Journal of Research in Medical and Dental Science
2022, Volume 10, Issue 10, Page No: 170-175

Available Online at: www.jrmds.in
eISSN No. 2347-2367: pISSN No. 2347-2545

Assessing the Efficacy of Home-Based Rehabilitation in Post-COVID Patients

Naman Mishra*, Shraddha Sawhney

Department of Preventive and Social Medicine, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences (DU), Sawangi (Meghe), Wardha, India

ABSTRACT

The spread of COVID 19 infection has brought about irregularities in the way of life across the globe. The recovery phase after the infection varies for different individuals based on their body's immune response as well as the measures of rehabilitation they undergo. The present study aims to assess the efficacy of home-based rehabilitation practices carried out which hasten delayed recovery and ensure early attainment of healthy states. The home-based practices included in the study were meditation, walking, running, home gym workouts. The study was a cross-sectional online survey analyzed through Google form. A total of 67 subjects completed the online survey.

The questionnaire measured the different rehabilitative practices carried out by different individuals and their effect on physical and mental health. Of the 67 participants, 41 (61.2%) were males and 26 (38.8%) females. Twenty-six out of sixty-seven individuals practiced meditation and forty-one did not or were unable to practice it. 64.2% of subjects indulged themselves in walking, 22.4% practiced yoga, and 34.3% targeted working out along with walking and yoga and almost 6% did not get involved in any type of activity. The overall benefit of performing rehabilitation and physical activities was a significant positive effect on health by 82.1% and 17.9% of individuals disagreed on the use of physical activity in enhanced recovery. An enormous 85.1% of subjects relied on home-based rehabilitation instead of inpatient or outpatient rehabilitation. Furthermore, 63 (94%) subjects were positive about recommending the modes of relaxation (walking, meditation, and workout) in others affected by Covid 19 and 4 (6%) individuals felt that the recommendation should not be advised.

Key words: SARS COV-2, Rehabilitation, Physical activity, Meditation, Home-based treatment, Coronavirus

HOW TO CITE THIS ARTICLE: Naman Mishra, Shraddha Sawhney, Assessing the Efficacy of Home-Based Rehabilitation in Post-COVID Patients, J Res Med Dent Sci, 2022, 10 (10): 170-175.

Corresponding author: Naman Mishra

e-mail✉: namup1999@gmail.com

Received: 03-Oct-2022, Manuscript No. JRMDS-22-76722;

Editor assigned: 05-Oct-2022, PreQC No. JRMDS-22-76722(PQ);

Reviewed: 19-Oct-2022, QC No. JRMDS-22-76722(Q);

Revised: 24-Oct-2022, Manuscript No. JRMDS-22-76722(R);

Published: 31-Oct-2022

INTRODUCTION

The Coronavirus (COVID 19) pandemic has severely affected the world. The causative agent of the disease is a beta Coronavirus, an RNA virus, that rapidly developed into a pandemic after its first case in December 2019 [1]. The coronavirus on the genetic level consists of positive-sense, single-stranded RNA, which exists as a spherical virion along with a core shell. The surface resembles a crown shape due to the presence of surface projection. Until June 2020, there were approximately seven million confirmed cases with almost four hundred thousand deaths, and the spread was reported in 200 nations around the globe [2]. Studies suggest that post-discharge, patients with severe acute respiratory syndrome (SARS) still suffer from symptoms. The vast majority of infections presented were either without any symptoms or if present, symptoms included restrictive pulmonary dysfunction, palpitations, hand tremors, and exertional dyspnea. All of these symptoms affected their daily life and hindered their way of living [3]. Advanced investigations revealed a 94.6 percent similarity in the domains used to classify coronavirus species between SARS-CoV-2 and SARS-CoV, implying that the two viruses originated from the same species [4].

Reduced functionality and difficulty in carrying out everyday tasks was a common complaint reported by the people infected by the virus. This reduction in activity makes it all the more important to provide rehabilitation to even mild to moderate cases infected by the virus.

Of course, decreased physical activity is expected to accompany a viral infection but the severity of disability differs. COVID 19 illness, therefore, brings with it physical, psychological, and cognitive debility. The increase in disability after being infected hinders the patients from performing their everyday tasks and leads

to a decrease in their overall performance and efficiency while working.

Apart from directly affecting health, COVID also brought about indirect changes in people's lives with the imposition of 'lockdowns'. People were placed under physical and social isolation which critically affected their mental health as well. These major life changes placed them at a higher risk of sedentary behavior, deconditioning, balance deficits worsening, and/or new mental health problems [5]. Even after being discharged people should have access to a multitude of health care areas, rehabilitation services, and telehealth services. COVID is not just a disease that deteriorates the physical health of a patient, it also leaves a serious impact on the psychological mental, and social well-being of an individual. Therefore, recovery should have a multifactorial approach taking into consideration all these areas.

In 2003 when the world was infected with severe acute respiratory syndrome (SARS) virus a 30% increase in suicide in those aged 65 years and older was reported; around 50% of patients remained anxious post-recovery, and 29% of healthcare workers suffered probable emotional distress [6]. Understanding how to cope with such situations is of paramount importance, especially in today's scenario when both the viral and patient load has increased drastically [7].

Rehabilitation refers to the reduction of the impact of a disability or health condition on the daily functioning of an individual's life. It works by optimizing preventive and curative care, ensuring people remain independent and healthy post-recovery and are able to actively participate in daily chores, work, and education [8].

Home rehabilitation should be individualized and recommended according to the characteristics of each patient, with the clear objective of maintaining or recovering the functionality and baseline state as seen before infection. It should involve the family environment in the recovery process and should take place in a calmer and adequate place, as is the home. Post-COVID-19 multidisciplinary units have become an essential pillar when it comes to monitoring these patients and preserving or recovering their previous functionality.

There is a high probability that COVID-19 patients will need rehabilitative measures while being treated or post-recovery [9]. This approach is recommended by the World Health Organization [10].

Considering these modalities assessing the efficacy of home-based rehabilitative measures become very important. Patients who have suffered COVID-19 infection with in-home treatment or those who have been discharged with debilitation thereafter can benefit from an individualized rehabilitation treatment protocol based on their physical needs. Because it is associated with links to others, family functioning and marriage are strongly linked to psychological well-being (social contacts and social support) [11]. Therefore home-based rehabilitative measures would prove to be more effective in recovery rather than a hospital or isolated setting. Previous experience with SARS COV 2 patients shows data correlating to poor physical capacity, early dyspnea on exercise, and muscle atrophy [12]. A multitude of research is underway to identify various therapeutic measures or interventions for the treatment of the coronavirus. Besides finding new methodologies there are also researches evaluating the most suitable practices for symptomatic and supportive care. Taking into account these aspects, home-based rehabilitation is indicated for two major groups of infected patients:

Patients infected with COVID-19 showing mild to moderate symptoms that do not require admission and remain at home.

Patients infected with moderate or severe disease, who have required admission and have been discharged from the hospital.

Aim

To assess the efficacy of home-based rehabilitation in post-COVID patients.

Objectives

To check the efficacy of home-based rehabilitation in reinforcing the health of covid patients post-recovery.

To analyze the correlation between home-based rehabilitation and speedy recovery.

MATERIALS AND METHODS

Study type

Cross-sectional study.

Study design

This study is a cross-sectional online survey analyzed through Google forms web survey platform (Google LLC, Mountain View, CA, United States).

The survey was administered through various modes of social media. It was a questionnaire based on the effect of COVID 19 on the life of the patient and their willingness and perception of the efficacy of home-based rehabilitation. The questionnaire was sectioned into three parts. Part one being demographic details. Part two included details related to the infection: severity of the coronavirus infection, time that was taken to recover. The third part was based on rehabilitation and had questions about various modes of relaxation, the role of physical activity, and meditation. The collected data was then assessed using a statistical analytic approach.

Study population

In all 67 subjects of different age groups filled the online Google form questionnaire over a span of 30 days, (from July 1st to July 31st, 2021). 41 males (61.2%) and 26 females (38.8%), were included in the study.

Data collection
Survey through Google form.

Data analysis
The data were analyzed for correlation by applying parametric tests.

Rehabilitation helped elevate mood.

Rehabilitation helped enhance physical health.

Rehabilitation played no role in the recovery.

The following parameters were studied and analyzed.

OBSERVATIONS AND RESULTS

Out of a total study size consisting of 67 subjects

Approximately 6%were of the age group of 13-19 years.

Approximately 76.1%were of the age group of 20-29years.

Approximately 7.5% were of the age group of 30-39 years.

Approximately 10% were of age >40 years (Table 1).

General characteristics of the study population
Overall, the study sample (n =67) comprised 38.8% of females and 61.2% of males. Participants were divided into four age groups: adolescents 13-19 (6%); young adults aged 20-29(76|1%); adults aged 30-39(7.5%) and over 40 years of age (10.4%). The participants were furthermore asked for their educational qualification, of which undergraduate constituted 67.2%, postgraduates 28.4%, 4.4% were yet to complete higher secondary. The occupational status of the study population was also assessed, where 59.7% of subjects were students, 14.9% were involved in business and 19.4% were in a professional job, 6 % were self-employed.

Screening and isolation details
The study population reported that 91% of the subjects got themselves tested via RT-PCR and were reported positive, 9% of subjects did not get themselves tested but had symptoms.

The isolation time was asked; out of which a majority (47.8%) were isolated for 10-14 days, 35.8% individuals were isolated for more than 14 days and 16.4% were isolated for 7- 10 days until subsiding of the symptoms.

Table 1: General characteristics of participants.

	Sample	
	n	%
Participants	67	
Female	26	38.8
Male	41	61.2
	Age classifications	
Adolescent (13-19Y)	4	6
Young adulta (20-29Y)	51	76.1
Adulta (30-39Y)	5	7.5
Over 40	7	10.4

N: Number; %: Percentage

Besides this, the data tells us about the preference of home quarantine (86.6%), over covid care center (7.5%), dedicated covid hospitals (4%), super specialty hospitals (1.9%) as a mode of isolation.

The assessment of the most common signs and symptoms was additionally performed on the population which revealed that 29.9% were under disease-related stress,19.4% were anxious about the outcome and severity of the disease, almost 1% of subjects suffered from depression, the study also revealed that majority 37.3% did not suffer from any of the above mentioned signs which followed the onset of disease.

The major problems faced by the population while being infected were difficulty in carrying out the daily routine activity(43.3%), shortness of breath while working(41.1%), ineffective stress management, difficulty in doing household tasks (31.3%), and about 1.5% had a complaint of difficulty in socializing, on the contrary, 13.5% said that there was no such difficulty faced by them during disease.

Post-covid rehabilitation
Participants had to give information (during and after COVID-19 isolation) related to various rehabilitation methods adopted. Vigorous-intensity physical activities comprising the use of home gym machines, work out.

A total of 26 individuals out of 67 practiced meditation and 41 did not practice or were unable to practice it.

On evaluating the physical activities 64.2% of subjects indulged themselves in walking, 22.4% practiced yoga, and 34.3% targeted vigorous-intensity physical activity (workout) along with walking and yoga, and almost 6% did not get involved in any type of activity. The overall benefit of performing the above-mentioned activities was reported to have a significant positive effect on health by 82.1% (Figure 1), (where 41 subjects reported an enhanced mood, 25 subjects reported benefits in alleviating stress, and 34 reported an improvement in mental health (Figure 2). 17.9% of individuals disagreed about the usefulness of physical activity in regaining health after covid19 disease. The various other methods that were reported as a mode of relaxation to help in mood elevation, depression and anxiety were majorly listening to music (85.1%), singing (14.9%), dance (6%), watching tv (6%), yoga and meditation (1.5%), talking to colleagues(1.5%). An enormous 85.1% of subjects relied on home-based rehabilitation instead of inpatient rehabilitation following admission to hospital or physiotherapy or full-time outpatient rehabilitation. 63 (94%) subjects were positive about recommending the modes of relaxation (walking, meditation, workout) in others affected by Covid 19 and 4 (6%) individuals felt that the recommendation should not be advised (Figure 3).

DISCUSSION

The study aimed to assess the effectiveness of home-

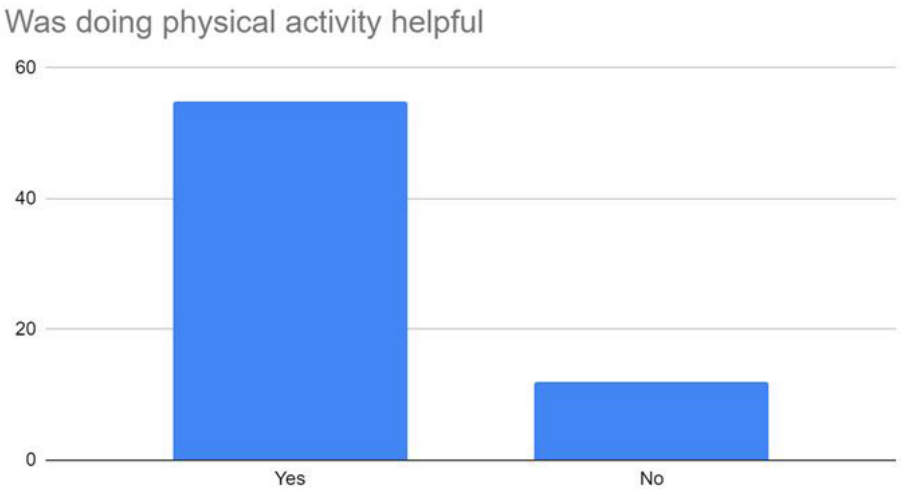

Figure 1: Was doing physical activity helpful.

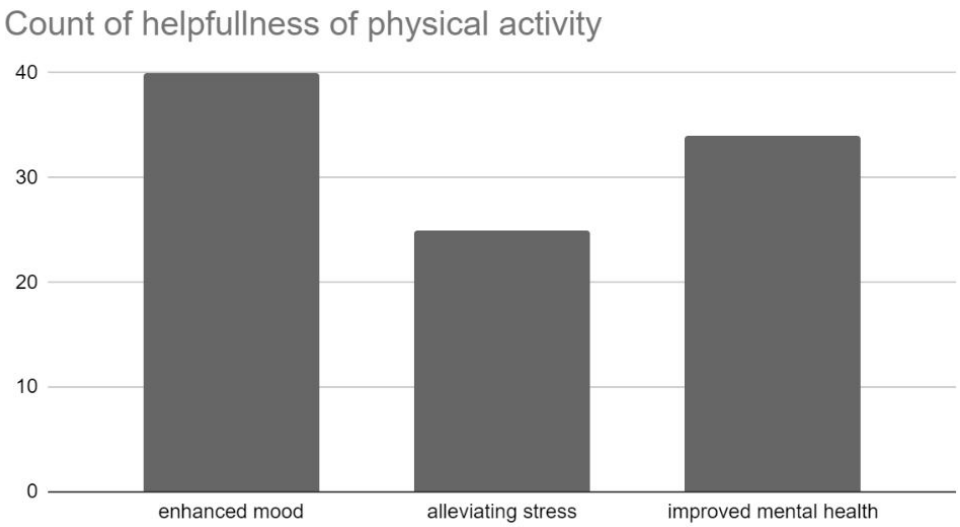

Figure 2: Count of helpfulness of physical activity.

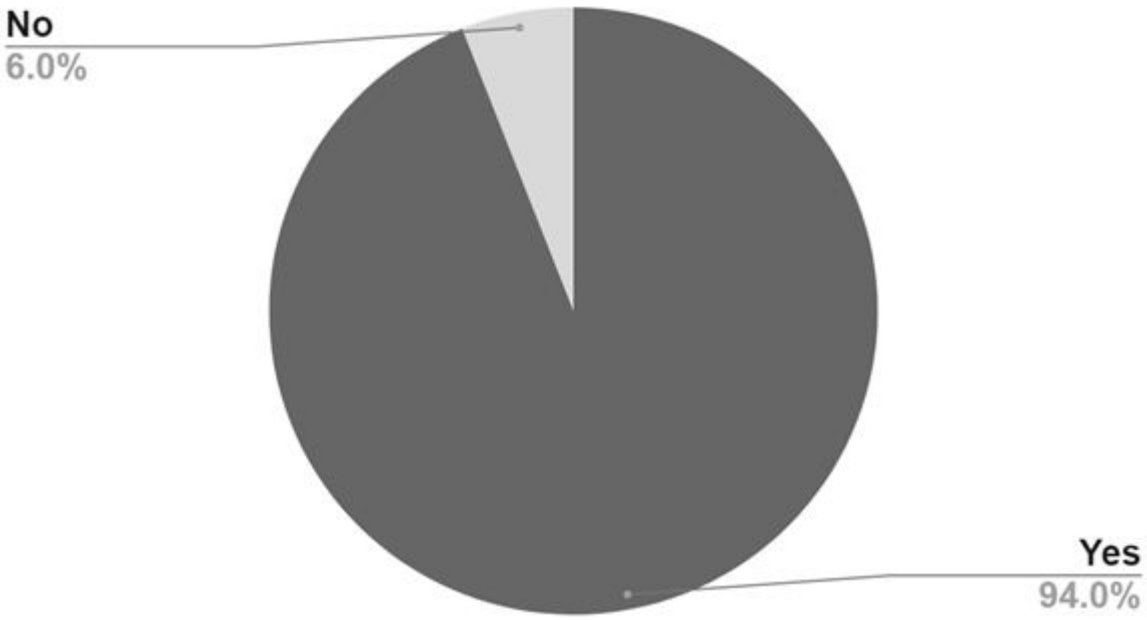

Figure 3: Recommendation to carry out home based rehabilitation.

based rehabilitation practices in improving the recovery rates of post-COVID patients. Home-based rehabilitation methods are a must to practice, after covid 19 recoveries, as it shows a highly positive result. The result favored, using home-based rehabilitative measures for quick recovery post-infection, from a disease with multisystem involvement. It is seen in the result that the subjects who used these measures of rehabilitation were able to deal with the stress related to the disease better and showed a positive response in enhancing mood providing a better mental state. Physical exercises proved to enhance physical and mental health in these individuals and proved to be a good mode of palliative care. Studies have reported that indulging in physical activity has been shown to reduce both anxiety and depression [13]. Individuals who are more physically active exhibit lower levels of stress, anxiety, depression, fatigue, and greater vitality and well-being [14].

A major population that has suffered from the disease is at a high probability of the development of disability and long-term impairment. The extent of involvement of various systems including the Pulmonary system, Central Nervous system, Cardiovascular system has further led to an increase in stress among the concerned health authorities due to the cause of severe pneumonia, Guillain-Barré syndrome, Mucormycosis, severe cough, and confused state due to hypoxia [15].

Depression, anxiety disorders, stress, panic attacks, irrational anger, impulsivity, somatization disorder, sleep disorders, emotional disturbance, posttraumatic stress symptoms, and suicidal conduct are among the mental health difficulties that COVID-19 patients may experience [16]. The assessment of the impairment caused is yet to be evaluated thoroughly but the research proves the use of rehabilitation practices and its beneficial effects on either acute or chronic term impairment or disability [17-19]. In addition to this, a characteristic novel finding of the present study was that practicing different forms of rehabilitative measures helped improve mental health. Despite the coronavirus prevalence and fatigue being associated with each other, keeping one engaged in any form of physical or mental activity like walking, listening to music, or dancing brought about a significant health improvement post-infection. The study proved that even watching movies or shows on over the top (OTT) platforms also had a significant positive effect on the recovery of the individuals' post recovery, by alleviating stress and uplifting mood. According to existing research, a psychiatric epidemic is unfolding concurrently with the COVID-19 pandemic, requiring the global health community's attention, making post-recovery rehabilitation all the more important [16]. It is difficult to identify the better choice of rehabilitation between physical activities or indoor/online activities, both prove to be effective in different individuals. In respect to the current scenario, there is increasing involvement in indoor and online activities (online games, OTT platforms), which are on all-time high participation and serve as a mode of relaxation to the current generation. These aspects were not considered in detail due to a limitation in resources [20-23]. Though the study had valuable contributions, additionally there were few limitations. Firstly, the small study population poses a higher risk of error. Secondly, the study population age group was mostly 20-29 years of age, and we have no conclusive data to prove the effectiveness of rehabilitation in the geriatric population. Given these constraints, it would be an interesting and significant area of research to establish a correlation in these aspects across various age groups and ethnicities.

Further research in this area is necessary if efficient rehabilitation needs to be achieved. When the services or rehabilitative methods incorporate the patient's daily routine there are chances of better compliance. Key domains of further research would include assessment of the number of people in need of rehabilitation, and novel modes of rehabilitative practices.

CONCLUSION

The study suggests that the majority of the population who were infected with COVID 19 is of the view that post-recovery home-based rehabilitation and performing physical activity are of benefit to spontaneous recovery of an individual. Besides providing a known atmosphere the presence of family members or loved ones improves mental health and promotes recovery. Home-based rehabilitation moreover proved to alleviate disease-related stress, enhanced mood while recovery, and improved mental health which was beneficial and helped to perform daily tasks. The results obtained from the research are satisfactory and support the use of various rehabilitation practices by the affected population as a way to get rid of the stress and anxiety caused by disease and its related conditions. A majority of 94% of people were affirmative in recommending others about the importance of these measures to improve vitality and overall health. COVID 19 pandemic changed the way we perceive the world and we need rehabilitative practices which help us cope with the pandemic, teaching us how to live with COVID.

REFERENCES

1. Xie J, Ding C, Li J, Wang Y, et al. Characteristics of patients with coronavirus disease (COVID-19) confirmed using an IgM-IgG antibody test. J Med Virol 2020; 92:2004–2010.
2. Chams N, Chams S, Badran R, et al. COVID-19: A multidisciplinary review. Front Public Health 2020; 8:383.
3. Hui D, Joynt G, Wong K, et al. Impact of severe acute respiratory syndrome (SARS) on pulmonary function, functional capacity and quality of life in a cohort of survivors. Thorax 2005; 60:401.
4. Zhou P, Yang XL, Wang XG, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. Nature 2020; 579:270–273.

5. Copeland JL, Ashe MC, Biddle SJ, et al. Sedentary time in older adults: A critical review of measurement, associations with health, and interventions. Br J Sports Med 2017; 51:1539–1539.
6. Holmes EA, O'Connor RC, Perry VH, et al. Multidisciplinary research priorities for the COVID-19 pandemic: A call for action for mental health science. Lancet Psychiatry 2020; 7:547–560.
7. Alvaro PK, Roberts RM, Harris JK. A systematic review assessing bidirectionality between sleep disturbances, anxiety, and depression. Sleep 2013; 36:1059-1068.
8. https://www.who.int/news-room/fact-sheets/detail/rehabilitation
9. Polastri M, Nava S, Clini E, et al. COVID-19 and pulmonary rehabilitation: Preparing for phase three. Eur Respir J 2020; 55.
10. De Biase S, Cook L, Skelton DA, et al. The COVID-19 rehabilitation pandemic. Age Ageing 2020; 49:696-700.
11. https://psycnet.apa.org/doiLanding?doi=10.1037%2F0022-3514.69.4.719
12. Lahham A, McDonald CF, Moore R, et al. The impact of home-based pulmonary rehabilitation on people with mild chronic obstructive pulmonary disease: A randomised controlled trial. Clin Respir J 2020; 14:335-344.
13. Mehnert A, Veers S, Howaldt D, et al. Effects of a physical exercise rehabilitation group program on anxiety, depression, body image, and health-related quality of life among breast cancer patients. Onkologie 2011; 34:248–253.
14. Wright LJ, Williams SE, Veldhuijzen van Zanten JJCS. Physical activity protects against the negative impact of coronavirus fear on adolescent mental health and well-being during the COVID-19 pandemic. Front Psychol 2021; 12:737.
15. Caress JB, Castoro RJ, Simmons Z, et al. COVID-19-associated guillain-barré syndrome: The early pandemic experience. Muscle Nerve 2020; 62:485–491.
16. Hossain MM, Tasnim S, Sultana A, et al. Epidemiology of mental health problems in COVID-19: A review. F1000 Res 2020; 9:636.
17. Dhaniwala NK, Dasari V, Dhaniwala MN. Pranayama and breathing exercises-types and its role in disease prevention & rehabilitation. J Evol Med Dent Sci 2020; 9:3325-3331.
18. Jachak SP, Phansopkar PA, Naqvi WM, et al. Great Awakening–telerehabilitation in physiotherapy during pandemic and impact of COVID-19. J Evolution Med Dent Sci 2020; 9:3387-3393.
19. Phansopkar PA, Naqvi WM, Sahu AI. COVID-19 pandemic: A curse to the physical well-being of every individual in lock-down. J Evol Med Dent Sci 2020; 9:2561-2566.
20. Prasad N, Bhatt M, Agarwal SK, et al. The adverse effect of COVID pandemic on the care of patients with kidney diseases in India. Kidney Int Rep 2020; 5:1545-1550.
21. Raut A, Ruchira A, Sheetal S. The poor and the pandemic: COVID-19." J Clin Diagn Res 2020; 14:9.
22. Sahu A, Naqvi WM. Quarantine exercises in the time of Covid-19-a review. J Evol Med Dent Sci 2020; 9:1922-1927.
23. Sharma RP, Savitha BP, Ruchira SA. Role of a nurse in COVID-19 pandemic. J Evol Med Dent Sci 2020; 9:2550–2555.