



A STUDY TO EVALUATE THE EFFECTIVENESS OF A STRUCTURED TEACHING PROGRAMME IN IMPROVING KNOWLEDGE AND PRACTICES REGARDING THE PREVENTION OF NON-COMMUNICABLE DISEASES AMONG HEALTHCARE PROFESSIONALS IN SELECTED HOSPITALS OF KARNATAKA.

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<https://doi.org/10.47211/tg.2025.v12i04.014>

ABSTRACT

Non-communicable diseases (NCDs) are a major public health concern and contribute substantially to morbidity, mortality, and healthcare burden. Healthcare professionals play an important role in promoting NCD prevention through health education and appropriate preventive practices. The present study was conducted to evaluate the effectiveness of a structured teaching programme on knowledge and practices regarding the prevention of NCDs among healthcare professionals in selected hospitals of Karnataka. A quantitative research approach with a pre-experimental one-group pre-test and post-test design was adopted. A sample of 100 healthcare professionals was selected using convenient sampling. Data were collected before and after the implementation of the structured teaching programme. The mean knowledge score increased from 15.84 ± 3.42 in the pre-test to 23.91 ± 2.87 in the post-test, with a mean difference of 8.07 ($t = 22.64$, $p < 0.001$). Similarly, the mean practice score increased from 16.27 ± 3.58 to 24.76 ± 2.69 , with a mean difference of 8.49 ($t = 24.81$, $p < 0.001$). The findings demonstrate that the structured teaching programme was highly effective in improving knowledge and preventive practices regarding NCDs among healthcare professionals.

Key Words: Structured teaching programme, Non-communicable diseases (NCDs), health, practices, health system.

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INTRODUCTION

Non-communicable diseases (NCDs) are diseases that are not transmissible from one person to another. [Lungsiwa PT,2007] Commonly existing NCDs include hypertension, diabetes mellitus, cardiovascular diseases (coronary heart disease and stroke), cancers, injuries, and chronic respiratory disease. Among the main contributing factors are older age and unhealthy lifestyle-related behaviors, hence the term “lifestyle-related diseases.” A general improvement of socio-economic factors within Sri Lanka and the resulting increase in life expectancy has contributed to an increase in the prevalence of NCDs.

Adolescents are classified as individuals between the ages of 10 to 19 years. In Sri Lanka, 19.7% of the population (3.7 million people) are adolescents; a majority of whom (72.9%) are schoolgoers. [Siegel KR, Patel SA, Ali MK,2014]

Non-communicable diseases (NCDs) such as metabolic, cardiovascular, cancers, injuries and mental health disorders are increasingly contributing to the disease burden in South Asia, in light of demographic and epidemiologic transitions in the region. Home to one-quarter of the world's population, the region is also an important priority area for meeting global health targets.

South Asia (as shown in below figure) is the most densely populated region. As home to one-quarter of the world's population, South Asia is a high-priority region for many public health concerns.

The region is also in the midst of an epidemiological transition. Since the 1970s, South Asia has experienced significant reductions in premature death and disability from communicable and nutritional diseases such as pneumonia, diarrheal diseases and malnutrition.

Still, infectious disease, maternal health and nutritional deficiencies remain prevalent and contribute to disease burdens. Meanwhile, NCDs have been emerging as leading causes of death as individuals are living longer and as globalization and urbanization are exposing individuals to concentrated risk factors.

NCDs account for sizeable proportions (from one third to two thirds) of all death and disability in the region, casting increasing attention upon NCDs among public health researchers and practitioners. (Institute for Health Metrics and Evaluation. The Global Burden of Disease: Generating Evidence, Guiding Policy—South Asia Regional Edition. Seattle, WA: Institute for Health Metrics and Evaluation, University of Washington and Human Development Network, The World Bank; 2013.) The World Health Organization (WHO) stated in 2002 that “in many regions, some of the most formidable enemies of health are joining forces with the allies of poverty to impose a double burden of disease, disability, and premature death in many millions of people.”(WHO 2002)

This is what is happening in South Asia, which has one-quarter of the global population but where about half the population lives below the poverty line and has limited access to health care. Although infectious diseases remain a formidable enemy, the population is aging, and non-communicable diseases are rising. South Asia has made fair economic progress in recent decades but is struggling to find a road towards sustainable development. (WHO 2002)

The epidemiological evidence on the socioeconomic status (SES) related patterning of NCDs remains limited in LMICs. Indian data drawn from the National Sample Survey Office (NSSO) 2004 found that the prevalence of NCDs was highest among higher-income groups when based on self-reported statistics [Mahal A, Karan A, Engelgau M (2010)].

REVIEW OF LITERATURE

Sirili N, Kilonzi M, Kiwango G, Lengai E, Nandala R, Mwakawanga DL, Philipo EG, Thobias JM and Frumence G (2024) conducted a study on Knowledge of non-communicable diseases and access to healthcare services among adults before and during COVID-19 pandemic in rural Tanzania. Results: Among 689 participants, more than half 369 (55%) had adequate knowledge of whether a disease is NCD or not; specifically, 495 (73.8%), 465 (69.3%), and 349 (52%) knew that hypertension, diabetes mellitus, and stroke are NCDs while 424 (63.2%) know that UTI is not NCD. Of the interviewed participants, 75 (11.2%) had at least one NCD. During the COVID-19 pandemic the majority 57 (72.2%) accessed healthcare services from nearby health facilities followed by traditional healers 10 (12.7%) and community drug outlets 8 (10.1%). Residence and education level were found to be significantly associated with knowledge of NCDs among participants. The study revealed that the community has a moderate level of knowledge of NCDs, and during the COVID-19 pandemic outbreaks, people living with NCD (s) relied on nearby health facilities to obtain healthcare services. Health system preparedness and response to pandemics



should take into account empowering the community members to understand that NCD care is continuously needed even during pandemic times

Dipa Chetry, Hancy Collins, 2024 conducted a study on A Study to Assess the Burden of Risk Factors of Non-Communicable Diseases among Adults of Urban and Rural Community in Kalimpong, India Result: In the comparison study of Behavioural risk factors among the adults of Urban and Rural communities it was revealed that the consumption of Tobacco is higher 14(70%) in rural than 9 (45%) in urban. Alcohol consumption is 6 (30%) which is equal in both Urban and Rural communities. The consumption of unhealthy diets is higher than 15 (75%) in Urban and 12(60%) in Rural. The presence of overweight is 6 (30%) in Urban and 4 (20%) in Rural. The presence of obesity is 2 (10%) which is equal in both Urban and Rural. The High risk for obesity as per waist circumference is 11(55%) in Urban and 12 (60%) in Rural communities. The prevalence of Hypertension was 55% in Urban and 35% in Rural. The prevalence of Diabetes was 35% in Urban and 25% in rural communities. Noncommunicable diseases cause a high rate of morbidity and mortality among adults of all age groups. Adequate surveillance of risk factors is the key to timely screening, prevention, and management of Non-communicable diseases. However proper risk assessment can prevent life-threatening complications and create awareness among Urban and Rural communities.

RESEARCH METHODOLOGY

The research approach adopted for this study will be quantitative approach. The research design adopted for this study will be pre-experimental. The study will be conducted at selected hospitals of Karnataka. . In the study accessible population consists of adults. The sample of the study consists of adults in selected hospitals. The sample size was 100 adults. The sampling technique adopted in the present study was convenient sampling technique

DATA ANALYSIS AND INTERPRETATION

Objective 1: To evaluate the effectiveness of the structured teaching programme in enhancing healthcare professionals' knowledge about the prevention of non-communicable diseases.

Null Hypothesis (H₀)

There is no significant difference between the pre-test and post-test knowledge scores of healthcare professionals regarding the prevention of non-communicable diseases.

Research Hypothesis (H₁)

There is a significant difference between the pre-test and post-test knowledge scores of healthcare professionals regarding the prevention of non-communicable diseases following the structured teaching programme.

Table 1: Comparison of Pre-test and Post-test Knowledge Scores Regarding Prevention of Non-Communicable Diseases Using Paired t-test (N = 100)

Knowledge Assessment	Mean	Standard Deviation	Mean Difference	t-value	p-value
Pre-test	15.84	3.42			
Post-test	23.91	2.87	8.07	22.64	<0.001*

Level of significance: p < 0.05

*Significant

Description of the Table

Table 1 presents the comparison between the pre-test and post-test knowledge scores of healthcare professionals regarding the prevention of non-communicable diseases. The mean pre-test knowledge score was 15.84 (SD = 3.42), whereas the mean post-test knowledge score increased to 23.91 (SD = 2.87). The mean improvement in knowledge score was 8.07. The paired t-test yielded a calculated t-value of 22.64 with a p-value of less than 0.001, indicating a statistically highly significant difference between the pre-test and post-test knowledge scores. Hence, the null hypothesis was rejected, and the research hypothesis was accepted.

Brief Calculation

Paired t-test Formula

$$t = \frac{\bar{d}}{S_d/\sqrt{n}}$$



Where,

- Mean Difference ($\bar{d}$) = 8.07
- Standard Deviation of Difference (S_d) = 3.57
- Sample Size (n) = 100

$$\begin{aligned}t &= \frac{8.07}{\frac{3.57}{\sqrt{100}}} \\&= \frac{8.07}{3.57/10} \\&= \frac{8.07}{0.357} \\&= 22.64\end{aligned}$$

Degrees of Freedom (df)

$$\begin{aligned}df &= n - 1 \\&= 100 - 1 = 99\end{aligned}$$

ANALYSIS AND INTERPRETATION

The findings demonstrate a marked improvement in the knowledge of healthcare professionals following the implementation of the structured teaching programme. The comparison of the pre-test and post-test mean scores revealed a substantial increase in participants' knowledge after the educational intervention. The pre-test mean score of 15.84 indicates that the participants initially possessed only a moderate level of understanding regarding the prevention of non-communicable diseases. Following the structured teaching programme, the mean score increased to 23.91, reflecting a considerable enhancement in knowledge.

The paired t-test was employed to determine whether the observed improvement was statistically significant. The obtained t-value of 22.64 with a p-value of less than 0.001 confirms that the difference between the pre-test and post-test knowledge scores was highly significant and unlikely to have occurred by chance. This finding provides strong statistical evidence that the structured teaching programme had a positive effect on improving healthcare professionals' knowledge regarding the prevention of non-communicable diseases.

Objective 2: To assess changes in healthcare professionals' practices related to the prevention of non-communicable diseases following the structured teaching programme.

Null Hypothesis (H_0)

There is no significant difference between the pre-test and post-test practice scores of healthcare professionals regarding the prevention of non-communicable diseases.

Research Hypothesis (H_1)

There is a significant difference between the pre-test and post-test practice scores of healthcare professionals regarding the prevention of non-communicable diseases following the structured teaching programme.

Table 2: Distribution of Participants According to Their Pre-test Practice Level (N = 100)

Sl. No.	Practice Level	Frequency (f)
1	Good	18
2	Average	45
3	Poor	37
Total		100

Description

Table 2 shows the distribution of healthcare professionals according to their pre-test practice level regarding the prevention of non-communicable diseases. The majority of participants demonstrated an average level of practice (45), followed by poor practice (37), whereas only 18 participants exhibited good practice before the implementation of the structured teaching programme. These findings indicate that preventive practices were suboptimal among a considerable proportion of participants at baseline.



Table 3: Distribution of Participants According to Their Post-test Practice Level (N = 100)

Sl. No.	Practice Level	Frequency (f)
1	Good	74
2	Average	21
3	Poor	5
Total		100

Description

Table 3 presents the distribution of healthcare professionals according to their post-test practice level following the structured teaching programme. The findings reveal that the majority of participants (74) demonstrated good practice after the intervention, while 21 participants exhibited average practice and only 5 participants remained in the poor practice category. The distribution indicates a marked improvement in preventive practices following the educational programme.

Table 4: Comparison of Pre-test and Post-test Practice Scores Using Paired t-test (N = 100)

Practice Assessment	Mean	Standard Deviation	Mean Difference	t-value	p-value
Pre-test	16.27	3.58			
Post-test	24.76	2.69	8.49	24.81	<0.001*

Level of significance: $p < 0.05$

*Statistically Highly Significant

Description of the Table

Table 4 compares the pre-test and post-test practice scores of healthcare professionals regarding the prevention of non-communicable diseases using the paired t-test. The mean pre-test practice score was 16.27 (SD = 3.58), which increased to 24.76 (SD = 2.69) after the implementation of the structured teaching programme. The mean improvement in practice score was 8.49. The calculated paired t-value was 24.81 with a p-value less than 0.001, indicating a statistically highly significant improvement in practice following the educational intervention. Hence, the null hypothesis was rejected and the research hypothesis was accepted.

Brief Calculation

Paired t-test Formula

$$t = \frac{\bar{d}}{S_d/\sqrt{n}}$$

Where,

- Mean Difference ($\bar{d}$) = 8.49
- Standard Deviation of Difference (S_d) = 3.42
- Sample Size (n) = 100

$$\begin{aligned} t &= \frac{8.49}{3.42/\sqrt{100}} \\ &= \frac{8.49}{3.42/10} \\ &= \frac{8.49}{0.342} \\ &= 24.81 \end{aligned}$$

Degrees of Freedom:

$$df = n - 1 = 100 - 1 = 99$$



ANALYSIS AND INTERPRETATION

The findings demonstrate a statistically significant improvement in the practice of healthcare professionals regarding the prevention of non-communicable diseases following the implementation of the structured teaching programme. Before the intervention, most participants demonstrated average or poor practice, indicating that the routine implementation of recommended preventive measures was inadequate. Following the educational programme, a substantial shift in practice level was observed, with the majority of participants demonstrating good practice. This improvement suggests that the structured teaching programme effectively enhanced the participants' ability to translate theoretical knowledge into appropriate preventive clinical practices.

The comparison of pre-test and post-test mean practice scores further supports this observation. The mean practice score increased from 16.27 before the intervention to 24.76 after the intervention, resulting in a mean improvement of 8.49 points. The paired *t*-test revealed a highly significant difference between the two assessments ($t = 24.81$, $df = 99$, $p < 0.001$), indicating that the observed improvement was unlikely to have occurred by chance. The reduction in the standard deviation in the post-test also suggests greater consistency in the adoption of recommended preventive practices among healthcare professionals after receiving the structured teaching programme.

DISCUSSION

The first objective of the present study was to evaluate the effectiveness of the structured teaching programme in enhancing healthcare professionals' knowledge regarding the prevention of non-communicable diseases. The present study demonstrated a statistically significant improvement in knowledge following the educational intervention. The mean knowledge score increased from 15.84 ± 3.42 during the pre-test to 23.91 ± 2.87 during the post-test, with a mean difference of 8.07. The paired *t*-test revealed a highly significant improvement ($t = 22.64$, $p < 0.001$), indicating that the structured teaching programme effectively enhanced participants' knowledge regarding non-communicable disease prevention. These findings are consistent with the systematic review conducted by del Pulgar et al. (2022), which evaluated nursing health education interventions for patients with non-communicable diseases. The review included studies published between 2008 and 2018 and concluded that structured educational interventions significantly improved knowledge, health education outcomes, self-management abilities, and preventive behaviours. The authors further reported that nursing-led educational interventions produced positive outcomes in nearly three-fourths of the included studies, emphasizing the effectiveness of structured teaching approaches in strengthening knowledge and promoting evidence-based practice. Similar to the findings of the present study, the review highlighted that well-planned educational programmes substantially improve the professional competencies required for effective prevention and management of non-communicable diseases. Therefore, the significant improvement in post-test knowledge observed in the present study supports existing scientific evidence that structured educational interventions are effective in enhancing healthcare professionals' knowledge and preparedness for preventive healthcare.

The second objective of the study was to assess changes in healthcare professionals' practices regarding the prevention of non-communicable diseases following the structured teaching programme. The present study demonstrated a significant improvement in preventive practices after the educational intervention. The mean practice score increased from 16.27 ± 3.58 during the pre-test to 24.76 ± 2.69 during the post-test, with a mean difference of 8.49. The paired *t*-test indicated a highly significant improvement ($t = 24.81$, $p < 0.001$), confirming that the structured teaching programme effectively translated knowledge into clinical practice. These findings are comparable with those reported by del Pulgar et al. (2022), who concluded that nursing health education interventions significantly improved healthy lifestyle practices, behavioural modifications, self-management skills, and adherence to preventive strategies among individuals with non-communicable diseases. The review emphasized that structured educational interventions enable healthcare professionals to provide more effective counselling, promote healthy behavioural changes, and deliver evidence-based preventive care. The improvement in preventive practices observed in the present study corroborates these findings and further demonstrates that educational interventions contribute not only to enhanced knowledge but also to measurable improvements in professional practice, thereby strengthening the overall quality of preventive healthcare services.



CONCLUSION

The study concluded that the structured teaching programme was effective in significantly improving healthcare professionals' knowledge and practices regarding the prevention of non-communicable diseases. A marked increase was observed in both knowledge and practice scores following the intervention, with statistically highly significant differences between pre-test and post-test scores ($p < 0.001$). The findings indicate that structured educational interventions can strengthen healthcare professionals' capacity to promote NCD prevention and encourage the adoption of appropriate preventive practices. Therefore, regular educational programmes and continuing professional development activities should be encouraged to enhance the quality of preventive healthcare services.

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