason	0	1	2	3

The rating scale is as follows: 0=Did not apply to me at all; 1=applied to me to some degree, or some of the time; 2=applied to me to a considerable degree or a good part of time; 3=applied to me very much or most of the time.