



Effectiveness of a Structured Teaching Programme on knowledge regarding the role of Nikshay App in Tuberculosis case management among nursing students in selected nursing institutes of Hyderabad.

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ABSTRACT

Tuberculosis (TB) remains a major communicable disease burden in India, requiring efficient case notification, treatment monitoring, follow-up, and documentation. The Government of India has introduced the Nikshay App as a digital platform under the National Tuberculosis Elimination Programme to strengthen TB case management. Nursing students, as future healthcare providers, play a crucial role in utilizing such digital tools; however, inadequate knowledge regarding the application may hinder effective TB control. This study aimed to assess the effectiveness of a structured teaching programme on knowledge regarding the role of the Nikshay App in TB case management among nursing students in selected nursing institutes of Hyderabad. A quantitative research approach was adopted with a sample size of 102, accounting for a 5% attrition rate, and participants were selected using purposive sampling. Data were collected using a self-structured questionnaire and analyzed using descriptive and inferential statistics. The final study included 100 participants. Pre-test findings revealed that 61% of students had inadequate knowledge, 37% had moderate knowledge, and only 2% had adequate knowledge. Following the structured teaching programme, there was a marked improvement, with only 8% demonstrating inadequate knowledge, 71% having moderate knowledge, and 21% achieving adequate knowledge. The mean post-test knowledge score (19.97) was significantly higher than the pre-test score (12.87) and paired t-test analysis confirmed a statistically

significant difference, indicating the effectiveness of the intervention. Chi-square analysis showed significant associations between knowledge and variables such as age, gender, prior curriculum exposure to the Nikshay App, and participation in related training, while no significant association was found with year of study, prior awareness, or clinical postings in TB-related settings. The study concludes that structured teaching programmes are effective in enhancing knowledge and competency of nursing students in utilizing digital health tools for TB case management. Keywords: Tuberculosis, Nikshay App, Nursing students.

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Introduction

Tuberculosis (TB) continues to be a major public health concern globally and remains one of the leading causes of morbidity and mortality in India. Despite significant advances in diagnosis and treatment, TB control is challenged by delayed case detection, poor treatment adherence, inadequate follow-up, and gaps in reporting systems. To address these challenges, the Government of India has strengthened its TB control strategies under the National Tuberculosis Elimination Programme, with a strong emphasis on digital health integration. One of the key digital initiatives introduced is the Nikshay App, a comprehensive web-based and mobile platform designed for TB case notification, patient tracking, treatment adherence monitoring, and real-time data management.

India's vast geographical and demographic diversity necessitates regional classification for effective implementation of national health programmes, including TB control initiatives. The country is broadly divided into six zones for administrative and programmatic convenience: the Northern region comprising nine states and union territories such as Punjab, Delhi, Uttar Pradesh, and Uttarakhand; the North-Eastern region with eight states including Assam, Manipur, and Mizoram; the Eastern region consisting of five states such as Bihar, Odisha, and West Bengal; and the Western region including six states like Maharashtra, Gujarat, and Rajasthan. The southern region is further subdivided into South-1, comprising Telangana, Karnataka, and Andhra Pradesh, and South-2 including Tamil Nadu, Kerala, and Puducherry. This zonal classification facilitates region-specific planning, efficient resource allocation, and effective monitoring of programmes like the National Tuberculosis Elimination Programme, thereby enhancing the overall impact of TB control strategies.



Figure 14.4: Map of India depicting six zones under NTEP

Table 14.2: Six zones depicted in States and UTs under NTEP

Zones	No. of state/UTs	States/UTs in the zone
North East	8	Meghalaya, Sikkim, Arunachal Pradesh, Assam, Tripura, Mizoram, Manipur, Nagaland
East	5	Bihar, Jharkhand, Odisha, Chhattisgarh, West Bengal
West	6	Gujarat, Madhya Pradesh, Maharashtra, Goa, Rajasthan, Diu and Nagar Haveli, and Daman
South-1	3	Karnataka, Telangana, Andhra Pradesh
South-2	5	Puducherry, Tamil Nadu, Kerala, Lakshadweep, Andaman and Nicobar Islands
North	9	Punjab, Haryana, Chandigarh, Jammu and Kashmir, Uttarakhand, Ladakh, Himachal Pradesh, Delhi
Total	36	

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The Nikshay App facilitates seamless coordination among healthcare providers by enabling timely reporting of TB cases, ensuring treatment compliance, and improving accountability in TB care delivery. It plays a vital role in achieving the national goal of TB elimination by enhancing surveillance, reducing loss to follow-up, and strengthening programmatic management. In the era of digital transformation in healthcare, it is essential for healthcare professionals, especially nurses, to be proficient in using such digital tools for effective patient care and disease control.

NEED FOR THE STUDY

Telangana continues to report a significant number of tuberculosis (TB) cases under the National Tuberculosis Elimination Programme (NTEP), emphasizing the need for effective control measures through accurate reporting, tracking and follow-up. The NIKSHAY app plays a vital role in digital TB case management by enabling systematic patient monitoring and ensuring continuity of care. Over recent years, data indicate a gradual decline in TB incidence and mortality, reflecting the positive impact of such initiatives. Recent reports indicate that approximately 74,994 TB cases were reported in 2023, while around 62,722 cases were documented in 2024 (up to October), with an estimated total of about 76,611 cases for the year. Early data from 2025 also suggest continued reporting of new cases.

Nursing students, as future frontline healthcare providers, are expected to actively participate in TB case management, including patient education, monitoring treatment adherence and documentation through digital platforms like Nikshay. However, studies and observations indicate that many nursing students have limited knowledge and practical exposure to digital health tools, including TB reporting systems. This gap in

knowledge may affect the efficiency and quality of TB care services delivered by future professionals. By providing systematic and focused training on the use and role of the Nikshay App, nursing students can be better equipped to contribute effectively to TB control initiatives. Therefore, this study aims to assess the effectiveness of a structured teaching programme in improving knowledge regarding the role of the Nikshay App in TB case management among nursing students.

CONCEPTUAL FRAMEWORK

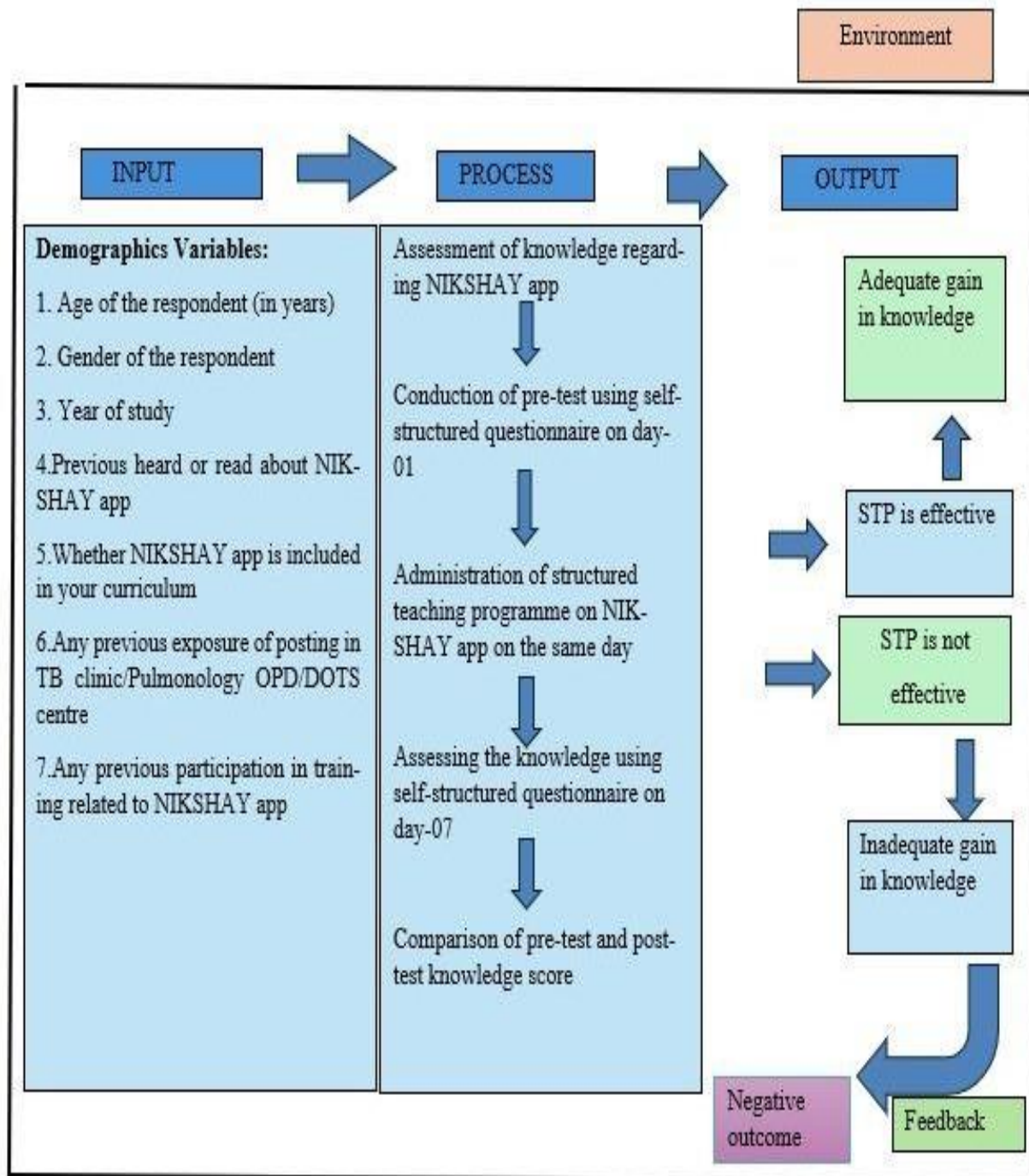


FIG 01: MODIFIED LUDWIG VON BERTALANFFY GENERAL SYSTEM MODEL

METHODOLOGY

A pre experimental study was done using one group pre-test and post-test design. The study was conducted among nursing students and 100 samples were selected using non probability purposive sampling technique. The study was conducted for a period of one week from 02.03.2026 to 08.04.2026. Nursing Students who were studying in the selected nursing colleges of Hyderabad were considered as the samples.

The inclusion criteria of the study included Students who are studying in 3rd & 4th year (5th to 8th semester) Basic B.Sc. Nursing and 2nd & 3rd year GNM, who are willing to participate in the study and who were available at the time of data collection.

An extensive search of literature was made for the purpose of developing appropriate tool for assessing the knowledge regarding the role of NIKSHAY app in Tuberculosis case management among nursing students. An instrument in the form of structured knowledge questionnaire was developed by the investigator with the help of selected literature from various text books and journals and internet and discussion with the experts in the field of community health nursing.

TOOLS AND TECHNIQUE

Tool - Self-Structured Knowledge Questionnaire Technique - Paper and Pen technique

Description of the tool:

This tool (self-structured knowledge questionnaire) was designed to collect relevant information from nursing students about knowledge regarding the role of NIKSHAY app in Tuberculosis case management and to assess the effectiveness of structured teaching programme on NIKSHAY app.

The tool consists of two sections:

Section A: questions related to demographic data of the samples

This section consists of information about demographic variables such as age in years, gender, year of study (B.Sc. 3rd & 4th year and 5th-8th semester, GNM 2nd & 3rd year), previously heard or read about NIKSHAY app, whether NIKSHAY app is included in your curriculum, any previous exposure of posting in TB clinic/pulmonology OPD/DOTS centre and any previous participation in training related to NIKSHAY app .

Section B: knowledge related question's

A structured knowledge questionnaire to assess the knowledge of nursing students. The questionnaire consists of 30 multiple choice questions.

SL.NO	KNOWLEDGE SCORES	SCORE PERCENTAGE	LEVEL OF KNOWLEDGE
1	0-15	<50%	Below average
2	16-22	51-75%	Average
3	23-30	>75%	Above average

The structured teaching programme on knowledge regarding the role of NIKSHAY app in Tuberculosis case management among nursing students administered for 30 minutes' duration. Lecture cum discussion were the teaching methods used and various audio-visual aids and in detailed descriptions were employed during the teaching session. The contents included in structured teaching programme were purpose, key features, other initiatives, benefits, accessing NIKSHAY app, patient management workflow, actions taken and patients status, general knowledge on TB and its management.

The reliability of the tool was tested by using split half technique. The Karl Pearson Co – efficient Correlation 'r' was computed by deviation method along with Spearman's Brown Correlation. The 'r' value obtained is 0.78 and the tool was found to be reliable. Pretest data was collected using the structured knowledge questionnaire from the selected nursing students. Structured teaching programme was administered on knowledge regarding regarding the role of NIKSHAY app in Tuberculosis case management. On the seventh day post-test was done using the same knowledge questionnaire. It was planned to analyze and interpret data with the help of descriptive and inferential statistics. The data was edited, coded and entered in excel sheet, using SPSS version 20 and the probability of less than 0.05 was considered statistically significant.

Demographic variables of nursing students were analyzed using frequency and percentage distribution. Results were analyzed using mean, mean percentage, standard and paired "t" test to find the significance of difference between the selected variables and the pre – test post - test knowledge scores. Chi – Square test to determine association between post – test knowledge scores and selected demographic variables

RESULTS

Section A – Sociodemographic data

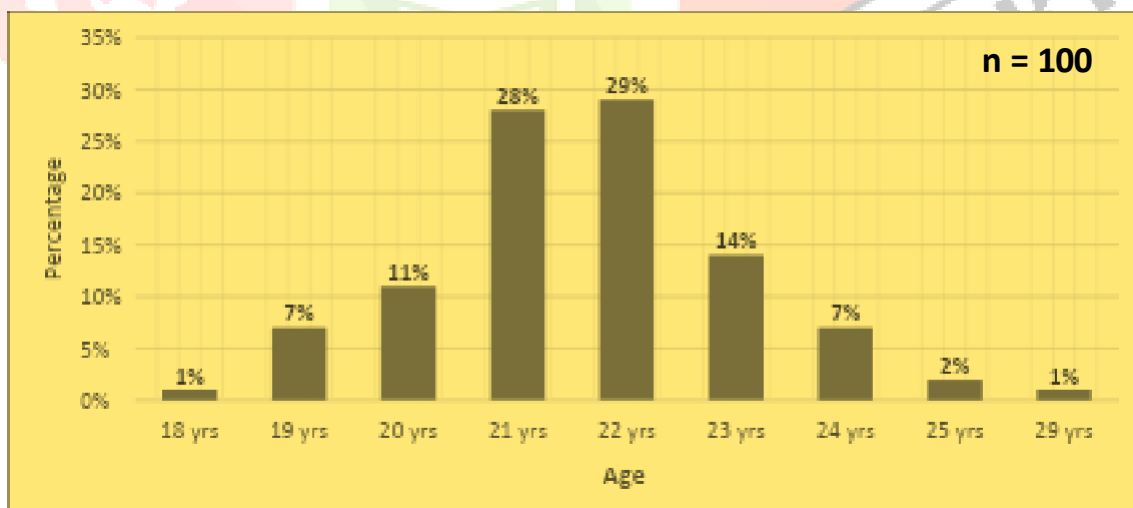


Figure 2: Simple bar diagram depicts percentage distribution of participants by age in years.

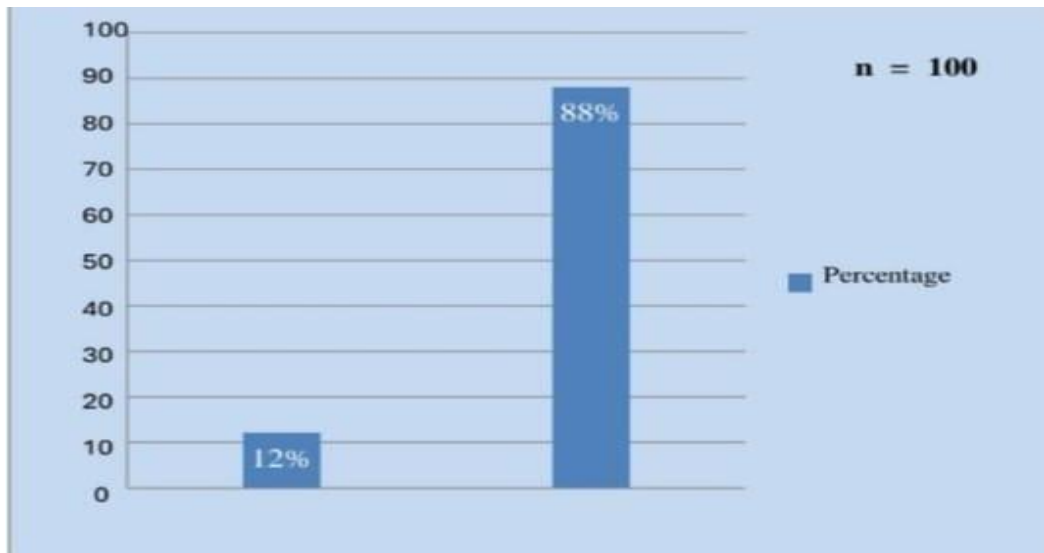


Figure 3: Bar diagram depicts the percentage distribution of participant’s gender.

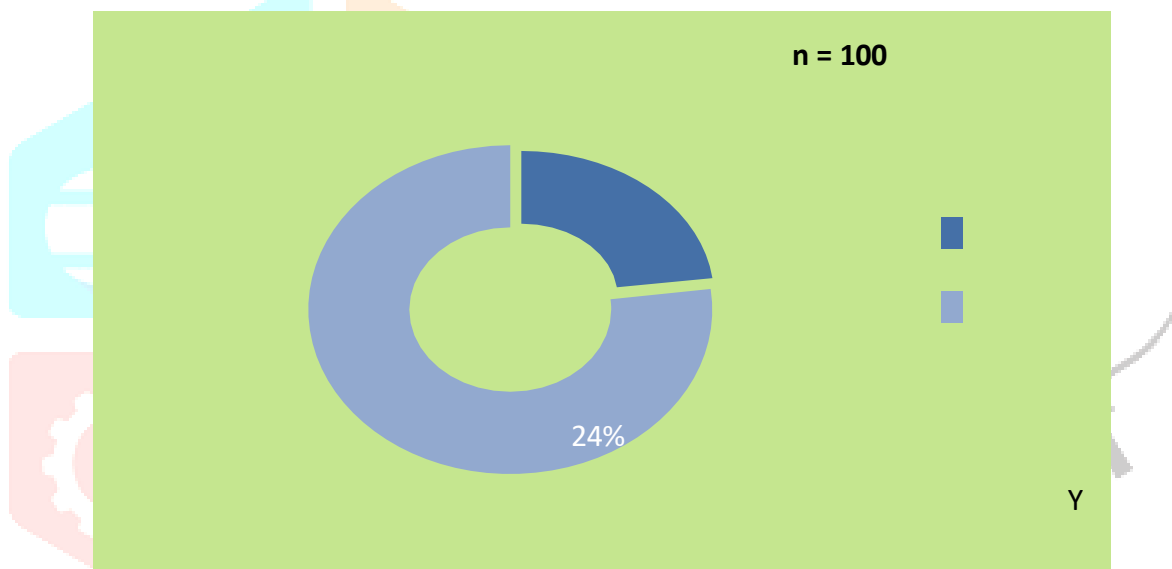


Figure 4: Doughnut diagram depicts percentage distribution of samples previously heard or read about NIKSHAY app.

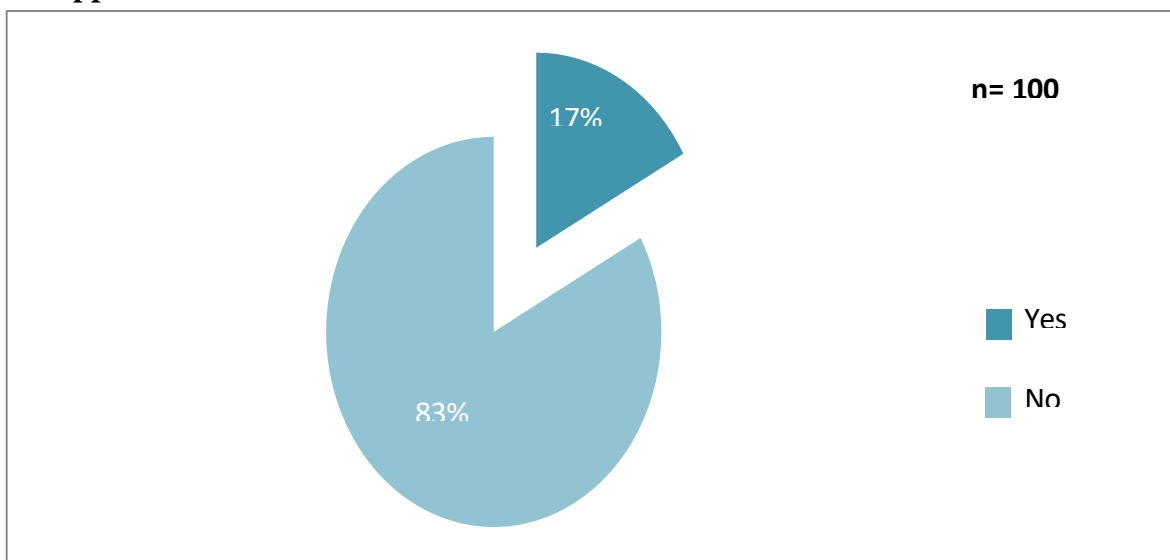


Figure 5: Pie diagram depicts percentage distribution of samples read about NIKSHAY in their curriculum.

Section B-Effectiveness of Structured teaching Programme in terms of ‘ t ’ value.

Table 2 – To assess the effectiveness of structured teaching Programme.

Area of knowledge	Pre-test Mean	Post-test Mean	Mean difference	‘t’value
Overall knowledge scores	15.73	23.48	7.75	22.9 P Value P<0.005

The above table explains that the pre -test mean was 15.73 and that of post- test was 23.48 with 7.75 mean difference and the calculated ‘ t ’ value was 22.9 which is higher than the table value of 2.027 at 59 df with 0.05 level of significance. It shows that there is a significant difference ($p<0.005$) in pre-test and post-test knowledge scores.

DISCUSSION

The present study was undertaken to assess the effectiveness of a structured teaching programme on knowledge regarding the role of the Nikshay App in Tuberculosis case management among nursing students. A pre-test and post-test design was used to evaluate the improvement in knowledge following the intervention. The findings of the study revealed that the pre-test mean knowledge score was 15.73, which increased to 23.48 in the post-test, showing a mean difference of 7.75. The calculated ‘ t ’ value was found to be statistically significant at 0.05 level of significance, indicating a significant difference between pre-test and post-test knowledge scores. This clearly demonstrates that the structured teaching programme was effective in enhancing the knowledge of nursing students regarding the role of the Nikshay App in TB case management.

Furthermore, the study findings showed a significant association between knowledge and selected demographic variables such as age, gender, prior exposure to Nikshay App in the curriculum, and participation in training programmes. However, no significant association was found with variables such as year of study, prior awareness of the Nikshay App, and clinical postings in TB-related settings. These findings suggest that formal education and structured training play a more critical role in knowledge enhancement than mere exposure or clinical postings.

Overall, the results emphasize the importance of integrating structured teaching programmes into nursing education to improve competency in utilizing digital health platforms under national programmes like the National Tuberculosis Elimination Programme.

CONCLUSION

The present study assessed the effectiveness of a structured teaching programme on knowledge regarding the role of the Nikshay App in Tuberculosis case management among nursing students. The findings revealed a significant improvement in the knowledge scores following the intervention, indicating that the structured teaching programme was effective. It can be concluded that structured teaching programmes play a vital role in enhancing the knowledge and competency of nursing students in utilizing digital health tools for TB case management.

The study highlights the need for incorporating digital health education, particularly training on platforms like the Nikshay App, into the nursing curriculum to strengthen TB control efforts and prepare future healthcare professionals for effective participation in national health programmes

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