A study to assess the effectiveness of information booklet and level of knowledge on DOT'S therapy among Nursing students in selected nursing college at Kanpur, Uttar Pradesh.

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ABSTRACT

Directly Observed Therapy Short-course (DOTS) is a globally recommended strategy for the effective management of tuberculosis. It focuses on supervised drug intake to ensure adherence and reduce treatment failure. The purpose of the current study was to evaluate how well an information booklet improved nursing students' understanding of DOTS therapy. The design used was a quantitative pre-experimental one-group pre-test and post-test.

The study included 70 nursing students selected using simple random sampling. Data were collected using a structured knowledge survey both prior to and following the intervention. The results showed that following the distribution of the information booklet, knowledge ratings significantly improved. The effectiveness of the intervention was demonstrated by statistical analysis, which revealed that the post-test scores were much higher than the pre-test levels. The study concludes that educational materials such as information booklets are useful tools in enhancing knowledge among nursing students.

Keywords: DOTS therapy, Tuberculosis, Nursing students, Knowledge, Information booklet

INTRODUCTION

Tuberculosis continues to be a major public health issue, particularly in developing countries. Effective treatment requires strict adherence to long-term medication regimens. However, non-compliance remains a significant barrier, leading to treatment failure and drug resistance.[1]

Directly Observed Therapy Short-course (DOTS) is a strategy designed to improve treatment adherence by ensuring that patients take their medications under supervision. This approach has been widely adopted due to its effectiveness in controlling tuberculosis.[2]

Nursing students, as future healthcare providers, play an important role in implementing such strategies. Therefore, it is essential that they possess adequate knowledge regarding DOTS therapy. Educational interventions, such as information booklets, can serve as simple and effective tools to enhance their understanding.[3]

BACKGROUND OF THE STUDY

Tuberculosis treatment typically requires a minimum duration of six months. Failure to complete treatment may result in relapse or development of drug-resistant strains. To address this issue, DOTS was introduced as a structured approach to monitor and support patients during treatment.

The method involves observation of patients while taking medication, either by healthcare professionals or trained individuals. With advancements in technology, alternatives such as video-based observation have also emerged.[4]

Despite its effectiveness, the success of DOTS largely depends on the knowledge and involvement of healthcare providers. Therefore, improving awareness among

nursing students is essential for better implementation in clinical settings.

If patients do not follow the treatment properly, the disease may persist and can lead to drug resistance, making it harder to treat. To improve treatment adherence, Directly Observed Therapy (DOT) has been introduced as an effective approach. In this method, a responsible person observes the patient while taking each dose of medication to ensure it is taken correctly.

With the advancement of technology, newer methods such as Video Observed Therapy (VOT) have emerged. This approach allows patients to record or attend live video sessions while taking their medication using devices like smartphones. VOT can be conducted either in real time or by sending recorded videos, offering a more flexible alternative to traditional supervision methods.[5]

STATEMENT OF THE PROBLEM

A study to evaluate the effectiveness of an information booklet on knowledge regarding DOTS therapy among nursing students in a selected nursing college at Kanpur, Uttar Pradesh.

OBJECTIVES

1. To assess pre-test knowledge regarding DOTS therapy among nursing students
2. To evaluate post-test knowledge after the intervention
3. To determine the effectiveness of the information booklet
4. To identify the association between knowledge and selected demographic variables

HYPOTHESIS

H1: There is a significant difference between pre-test and post-test knowledge scores

H2: There is a significant association between pre-test knowledge and demographic variables

METHODOLOGY

Research Approach

The effectiveness of the intervention was assessed using a quantitative evaluation method.

Research Design

The study used a pre-experimental design involving a single group, with measurements taken before and after the intervention.

Study Setting

The study took place in a nursing college that was specifically selected in Kanpur.

Population

The participants in the study were nursing students from the chosen college.

Sample and Sampling Technique

Seventy nursing students were randomly selected using a simple sampling method.

Inclusion Criteria

- Students who agreed to participate in the study
- Students who were available when the data were collected

Exclusion Criteria

 Students who chose not to participate in the study

 Students who were unavailable at the time of data collection

VARIABLES

Independent Variable: Information booklet on DOTS therapy

Dependent Variable: Knowledge level of nursing students

Demographic Variables: Age, education, income, source of information, etc.

DATA COLLECTION TOOL

A structured questionnaire was used, consisting of:

Section A: Demographic details

Section B: Knowledge-related questions (26 items)

Each correct answer was awarded one mark.

INTERVENTION

An information booklet on DOTS therapy was provided to participants. It was prepared in simple language and included relevant illustrations for better understanding.

DATA ANALYSIS

The findings of the present study are discussed in relation to the stated objectives. The results are arranged into three key parts: participants' socio-demographic details, differences between pre-test and post-test knowledge scores, and the link between knowledge levels and selected factors.

Section I: Socio-Demographic Characteristics of Respondents

The analysis of demographic data indicates that most participants belonged to the younger age group, with 41.42% between 18–22 years, followed by 31.42% in the 23–27 years category. A smaller proportion fell within 28–32 years (20.00%), while only 7.16% were above 32 years.

Regarding parity, more than half of the respondents (58.57%) belonged to the dominant category reported in the study.

In terms of educational status, a considerable proportion (45.72%) had primary-level education, while 41.42% were non-formally educated. Only a limited number had secondary (10.00%) or higher education (2.86%).

Monthly income analysis revealed that the largest group (45.72%) earned between ₹5,001–₹10,000, followed by 37.14% in the ₹10,001–₹20,000 range. A smaller percentage reported incomes above ₹20,001 (10.00%) or below ₹5,000 (7.16%).

With respect to maternal occupation, the majority (80.00%) were homemakers, whereas smaller proportions were engaged in business (10.00%), private employment (8.58%), or government service (1.42%).

Concerning prior awareness of DOTS therapy, mass media was identified as the primary source of information (48.14%), followed by healthcare professionals (33.33%) and interpersonal sources such as friends and neighbours (18.53%).

Section II: Comparison of Pre-test and Post-test Knowledge Scores

Part A: Area-wise Comparison

A comparison of knowledge scores across different content areas shows noticeable improvement after the intervention.

Knowledge related to introduction, definition, and types increased from 39.85% in the pre-test to 60.14% in the post-test. Similarly, understanding of the mechanism of action improved from 70% to 79.5%.

In the area of effectiveness, scores increased slightly from 84.33% to 88.67%, indicating already higher baseline awareness. Knowledge regarding DOTS therapy as a whole improved from 28.83% to 49.67%, showing a substantial gain.

Additionally, awareness of limitations, side effects, and contraindications rose from 69.33% to 79.67%, reflecting better comprehension after exposure to the educational material.

Part B: Interpretation of Knowledge Levels

The pre-test findings revealed that most nursing students had insufficient knowledge regarding DOTS therapy, with

none demonstrating an adequate level of understanding.

Following the intervention, there was a clear shift in knowledge levels. About 24.28% of participants achieved adequate knowledge, while 61.44% reached a moderately adequate level. Only 14.28% remained in the inadequate category.

This transition indicates a positive impact of the educational intervention on students' knowledge.

Part C: Effectiveness of the Information Booklet

A comparison of the pre- and post-intervention scores indicates a marked improvement. The mean score after the intervention (17.61 or 67.73%) was substantially higher than the mean score before it (7.42 or 28.53%).

The increase of 10.19 points (39.20%) suggests a considerable enhancement in knowledge. This difference was also statistically significant, as the calculated t-value (15.92) surpassed the critical value at the 0.05 level.

These results confirm that the information booklet was effective in improving knowledge regarding DOTS therapy among nursing students in the selected setting.

Section III: Association with Demographic Variables

The study also identified a significant relationship between pre-test knowledge scores and selected demographic variables. Factors such as age, parity, income, occupation, and prior exposure to information about DOTS therapy were found to influence baseline knowledge levels.

This suggests that socio-demographic characteristics play an important role in determining awareness and understanding of health-related topics.

RESULTS

Pre-test vs Post-test

- The baseline assessment reflected inadequate knowledge among the students.
- Scores after the intervention revealed a clear increase in understanding.

Effectiveness

- The significant difference between pre-test and post-test results suggests that the information booklet successfully improved knowledge levels.

DISCUSSION

The findings of the study demonstrate that educational interventions can significantly improve knowledge levels among nursing students. The improvement observed after the intervention highlights the importance of structured educational materials.[6]

The results are consistent with similar studies showing that planned teaching methods enhance knowledge and awareness in healthcare education.[7]

CONCLUSION

The study concludes that the information booklet was effective in improving knowledge regarding DOTS therapy among nursing students. Educational tools play a vital role in strengthening the understanding of future healthcare professionals.[8]

RECOMMENDATIONS

- Similar studies can be conducted with larger samples
- Different teaching methods can be compared
- Long-term retention of knowledge can be assessed

- Studies can be extended to other healthcare groups

REFERENCES

1. Clinical Info HIV.gov. Directly Observed Therapy (DOT) [Internet].
2. Karumbi J, Garner P. Directly observed therapy for treating tuberculosis. Cochrane Database Syst Rev. 2015.
3. Prasad BM, Chadha SS, Thekkur P, et al. Treatment outcomes in tuberculosis patients.
4. Karumbi J, Garner P. Directly observed therapy for treating tuberculosis. Cochrane Database Syst Rev. 2015 May 29;2015(5):CD003343. doi: 10.1002/14651858.CD003343.pub 4. PMID: 26022367; PMCID: PMC4460720.
5. Treatment of Tuberculosis: Guidelines. 4th edition. Geneva: World Health Organization; 2010. 3, Standard treatment regimens. Available from: https://www.ncbi.nlm.nih.gov/books/NBK138743.
6. Y.M. Alves, S.V. de Jesuz, T.Z. Berra, V.M.S. de Araújo, E.L.N. Maciel, R.A. Arcêncio Short-duration treatment for latent tuberculosis in migrants: VDOT monitoring in Manaus
7. R.A. Arcêncio, M.F. Oliveira, R.I. Cardozo-Gonzales, A. Ruffino-Netto, I.C. Pinto, T.C.S. Villa City tuberculosis control coordinators' perspectives of patient adherence to DOT in São Paulo State, Brazil, 2005
8. J. Karumbi, P. Garner Directly Observed Therapy For Treating Tuberculosis Cochrane Database Syst Rev, 2015 (5) (2015), Article Cd003343, 10.1002/14651858.Cd003343.Pub4