



Effectiveness of Structured Teaching Programme (STP) on Knowledge Regarding Post Covid-19 Syndrome Among 4th Semester B.Sc. Nursing Students

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Abstract

The study assessed the effectiveness of a Structured Teaching Programme (STP) on knowledge regarding Post COVID-19 Syndrome among 48 fourth-semester B.Sc. Nursing students in a Nursing College, Kannur District, Kerala, selected through purposive sampling. Data were collected using a structured knowledge questionnaire. The STP, delivered through a 45-minute session, covered definitions, risk factors, etiological factors, categories, clinical manifestations, diagnostic measures, medical management, preventive strategies, and nursing management. The mean pre-test knowledge score was 14.79 (SD = 3.02) significantly increased to 27.67 (SD = 2.79) post-intervention (mean difference = 12.88; $t = 27.15$; $P < 0.05$), showing a highly significant improvement. Gender was significantly associated with pre-test scores ($P = 0.0126$), while no association was found with history of COVID-19 illness or prior knowledge. The findings demonstrate that STP was highly effective in enhancing nursing students' knowledge and emphasize the need to integrate such evidence-based modules into nursing education for better preparedness in post-pandemic healthcare.

Keywords: Effectiveness, Structured Teaching Programme (STP), Knowledge, Post COVID-19 Syndrome, 4th semester B.Sc. Nursing Students.

INTRODUCTION

The global outbreak of Coronavirus Disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was first reported in December 2019 in Wuhan, China, and has since profoundly impacted health and healthcare systems worldwide¹. Initially viewed as a respiratory illness, COVID-19 is

now recognized as a multisystem disease with long-term consequences. A subset of patients experience persistent or new health issues beyond 12 weeks of infection, termed Post COVID-19 Syndrome or Long COVID²⁻⁴.

Globally, Post COVID-19 Syndrome affects 10–20% of recovered individuals, while in India the incidence is 15 – 30 %, and in Kerala nearly one in five⁵⁻⁶. Symptoms are diverse and include fatigue, dyspnoea, chest pain, palpitations, cognitive dysfunction, sleep disturbances, anxiety, depression, and PTSD, significantly impairing quality of life³⁻⁴.

Nurses, as frontline providers, play a critical role in caring for these patients by offering clinical care, education, and psychosocial support⁷. However, nursing curricula often lack adequate content on Post COVID-19 complications, leading to educational gaps⁸. Structured Teaching Programmes (STPs) have proven effective in enhancing knowledge and preparedness⁹. Therefore, integrating evidence-based modules on Post COVID-19 Syndrome into nursing education is essential to equip future nurses for evolving post-pandemic healthcare needs.

NEED FOR THE STUDY

Post COVID-19 Syndrome has emerged as a significant global health concern, with many individuals continuing to experience long-term physical, psychological, and cognitive complications after recovery. Nurses, as frontline caregivers, are central to recognizing, managing, and supporting patients with these conditions. However, existing evidence shows that nursing students often have inadequate knowledge about Post COVID-19 Syndrome. For instance, Jeena Kunjachan et al. (2025) reported that B.Sc. Nursing students in Pathanamthitta District had only average or poor baseline knowledge, which improved significantly following a Structured Teaching Programme, demonstrating the effectiveness of such interventions⁹.

Despite this, nursing curricula still lack adequate coverage of long-term COVID-19 complications, particularly in the early phases of training⁸. Fourth- semester B.Sc. Nursing students, who are preparing for more advanced clinical roles, require focused education to fill this gap. Implementing structured, evidence-based teaching programmes is therefore essential to equip nursing students with the necessary knowledge and skills to deliver quality, patient- centred care in the post-pandemic era.

PROBLEM STATEMENT

“A Study to Assess Effectiveness of Structured Teaching Programme (STP) on knowledge regarding Post Covid-19 Syndrome among 4th Semester B.sc. Nursing Students.”

OBJECTIVES

1. To assess the pre-test level of knowledge regarding Post COVID-19 Syndrome among 4th semester B.Sc. Nursing students in selected Nursing College at Kannur District.
2. To evaluate the effectiveness of Structured Teaching Programme (STP) on improving knowledge regarding Post COVID-19 Syndrome among 4th semester B.Sc. Nursing students in selected Nursing College at Kannur District.
3. To find out the association between pre-test knowledge scores with selected variables (such as gender, history of COVID-19 illness, and previous knowledge about Post COVID-19 Syndrome) among 4th semester B.Sc. Nursing students in selected Nursing College at Kannur District.

HYPOTHESES

H1:-There is a significant difference between Pre-test and Post-test knowledge scores regarding post COVID-

19 syndrome among 4th semester B.Sc. Nursing students in selected Nursing College at Kannur District.

H0.1:-There is no significant difference between Pre- test and Post-test knowledge scores regarding Post COVID-19 Syndrome among 4th semester B.Sc. Nursing students in selected Nursing College at Kannur District.

H2:-There is significant association between Pre-test knowledge scores with selected variables (such as gender, history of COVID-19 illness, and previous knowledge about Post COVID-19 Syndrome) among 4th semester B.Sc. Nursing students in selected Nursing College at Kannur District.

H0.2:-There is no significant association between Pre- test knowledge scores with selected variables (such as gender, history of COVID-19 illness, and previous knowledge about Post COVID-19 Syndrome) among 4th semester B.Sc. Nursing students in selected Nursing College at Kannur District.

MATERIALS AND METHODS

This study employed a quantitative research approach with a pre-experimental one-group pre-test post-test design to assess the effectiveness of a Structured Teaching Programme (STP) on knowledge regarding Post COVID-19 Syndrome. The study was conducted among 4th semester B.Sc. Nursing students at the selected Nursing College at Kannur District. A total of 48 students were selected through non-probability purposive sampling. Students who were present and willing to participate were included, while those absent during either phase of data collection were excluded.

Data were collected using a structured knowledge questionnaire consisting of 30 items covering definition, risk factors, etiological factors, clinical manifestations, diagnostic measures, management, and preventive strategies related to Post COVID-19 Syndrome. Content validity was established by a panel of seven experts, and the reliability of the tool was confirmed through the split-half method with a Spearman-Brown coefficient of 0.9, indicating high reliability. A pilot study was conducted among a small group of students from another Nursing batch to test the feasibility and applicability of the tool and the study procedure, and no major modifications were required. The intervention comprised a 45-minute Structured Teaching Programme delivered using a lesson plan and PowerPoint presentation.

The study procedure was carried out in three phases: a pre-test to assess baseline knowledge, the administration of the STP intervention, and a post-test conducted on the fifth day using the same questionnaire. The dependent variable was the knowledge level of students regarding Post COVID-19 Syndrome, while the independent variable was the STP. Selected variables such as gender, history of COVID-19 illness, and previous knowledge about Post COVID-19 Syndrome were also considered. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarize baseline data and knowledge scores. Inferential statistics including paired t-test were applied to evaluate the effectiveness of the intervention, while Chi-square and Fisher's exact test were used to examine associations between pre-test knowledge scores and selected variables. A p-value < 0.05 was considered statistically significant.

ANALYSIS

Analysis was done by both descriptive and inferential statistics on the basis of objectives and hypotheses of the study. The data obtained is mainly classified into three sections:

SECTION 1: Distribution of selected variables such as (gender, history of COVID-19, previous knowledge

about Post COVID-19 Syndrome) among the 4th semester B.Sc. Nursing students at the selected Nursing College at Kannur District.

SECTION 2: Effect of structured teaching programme on knowledge regarding Post COVID-19 Syndrome among 4th semester B.Sc. Nursing students at the selected Nursing College at Kannur District

SECTION 3: Association between pre-test level of knowledge and selected variables of 4th semester B.Sc. Nursing students at the selected Nursing College at Kannur District.

DISTRIBUTION OF SELECTED VARIABLES

(N=48)

Selected Variables	Category	Frequency	Percentage
Gender	Male	10	20.83%
	Female	38	79.17%
History of COVID-19 Illness	Yes	16	33.33%
	No	32	66.67%
Previous Knowledge about Post COVID-19 Syndrome	Yes	8	16.67%
	No	40	83.33%

Table 1 presents the distribution of the participants based on frequency and percentage in the relation to the Gender, History of COVID-19 Illness, Previous knowledge about Post COVID-19 Syndrome. Among the 48 participants, the majority were female (79.17%), while only 20.83% were male. Regarding the history of COVID-19 Illness 33.33% of the participants reported having had the illness, were 66.67% did not have a history of COVID19 Illness. In the terms of previous knowledge about Post COVID-19 Syndrome only 16.67% of the participants had the previous knowledge, while a large majority (83.33%) reported no previous knowledge about Post COVID-19 Syndrome.

EFFECT OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING POST COVID-19 SYNDROME

(N=48)

Knowledge Level	Range	Pre-Test (F)	Pre-Test (%)	Post-Test (F)	Post-Test (%)
Inadequate	0 - 15	28	58.33%	0	0%
Adequate	16 - 30	20	41.67%	48	100%

Table 2 presents the frequency and percentage distribution of students based on their knowledge levels in the pre-test and post-test. Before the intervention, 28 students (58.33%) had inadequate knowledge, while only 20 students (41.67%) had adequate knowledge. However, after the intervention, all 48 students (100%) demonstrated adequate knowledge, and none had inadequate knowledge. This clearly indicates a significant improvement in the knowledge levels of the students following the intervention.

(N=48)

Test	Mean	SD	Mean Difference	Calculated Value	t	df	P Value	Inference
Pre-test	14.79	3.02						
Post-test	27.67	2.79	12.88	27.15		47	P < 0.05	Significant

t₄₇ = 2.011 at 0.05 level of significance

Table 3 presents the comparison of mean knowledge scores of participants before and after the implementation of structured teaching programme on Post COVID-19 Syndrome. The Pre-test mean score was 14.79 with a standard deviation (SD) of 3.02, while the Post-test mean score significantly increased to 27.67 with an SD of 2.79. The calculated mean difference between Post-test and Pre- test scores was 12.88. A paired t-test yielded a t-value of 27.15, is much greater than the critical value 2.011, indicating a highly significant improvement in knowledge levels following the intervention at significant level 0.05.

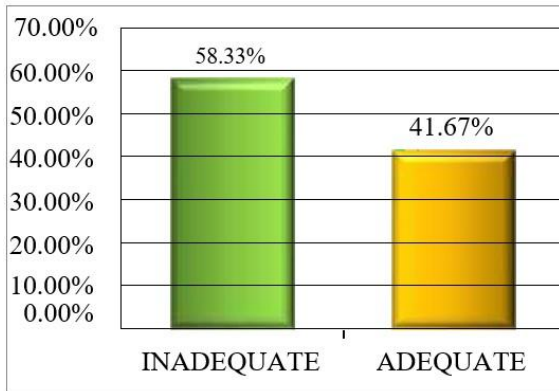


FIG 1: DISTRIBUTION OF PRE-TEST KNOWLEDGE SCORES

FIG 1 shows the level of knowledge among participants before the structured teaching programme. It reveals that 58.33% of the participants had inadequate knowledge, while only 41.67% had adequate knowledge in the Pre-test.

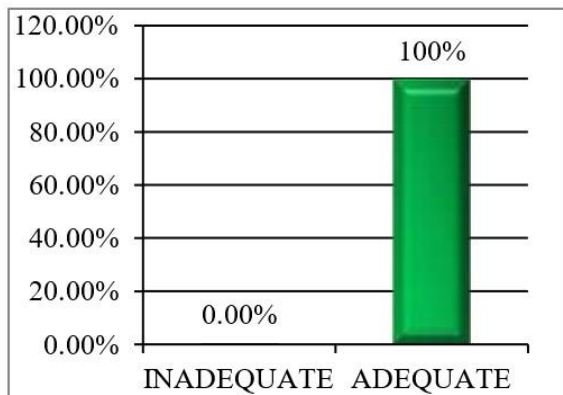


FIG 2: OF POST-TEST KNOWLEDGE SCORES

FIG 2 illustrates the distribution of Post-test knowledge scores among the participants, showing that 100% of them achieved an adequate level of knowledge, while none were found to have inadequate knowledge. This clearly indicates that the educational intervention was highly effective in significantly improving the knowledge levels of all participants.

ASSOCIATION BETWEEN PRE- TEST LEVEL OF KNOWLEDGE AND SELECTED VARIABLES

Association between Pre-test knowledge scores and Gender

(N=48)

Variable: Gender	Inadequate	Adequate	Fisher’s Exact Test (P-value)	Level of Significance	Inference
Male	9	1	0.0126	P < 0.05	Significant
Female	19	19			

Table 4 shows the association between gender and Pre-test knowledge level among 4th semester B.Sc. Nursing students. Knowledge was categorized as inadequate and adequate based on predefined score ranges. Among the male students, 9 had inadequate knowledge and only 1 had adequate knowledge. In contrast, among female students, 19 each had inadequate and adequate knowledge, showing a more balanced distribution. A Fisher’s exact test was used due to small cell frequencies. The obtained Fisher’s exact test p-value is 0.0126, which is lesser than significance level 0.05, the association is considered statistically significant. This suggests that female students had relatively better baseline knowledge regarding postCOVID-19 syndrome than male students.

Association between Pre-test knowledge scores and History of COVID-19 Illness

(N=48, df=1)

Variable: History of COVID-19 Illness	Inadequate	Adequate	Calculated Chi-Square Value	Critical Value	P Value	Inference
Yes	11	5	1.07	3.841	P > 0.05	Not Significant
No	17	15				

Table 5 shows the association between Pre-test knowledge scores and the history of COVID-19 illness among participants. The knowledge scores were categorized as either "Adequate" or "Inadequate." Among participants who had a history of COVID-19, 11 (68.75%) had inadequate knowledge and 5 (31.25%) had adequate knowledge. In contrast, among those without a history of COVID-19, 17 (53.1%) had inadequate knowledge and 15 (46.9%) had adequate knowledge. A Chi-square test was used to assess the association between these two variables. The calculated Chi-square value is 1.07, which is lesser than the critical value of 3.841 at the 0.05 level of significance, the result is not statistically significant. Therefore, there is no significant association between history of COVID-19 illness and Pre-test knowledge scores among the participants.

Association between Pre-test knowledge scores and Previous knowledge of Post COVID-19 Syndrome

(N=48)

Variable: Previous Knowledge of Post COVID-19 Syndrome	Inadequate	Adequate	Fisher’s Exact Test (P-value)	Level of Significance	Inference
Yes	4	4	0.723	P > 0.05	Not Significant
No	24	16			

Table 6 depicts the association between Pre-test knowledge scores and previous knowledge of Post COVID-19 Syndrome. The knowledge scores were categorized as either Adequate or Inadequate. Among the participants who had previous knowledge of post COVID-19 syndrome, 4 (50%) had inadequate knowledge and 4 (50%) had adequate knowledge. In contrast, among those who did not have previous knowledge, 24 (60%) had inadequate knowledge and 16 (40%) had adequate knowledge. A Fisher’s exact test was used to determine the association between these two variables. The calculated fisher’s exact test p value 0.723, which is greater than the 0.05 level of significance, indicates that the result is not statistically significant. Therefore, there is no significant association between previous knowledge of post COVID-19 syndrome and the pre-test knowledge score of the participants.

RESULTS

Demographic Characteristics

A total of 48 nursing students participated in the study. The majority were female (79.17%), while 20.83% were male. One-third of the participants (33.33%) reported a history of COVID-19 illness, and 16.67% had some previous knowledge about Post COVID-19 Syndrome.

Pre-test Knowledge

Before the intervention, most students (58.33%) demonstrated inadequate knowledge regarding Post COVID-19 Syndrome. The mean pre-test score was 14.79 (SD = 3.02), indicating limited baseline awareness.

Effectiveness of the Structured Teaching Programme

After administration of the Structured Teaching Programme, all participants (100%) achieved adequate knowledge. The mean post-test score increased to 27.67 (SD = 2.79), with a mean difference of 12.88 compared to the pre-test. The paired t-test value was 27.15 (df = 47, p < 0.05), confirming a highly significant improvement in knowledge levels following the intervention.

Association with Selected Variables

Association analysis showed a significant relationship between gender and pre-test knowledge scores (Fisher’s exact test, p = 0.0126), with female students having higher baseline knowledge than males. No significant associations were observed between pre-test knowledge and either history of COVID-19 illness or previous knowledge of Post COVID-19 Syndrome (p>0.05).

DISCUSSION

The present study demonstrated that the Structured Teaching Programme (STP) was highly effective in improving nursing students' knowledge regarding Post COVID-19 Syndrome, with mean knowledge scores increasing significantly from pre-test to post-test. This is consistent with the findings of Jeena Kunjachan et al. (2025), who reported that structured teaching interventions significantly enhanced knowledge of Post-COVID complications among B.Sc. Nursing students in Pathanamthitta. Similarly, a pre-experimental study conducted in Maharashtra also showed marked improvement in knowledge levels regarding post-COVID complications after a structured teaching programme, confirming the value of such interventions in bridging educational gaps. In the present study, gender was significantly associated with baseline knowledge, with female students demonstrating higher awareness than males, which is in line with earlier research suggesting that female students often show greater attentiveness and interest in health-related issues. However, no association was observed with history of COVID-19 illness or prior knowledge, a finding comparable to reports from other studies where personal experience with COVID-19 did not necessarily translate into higher knowledge levels. These similarities strengthen the external validity of the current results. Taken together, the findings highlight the need to integrate structured, evidence-based educational modules on Post COVID-19 Syndrome into nursing curricula, ensuring that students are adequately prepared to manage the long-term health challenges posed by the pandemic.

IMPLICATIONS OF THE STUDY

Nursing Practice

Equipping nursing students with accurate knowledge on Post COVID-19 Syndrome enhances their ability to recognize, assess, and manage patients experiencing long-term sequelae of COVID-19. Improved theoretical knowledge through structured education can translate into competent practice, enabling students to contribute to screening, early identification, health education, and holistic management in primary care and community settings, while also providing psychological support to affected individuals.

Nursing Education

The significant improvement in knowledge following the Structured Teaching Programme highlights its potential as an effective educational strategy. This underscores the need to integrate evidence-based interventions on emerging health concerns, such as Post COVID-19 Syndrome, into the nursing curriculum. Nurse educators should adopt innovative methods, including structured modules, simulations, and case-based learning, to ensure student-centered and practice-oriented education.

Nursing Research

This study contributes evidence to the effectiveness of structured teaching interventions in nursing education. It provides a foundation for future research using larger, multi-center designs and encourages comparative studies of different teaching methods. Longitudinal studies assessing knowledge retention and translation into clinical practice are also warranted to strengthen the evidence base.

Nursing Administration

The findings provide support for nursing administrators to implement structured teaching modules in institutional training and continuing education programmes. Administrative initiatives such as faculty development, curriculum review, and collaboration with public health agencies can ensure the inclusion of current health priorities, thereby producing practice-ready nurses capable of addressing post-pandemic

healthcare needs.

CONCLUSION

The study demonstrated that a Structured Teaching Programme was highly effective in improving the knowledge of B.Sc. Nursing students regarding Post COVID-19 Syndrome. The significant increase in post-test scores confirmed the value of structured and focused educational interventions in addressing knowledge gaps. Gender differences in baseline knowledge suggest the need for more inclusive approaches, while the lack of association with prior illness history or previous knowledge emphasizes the importance of formal education over personal experience. These findings underscore the need to regularly integrate evidence-based, emerging health topics into nursing curricula to strengthen students' preparedness for managing evolving healthcare challenges.

Declaration of Conflicting Interests

The authors declare no potential conflicts of interest with respect to the research, authorship and publication of this article.

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References

1. Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He JX, et al. Clinical Characteristics of Coronavirus Disease 2019 in China. *N Engl J Med.* 2020;382(18):1708–20.
2. Nalbandian A, Sehgal K, Gupta A, Madhavan MV, McGroder C, Stevens JS, et al. Post-acute COVID-19 syndrome. *Nat Med.* 2021;27(4):601–15.
3. Davis HE, Assaf GS, McCorkell L, et al. Characterizing long COVID in an international cohort: 7 months of symptoms and their impact. *EClinicalMedicine.* 2021;38:101019.
4. Carfi A, Bernabei R, Landi F; Gemelli Against COVID-19 Post-Acute Care Study Group. Persistent Symptoms in Patients After Acute COVID-19. *JAMA.* 2020;324(6):603–5.
5. Huang C, Huang L, Wang Y, Li X, Ren L, Gu X, et al. 6-month consequences of COVID-19 in patients discharged from hospital: a cohort study. *Lancet.* 2021;397(10270):220–32.
6. World Health Organization. A clinical case definition of post COVID-19 condition by a Delphi consensus, 6 October 2021. Geneva: WHO; 2021.
7. Mair FS, Heaney D, McKinstry B, Murray E. The impact of e-health on the quality & safety of healthcare. *J Telemed Telecare.* 2012;18(6):348–51.
8. Dewart G, Corcoran L, Thirsk L, Petrovic K. Nursing education in a pandemic: Academic challenges in response to COVID-19. *Nurs Educ Today.* 2020;92:104471.
9. Kunjachan J, Varghese L, Jayasenen J. A study to assess the effect of structured teaching programme on knowledge regarding post-COVID syndrome among fourth-year B.Sc. nursing students at selected nursing colleges of Pathanamthitta district. *Int J Res Publ Rev.* 2025;6(2):4830–6.