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Article

A Study to Assess the Effectiveness of Self-instructional Module on Knowledge Regarding Management of the Post COVID Syndrome among Recovered Patients at Selected Hospital, Puducherry

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Abstract: INTRODUCTION: Post COVID-19 condition, also known as long COVID, refers to long-term symptoms that some people experience after they had COVID-19. People who experience post COVID-19 conditions sometimes refer to themselves as "long-haulers". The typical clinical symptoms in "long COVID" are tiredness, dyspnea, fatigue, brain fogginess, autonomic dysfunction, headache, persistent loss of smell or taste, cough, depression, low-grade fevers, palpitations, dizziness, muscle pain, and joint pains.
AIM: The main aim of the study is to assess the effectiveness of a self-instructional module on knowledge regarding management of the post COVID syndrome among recovered patients at selected hospital, Puducherry.
METHODOLOGY: The quantitative approach was selected for the study with pre-experimental one group pre-test and posttest research design. Through a non probability convenience sampling technique, 60 adults were selected in the hospital setting. Structured knowledge questionnaire was administered to the participants to assess the knowledge. Administered a self-instructional module on knowledge regarding the management of post COVID syndrome and the posttest was conducted after 7 days by using the same tools. The statistical analyses were done by using descriptive and inferential statistics.
RESULTS AND DISCUSSION: The result shown in the pre-test mean score of knowledge was 13.50±1.80 and the posttest mean score of knowledge was 19.58±2.22. The mean difference score was 6.08. The calculated paired 't' test value of t=20.152 was found to be statistically significant at $p<0.001$ level. This clearly infers that the Self – Instructional module on knowledge regarding management of the post COVID syndrome administered among the recovered patients was found to be effective in increasing the level of knowledge among them in the post test. Regarding association between the pre-test level of knowledge with the demographic variable, education ($\lambda^2=6.625$, $p=0.036$) had shown statistically significant association with the pre-test level of knowledge regarding management of post COVID syndrome among the recovered patients at $p<0.05$ level. The other demographic variables had not shown statistically significant association. Regarding association between the pre-test level of knowledge and the clinical variables having any comorbidity disease ($\lambda^2=4.294$, $p=0.038$) and are you taking treatment for any comorbid diseases ($\lambda^2=4.104$, $p=0.043$) had shown statistically significant association with the pre-test level of knowledge regarding management of post COVID syndrome among the recovered patients at $p<0.05$ level. The other clinical variables had not shown statistically significant association.
CONCLUSION: The study concluded that the self – instructional module on knowledge regarding management of the post COVID syndrome administered among the recovered patients was found to be effective in increasing the level of knowledge among them in the post test Keywords: BEAST (Breathing Exercise and Abdominal Strength Training), post caesarean section mothers, pain and activities of daily living.
KEYWORDS: Self-instructional module, level of knowledge, management of post COVID syndrome.

INTRODUCTION

The first case of COVID-19 in India was reported on January 31, 2020. India has presently achieved over 90% recovery with the use of various resources (financial, political, medical research, health infrastructure, etc.,).[1] 9.5 million cases recovered out of 10 million reported as of December 19, 2020.[2] Although most people fully recover from acute infection with severe acute respiratory syndrome coronavirus 2 (SARS CoV-2) and coronavirus disease 2019 (COVID-19) disease, some experience ongoing sequelae.[3]

This wide range of symptoms occurring in the weeks to months after SARS-CoV-2 infection has been referred to as either long COVID, post-COVID-19 condition, or post-acute sequelae of SARS-CoV-2 infection (PASC), amongst other names.[4] However as the cohort of survivors expands, it is now being realized that a parallel epidemic of the post-COVID syndrome/long COVID is emerging. This can be regarded as a syndrome encompassing the chronic noncommunicable, often debilitating sequelae of COVID-19. The available literature suggests that up to 88% of COVID-19 survivors may have this syndrome. Understanding the causes, natural history, and how best to intervene are all crucial to the management of the syndrome and will help the health-care system gear up to provide tertiary prevention that may be needed as a consequence.[5]

Hence, the number of studies investigating the post COVID condition is increasing, there is no agreement on how this new disease should be defined and diagnosed in clinical practice and to manage the disease. Many reviews suggest that COVID-19 affected patients had many post COVID complications. So, the investigator is very interested to do research on management of post COVID syndrome among the patients recovered from COVID-19.

OBJECTIVES OF THE STUDY

- To assess the level of knowledge regarding management of the post COVID syndrome among recovered patients.
- To evaluate the effectiveness of self-instructional modules on knowledge regarding the management of the post COVID syndrome among recovered patients.
- To find association between the pre-test level of knowledge regarding the management of the post COVID syndrome among recovered patients with the selected demographic variables.
- To find association between the pre-test level of knowledge regarding the management of the post COVID syndrome among recovered patients with the selected clinical variables.

HYPOTHESIS

- **H1:** There is a significant difference between the pre-test and posttest level of knowledge regarding the management of post COVID syndrome among the recovered patients of COVID-19.
- **H2:** There is significant association between the pre-test level of knowledge regarding the management of post COVID syndrome with the selected demographic variables.
- **H3:** There is significant association between the pre-test level of knowledge regarding the management of post COVID syndrome with the selected clinical variables

MATERIALS AND METHODS

The data collection was started after obtaining permission from the Institutional Review Committee (IRC NO: ICON IRC-2021-2022-006) at a selected Hospital, Puducherry. The data was collected over a period of four weeks from 17.07.2023 to 31.08.2023. A convenient sampling technique was used to select 60 samples. The investigator was given self-introduction and explanation about the study protocol to the samples. After this, informed consent was obtained from all the samples, pre-test was done with a self-structured questionnaire. The researcher provided self-instructional modules and regularly reinforced them to patients. The module consisted definitions, signs and symptoms, management of post COVID syndrome, pulmonary rehabilitation, deep breathing exercises, methods to relieve stress, activities and habits to be followed, foods to be taken, ways to protect the kidney, improving sleep pattern and cognitive functions after recovering from COVID-19. The samples were ensured about the clarity of the self-instructional module and their doubts with regard to the self-instructional module was clarified immediately. Per day about 3 to 4 patients were provided with the self-instructional module. Post test was conducted after 7 days. The collected data were analyzed based on the above mentioned objectives using descriptive and inferential statistics.

RESULTS

Table 1: Frequency and percentage distribution of demographic variables of COVID-19 recovered patients.

(N = 60)

Demographic Variables	(n)	(%)
Age in years		
21 – 30	11	18.3
31 – 40	7	11.7

41 – 50	19	31.7
Above 50 years	23	38.3
Gender		
Male	38	63.3
Female	22	36.7
Transgender	0	0
Education		
Primary school	42	70.0
Secondary school	15	25.0
Post graduate / Graduate	3	5.0
Non-formal education	0	0
Occupation		
Government employee	19	31.7
Private employee	22	36.7
Self-employee	17	28.3
Unemployed	2	3.3
Monthly income		
Below Rs.15000	11	18.3
Rs.15000 – 25000	41	68.3
Rs.25000 – 35000	5	8.3
Above Rs.35000	3	5.0
Place of living		
Rural	38	63.3
Urban	22	36.7
Types of family		
Nuclear family	39	65.0
Joint family	20	33.3
Extended family	1	1.7
Religion		
Hindu	27	45.0
Christian	28	46.7
Muslim	4	6.7
Others	1	1.7
Marital status		
Married	29	48.3
Unmarried	25	41.7
Divorced	5	8.3

Widow/Widower	1	1.7
Specific Unhealthy practice		
Alcoholism	30	50.0
Smoking	25	41.7
Both a and b	2	3.3
None of the above	3	5.0
Source of information		
Social media	16	26.6
Health care worker	21	35.0
Family / Relatives	4	6.7
Others	19	31.7
Nature of job		
Sedentary worker	18	30.0
Skill worker	36	60.0
Technical worker	1	1.7
Others	5	8.3

The Frequency and percentage distribution of demographic variables showed that most of COVID-19 recovered patients, 23(38.3%) were aged above 50 years, 38(63.3%) were male, 42(70%) had primary school education, 22(36.7%) were private employees, 41(68.3%) had monthly income of Rs.15000 – 25000, 38(63.3%) were living in rural area, 39(65%) belonged to nuclear family, 28(46.7%) were Christians, 29(48.3%) were married, 39(50%) had the unhealthy practice of consuming alcohol, 21(35%) had health care worker as source of information and 36(60%) were skilled workers.

Table 2: Frequency and percentage distribution of clinical variables of COVID-19 recovered patients.

(N = 60)

Clinical Variables	Frequency (n)	Percentage (%)
Do you got affected with COVID-19		
Yes	60	100
No	0	0
Year in which got affected with COVID-19		
2019	26	43.3
2020	25	41.7
2021	8	13.3
2022	1	1.7
No. of times affected by COVID-19		
1 time	34	56.6
2 times	22	36.7
More than 2 times	4	6.7
Type of treatment of modalities followed during the illness		
Allopathy	40	66.6
Ayurvedha	16	26.7
Siddha	3	5.0
Homeopathy	1	1.7
Have you taken vaccination		
Yes	49	81.7
No	11	18.3
No. of doses on COVID-19 vaccine taken		

1 dose	18	30.0
2 doses	37	61.6
Booster dose	4	6.7
None	1	1.7
Are you having any comorbid disease?		
Yes	37	61.7
No	23	38.3
Are you taking treatment for any comorbid diseases?		
Yes	20	33.3
No	40	66.7
Do you have onset of new systemic diseases after recovery from COVID-19?		
Yes	19	31.7
No	41	68.3
Are you checking your blood glucose level regularly at home?		
Yes	25	41.7
No	35	58.3
Did you monitor your blood pressure after the recovery from the COVID-19?		
Yes	23	38.3
No	37	61.7

The Frequency and percentage distribution of clinical variables shows that most of COVID- 19 recovered patients, 60(100%) got affected with COVID-19, 26(43.3%) got affected with COVID-19 in the year 2019, 34(56.6%) were once by COVID-19, 40(66.6%) had followed allopathy as treatment modality during the illness, 49(81.7%) had taken vaccination, 37(61.6%) had taken 2 doses of COVID-19 vaccines and no other comorbidity disease, 40(66.7%) had not taken treatment for any comorbid disease, 41(68.3%) had no onset of new systemic disease after recovery from COVID-19, 35(58.3%) had not checked the blood glucose level regularly at home and 37(61.%) had not monitored blood pressure after the recovery from the COVID- 19.

Table 3: Frequency and percentage distribution of pre-test and posttest level of knowledge regarding management of post COVID syndrome among the recovered patients.

(N = 60)

Level of Knowledge	Pre-test		Posttest	
	Frequency (n)	**Percentage (%)**	**Frequency (n)**	**Percentage (%)**
Inadequate (≤50%)	**14**	**23.33**	0	0
Moderately Adequate (51 – 75%)	**46**	**76.67**	**17**	**28.33**
Adequate (>76%)	0	0	**43**	**71.67**

The above table depicts that in the pre-test among COVID-19 recovered patients, 46(76.67%) had moderately adequate knowledge and 14(23.33%) had inadequate knowledge and after the intervention 43(71.67%) had adequate knowledge and 17(28.33%) had moderately adequate knowledge regarding management of Post COVID syndrome among the recovered patients.

Table 4: Comparison of pre-test and posttest level of knowledge regarding management of post COVID syndrome among the recovered patients.

(N = 60)

Test	Mean	S. D	M.D	Paired 't' Test value
Pre-test	13.50	1.80	**6.08**	**t = 20.152**
Post Test	19.58	2.22		**p = 0.0001, S*** **

***p<0.001, S – Significant

The above table depicts that in pre-test the mean score of knowledge was 13.50±1.80 and in posttest the mean score of knowledge was 19.58±2.22. The mean difference score was 6.08. The calculated paired 't' test value of t=20.152 was found to be statistically significant at p<0.001 level. This clearly infers that a self-instructional module on knowledge regarding management of the post COVID syndrome administered among the recovered patients was found to be effective in increasing the level of knowledge among them in the post test. Hence hypothesis H1 is accepted, there is a significant difference between the pre-test and posttest level of knowledge regarding the management of post COVID

syndrome among the recovered patients of COVID-19.

Association of pre-test level of knowledge regarding management of post COVID syndrome among the recovered patients with selected demographic and clinical variables

In the demographic variable education (χ^2=6.625, p=0.036) had shown statistically significant association with level of knowledge regarding management of post COVID syndrome among the recovered patients at p<0.05 level. The other demographic variables did not show statistically significant association with the pre-test level of knowledge regarding management of post COVID syndrome among the recovered patients.

In the clinical variables having comorbidity disease (χ^2=4.294, p=0.038) and taking treatment for comorbid diseases (χ^2=4.104, p=0.043) shows statistically significant association with the pre-test level of knowledge regarding management of post COVID syndrome among the recovered patients at p<0.05 level. The other clinical variables did not show statistically significant association with level of knowledge regarding management of post COVID syndrome among the recovered patients.

DISCUSSION BASED ON OBJECTIVES

The first objectives were to assess the level of knowledge regarding management of the post COVID syndrome among the recovered patients.

In this study the result indicates that in the pre-test among COVID 19 recovered patients, 46(76.67%) had moderately adequate knowledge and 14(23.33%) had inadequate knowledge and after the intervention 43(71.67%) had adequate knowledge and 17(28.33%) had moderately adequate knowledge regarding management of Post COVID syndrome among the recovered patients.

The similar study was conducted by Rasika Vaidya et al., (2021) [6] with a descriptive study to assess the knowledge regarding post COVID complications among adults in the state of Maharashtra. The sample consists of 100 participants. Non- probability convenient sampling technique was used in this study. The data were collected by a semi-structured questionnaire. The results show the majority of the samples, 51%, had a very good level of knowledge score, 21% had a good level of knowledge score, 16% had an exceptional level of knowledge score, and 11% had an average level of knowledge score, with only 1% having a low level of knowledge score. The lowest possible score was 1 and the highest possible score was 51. The mean score was 16.32, with a standard deviation of 4.23. The study concluded that there is a substantial relationship between degree of knowledge score and age, occupation, and knowledge about post-COVID problems among persons in the state of Maharashtra.

The similar study was conducted by Lakshmi Prasanna.K (2022)[7], aims to assess the level of knowledge, attitude and practices regarding post-COVID care among people in India. A cross sectional descriptive study was conducted over a period of 3 months among 372 participants using convenient sampling through google forms. Present study revealed that 99% had good knowledge and 1% had poor knowledge, 97% had a favourable attitude and 3% had an unfavourable attitude. In practice 99% have healthy practice and 1% had unhealthy practice after COVID -19. The present study reveals that there was a significant positive correlation between knowledge and attitude and knowledge and practice (R=0.139, P=0.7). The Knowledge was directly affected by both attitude and practices towards post -COVID care.

The second objectives were to evaluate the effectiveness of self-instructional module on knowledge regarding the management of the post COVID syndrome among the recovered patients.

In this study results indicate that in the pre-test the mean score of knowledge was 13.50±1.80 and the post test mean score of knowledge was 19.58±2.22. The mean difference score was 6.08. The calculated paired 't' test value of t=20.152 was found to be statistically significant at p<0.001 level. This clearly infers that the Self – Instructional module on knowledge regarding management of the post COVID syndrome administered among the recovered patients was found to be effective in increasing the level of knowledge among them in the post test. Hence Hypothesis H1 is accepted.

Supriya Dhakne Palwe and Maanya Sumeet Bajaj (2021)[8] . The quasi-experimental was conducted among the slum dwellers from July 2021 to August 2021 at three slums (Sant Kabir Nagar, Anandwalli slum behind Wasan bungalow, Kamgar nagar) of Nashik city, Maharashtra, India. To assess KAP using a pre validated questionnaire with 16 knowledge questions, six attitude questions and eight practice questions. A brief video was utilised for health education regarding COVID-19. Knowledge was reassessed after the intervention. A total of 164 participants from three slums completed the preintervention and postintervention questionnaire. Data was analysed using appropriate statistical tests. Satisfactory level of knowledge, attitude and practices was found in 72.56%, 82.32% and 51.83% of the study participants. Knowledge gap was found in social distancing (35.98%), possibility of re-infection (20.73%) and infection after vaccination (28.66%). Around 25.61% said that children need not follow COVID-19 appropriate practices. About 97.56% participants had taken at least 1st dose of COVID vaccine. There was high prevalence of inappropriate practices like not maintaining social distancing at workplace (21.95), using public transport (65.24%), etc. There was no association of sociodemographic characteristics and the COVID-19 KAP. There was significant increase in the knowledge level after the health education. Preintervention and postintervention knowledge scores was 10.82±2.39 and 12.91±1.79, respectively.

The third objective is to find association between the pre-test level of knowledge regarding the management of the post COVID syndrome among the recovered patients with demographic variables.

In this study, the demographic variable education (λ^2=6.625, p=0.036) had shown statistically significant association with pre-test level of knowledge regarding management of post COVID syndrome among the recovered patients at p<0.05 level. The other demographic variables had not shown statistically significant association with pre-test level of knowledge regarding management of Post COVID 19 syndrome among the recovered patients. Hence Hypothesis H2 is accepted.

Misganu Endriyas et.al., (2021) [9] conducted a similar cross-sectional survey on knowledge and attitude towards COVID-19 and its prevention in selected ten towns of SNNP Region, Ethiopia. The sample consists of 1239 participants. Random sampling technique was used in this study. The data were collected by using a semi-structured questionnaire. The results show having good knowledge was connected with educational status, housing condition, and marital status, but having a positive attitude was associated with occupation, housing condition, age, and overall knowledge. The study concluded that despite the fact that almost all respondents had heard of COVID- 19, knowledge and attitudes about COVID-19 and its prevention was lacking.

The fourth objective is to find association between the pre-test level of knowledge regarding the management of the post COVID syndrome among the recovered patients with clinical variables.

In this study, the clinical variables having comorbidity disease ((λ^2=4.294, p=0.038) and treatment for comorbid diseases ((λ^2=4.104, p=0.043) had shown statistically significant association with pre-test level of knowledge regarding management of Post COVID 19 syndrome among the recovered patients at p<0.05 level. The other clinical variables had not shown statistically significant association with pre-test level of knowledge regarding management of Post COVID 19 syndrome among the recovered patients. Hence Hypothesis H3 is accepted.

In a similar study conducted by Venkata Ramana Kandi et al., (2022) [10] conducted a similar cross-sectional study on comorbidities and vaccination significantly influenced post-coronavirus disease functional and health status from South India. The sample consists of 80 COVID-19 recovered patients. Simple Random sampling technique was used in this study. The data were collected by using PCFS scale. The results show more than half (52.5%) of the subjects had functional impairments. Chronic fatigue (30%), anxiety (23.75%), and cough (6.25%) were identified as persistent symptoms upon COVID 19 recovery. The majority of study participants (88.75%) had at least one symptom after COVID 19, and 52.5% had at least one functional restriction. Comorbidities (z2=4.294; likelihood ratio [LR] = 0.968) and immunisation (z2=4.104; LR = 0.611) had a significant impact on PCFS. The study concluded that PCFS has a substantial limitation among recovered patients. The presence of comorbidities and immunization were both strongly associated with PCFS.

CONCLUSION:

The study aimed to assess the effectiveness of a self-instructional module regarding the management of post COVID syndrome among recovered patients at selected hospital, Puducherry. The calculated 't' value of the knowledge was 20.152 and which was greater than the tabulated value p<0.001. Hence hypothesis H1 was accepted. There is significant association between knowledge and selected demographic variable education (λ^2=6.625, p=0.036) and clinical variables comorbidity disease (λ^2=4.294, p=0.038) and treatment for comorbid diseases (λ^2=4.104, p=0.043). Hence hypothesis H2 and H3 is accepted. From the study, it can be concluded that self-instructional module was effective in enhancing the knowledge regarding management of post COVID syndrome among recovered patients.

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