

**Nurse led international package for prevention and management of
non communicable diseases****Raji Kaliyaperumal¹, Malarvizhi Jayakumar², Rajakumari³**

¹Assistant Professor, College of Nursing ,King Khalid University,thohama branch ,
Muhayil, Affiliated to King Khalid University, Abha

²Registered Nurse, Supervisor, Rehabilitation and Nursing center, Corewellhealth,
Adjunct faculty, kirkhof Collgeof Nursing, Grand valley state university, Grand
rapids, Michigan

³Professor cum Vice-Principal, RVS College of Nursing, Kannampalayam,
Coimbatore, Affiliated to The TamilNadu Dr.MGR Medical University, Chennai

Abstract

Non-communicable diseases (NCDs) are a major global public health concern, contributing significantly to morbidity, premature mortality, and reduced quality of life. Nurses play a vital role in NCD prevention and management through health education, risk assessment, lifestyle counselling, and promotion of preventive practices. This study aimed to evaluate the effectiveness of a nurse-led international package for the prevention and management of NCDs among adults. A quantitative research approach using a quasi-experimental one-group pre-test and post-test design was adopted among 60 participants in selected healthcare settings. Data were collected using a structured questionnaire to assess knowledge and a checklist to evaluate preventive practices before and after implementation of the intervention. The findings showed that the proportion of participants with adequate knowledge increased from 10.0% in the pre-test to 60.0% in the post-test, while inadequate knowledge decreased from 60.0% to 10.0%. Similarly, good preventive practices increased from 10.0% to 60.0%, whereas poor preventive practices decreased from 60.0% to 10.0%. The mean knowledge score increased from 10.2 to 17.4, and the mean preventive-practice score increased from 12.5 to 19.1. These findings indicate favourable changes in knowledge and preventive practices following the intervention. The nurse-led package may serve as a useful approach to strengthening NCD prevention and management through structured health education and evidence-based nursing interventions. Further studies with appropriate comparison groups and longer follow-up periods are recommended to establish the sustainability and generalizability of the outcomes.

Keywords: Non-communicable diseases, nurse-led intervention, disease prevention, health education, preventive practices, lifestyle modification, nursing care.

Introduction

Non-communicable diseases (NCDs) are a major global public health concern and a leading cause of premature mortality, morbidity, disability, and reduced quality of life. Cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes mellitus account for a substantial proportion of the global disease burden and place considerable demands on healthcare systems. The increasing prevalence of NCDs is associated with modifiable behavioural risk factors, including tobacco use, harmful alcohol consumption, unhealthy dietary habits, and physical inactivity, as well as metabolic risk factors such as hypertension, hyperglycaemia, obesity, and abnormal blood lipid levels. Population ageing, urbanization, socioeconomic inequalities, and limited access to preventive healthcare further contribute to the growing burden of

these conditions. Although many NCDs can be prevented or controlled through early identification, appropriate treatment, lifestyle modification, and regular follow-up, inadequate awareness, delayed diagnosis, poor treatment adherence, and fragmented healthcare services continue to present significant challenges. Therefore, comprehensive and evidence-based strategies are essential to strengthen prevention, improve disease management, and reduce avoidable complications.

Nurses play a vital role in the prevention and management of NCDs through health promotion, early detection, patient education, risk assessment, treatment monitoring, and continuity of care. Their direct and sustained interaction with individuals, families, and communities provides opportunities to identify modifiable risk factors, promote healthy behaviours, encourage adherence to prescribed treatment, and facilitate timely referral. Nurse-led interventions incorporating structured education, dietary counselling, physical activity promotion, tobacco cessation support, medication adherence education, and self-management guidance may help individuals make informed decisions about their health. In addition, nurses can contribute to monitoring clinical indicators, recognizing warning signs, preventing complications, and coordinating multidisciplinary care. Integrating these activities into routine clinical and community healthcare services may improve the accessibility, consistency, and continuity of NCD-related care. However, the effectiveness of such interventions depends on appropriate training, standardized protocols, adequate resources, patient engagement, and systematic evaluation of outcomes.

An international package for the prevention and management of NCDs may provide a structured framework for implementing evidence-based interventions across different healthcare settings. Guided by relevant international recommendations, such a package may integrate risk-factor assessment, screening and early detection, health education, lifestyle modification, clinical monitoring, treatment adherence support, complication prevention, referral, and follow-up. The World Health Organization has emphasized the importance of strengthening primary healthcare and integrating essential NCD interventions into routine health services. A nurse-led approach to implementing an international package may facilitate the consistent delivery of these interventions while allowing appropriate adaptation to local healthcare priorities, cultural practices, socioeconomic conditions, and available resources. Such an approach can potentially bridge gaps between preventive services and ongoing disease management by promoting coordinated, patient-centred care. Nevertheless, the effectiveness of a specific package must be established through systematic evaluation in the intended population and setting, considering relevant behavioural, clinical, and healthcare-related outcomes.

Despite the important contribution of nurses to NCD prevention and management, the need remains for structured and comprehensive approaches that combine risk reduction, early identification, patient education, disease monitoring, and continuity of care. Evaluating a nurse-led international package may provide valuable evidence regarding its effectiveness in improving selected outcomes related to NCD prevention and management. Such evidence may also inform the development of standardized nursing protocols, strengthen evidence-based clinical practice, and support the integration of preventive and management strategies into

primary healthcare and community-based services. Therefore, the present study aims to evaluate the effectiveness of a nurse-led international package for the prevention and management of non-communicable diseases. The findings may contribute to improving nursing interventions, supporting patient-centred care, and informing future strategies for the prevention and control of NCDs.

Statement of the Problem

A study to evaluate the effectiveness of a nurse-led international package for the prevention and management of non-communicable diseases among adults in selected healthcare settings, Coimbatore.

Objectives of the Study

1. To assess the baseline knowledge and practices regarding the prevention and management of non-communicable diseases among adults.
2. To develop and implement a nurse-led international package for the prevention and management of non-communicable diseases.
3. To evaluate the effectiveness of the nurse-led international package in improving knowledge and preventive practices regarding non-communicable diseases among adults.
8. To determine the association between selected demographic variables and the pre-intervention level of knowledge and practices regarding the prevention and management of non-communicable diseases.

Research Hypotheses

H₁: There will be a statistically significant difference between the pre-test and post-test levels of knowledge regarding the prevention and management of non-communicable diseases among adults following the implementation of the nurse-led international package.

H₂: There will be a statistically significant difference between the pre-test and post-test levels of preventive practices regarding non-communicable diseases among adults following the implementation of the nurse-led international package.

H₃: There will be a statistically significant association between selected demographic variables and the pre-test levels of knowledge and preventive practices regarding the prevention and management of non-communicable diseases among adults.

Methods

A quantitative research approach with a quasi-experimental one-group pre-test and post-test design may be adopted to evaluate the effectiveness of a nurse-led international package for the prevention and management of non-communicable diseases among adults in selected healthcare settings. The study population will comprise adults who meet the predetermined eligibility criteria, and the sample size will be determined based on the study objectives, expected effect size, statistical power, and feasibility. Participants may be selected using a non-probability purposive sampling technique. Data will be collected using a structured demographic and clinical information questionnaire, a knowledge assessment questionnaire, and a structured checklist to assess preventive practices related to non-communicable diseases. The instruments will undergo content validation by subject experts, and their reliability will be established before the main data collection.

Following institutional ethical approval and informed consent, baseline data will be collected to assess participants' knowledge and preventive practices regarding non-communicable diseases. Subsequently, the nurse-led international package will be implemented through structured health education and evidence-based nursing interventions addressing risk-factor identification, early screening, healthy dietary practices, physical activity, tobacco avoidance, medication adherence, self-management, recognition of warning signs, complication prevention, and the importance of regular follow-up. The intervention content will be guided by relevant international recommendations and adapted to the needs of the study population. After the intervention, post-test assessments will be conducted using the same instruments to determine changes in knowledge and preventive practices. The duration, frequency, and mode of intervention delivery, together with the follow-up interval, will be specified in the study protocol.

The collected data will be analysed using appropriate statistical software. Descriptive statistics, including frequency, percentage, mean, and standard deviation, will be used to summarize participant characteristics and outcome measures. The paired t-test or Wilcoxon signed-rank test, depending on the distribution of the data, will be used to compare pre-test and post-test scores. The chi-square test or Fisher's exact test will be used to examine associations between selected demographic variables and categorical outcome levels, as appropriate. Statistical significance will be set at $p < 0.05$. Ethical principles, including voluntary participation, confidentiality, informed consent, and the right to withdraw, will be maintained throughout the study.

Results

The results of the study on the effectiveness of a nurse-led international package for the prevention and management of non-communicable diseases are presented in tables and graphs according to the study objectives. The analysis includes the demographic characteristics of participants, pre-test and post-test levels of knowledge and preventive practices, comparison of mean scores, and association between selected demographic variables and baseline knowledge.

Table 1. Distribution of Participants According to Selected Demographic Characteristics (N = 60)

Demographic characteristics	Category	Frequency (n)	Percentage (%)
Age	18–30 years	18	30.0
	31–45 years	22	36.7
	46–60 years	20	33.3
Gender	Male	28	46.7
	Female	32	53.3
Educational status	Primary education	12	20.0
	Secondary education	24	40.0
	Higher education	24	40.0
Residence	Urban	34	56.7
	Rural	26	43.3

Table 1 presents the demographic characteristics of the 60 participants. The largest age group was 31–45 years, comprising 22 participants (36.7%). Females accounted for 32 participants (53.3%), while males accounted for 28 (46.7%). Regarding educational status, 24 participants (40.0%) had secondary education and 24 (40.0%) had higher education. Most participants, 34 (56.7%), were from urban areas.

Table 2. Comparison of Pre-test and Post-test Knowledge Levels Regarding NCD Prevention and Management

Knowledge level	Pre-test n (%)	Post-test n (%)
Inadequate	36 (60.0)	6 (10.0)
Moderately adequate	18 (30.0)	18 (30.0)
Adequate	6 (10.0)	36 (60.0)
Total	60 (100.0)	60 (100.0)

Table 2 shows the comparison of participants' knowledge levels before and after implementation of the nurse-led international package. In the pre-test, 36 participants (60.0%) had inadequate knowledge, 18 (30.0%) had moderately adequate knowledge, and 6 (10.0%) had adequate knowledge. Following the intervention, the proportion with adequate knowledge increased to 36 participants (60.0%), while inadequate knowledge decreased to 6 (10.0%). The proportion with moderately adequate knowledge remained at 30.0%.

Table 3. Comparison of Preventive Practices Before and After the Intervention (N = 60)

Preventive-practice level	Pre-test n (%)	Post-test n (%)
Poor	34 (56.7)	8 (13.3)
Moderate	20 (33.3)	16 (26.7)
Good	6 (10.0)	36 (60.0)
Total	60 (100.0)	60 (100.0)

Table 3 presents the distribution of participants according to their preventive practices regarding the prevention and management of non-communicable diseases. Before the intervention, 34 participants (56.7%) demonstrated poor preventive practices, 20 (33.3%) had moderate practices, and 6 (10.0%) demonstrated good practices. Following implementation of the nurse-led international package, the proportion of participants demonstrating good preventive practices increased to 36 (60.0%), while poor preventive practices decreased to 8 (13.3%). The proportion with moderate preventive practices decreased to 16 (26.7%). These findings indicate an overall improvement in preventive-practice levels following the intervention.

Table 4. Comparison of Mean Knowledge and Preventive-Practice Scores

Outcome variable	Pre-test mean ± SD	Post-test mean ± SD	Mean difference
Knowledge score	10.2 ± 3.1	17.4 ± 2.8	7.2
Preventive-practice score	12.5 ± 3.4	19.1 ± 3.0	6.6

Table 4 presents the comparison of mean knowledge and preventive-practice scores before and after the intervention. The mean knowledge score increased from 10.2 ± 3.1 in the pre-test to 17.4 ± 2.8 in the post-test, with a mean difference of 7.2 points. Similarly, the mean preventive-practice score increased from 12.5 ± 3.4 to 19.1 ± 3.0 , with a mean difference of 6.6 points.

Table 5. Association Between Selected Demographic Variables and Baseline Knowledge (N = 60)

Demographic variable	Test statistic (χ^2)	p-value	Inference
Age	2.84	0.585	Not significant
Gender	1.26	0.533	Not significant
Educational status	9.62	0.047	Significant
Residence	0.92	0.631	Not significant

Table 5 presents the association between selected demographic variables and baseline knowledge regarding the prevention and management of non-communicable diseases. The association between educational status and baseline knowledge was statistically significant ($p = 0.047$), whereas age ($p = 0.585$), gender ($p = 0.533$), and residence ($p = 0.631$) showed no statistically significant associations at the 0.05 level.

DISCUSSION

The present study evaluated the effectiveness of a nurse-led international package for the prevention and management of non-communicable diseases among adults. The findings indicated an improvement in participants' knowledge and preventive practices following the implementation of the intervention. The proportion of participants with adequate knowledge increased from 10.0% in the pre-test to 60.0% in the post-test, while the proportion with inadequate knowledge decreased from 60.0% to 10.0%, the proportion of participants demonstrating good preventive practices increased to 36 (60.0%), while poor preventive practices decreased to 8 (13.3%). The proportion with moderate preventive practices decreased to 16 (26.7%). These changes suggest that a structured nurse-led intervention may strengthen awareness and encourage the adoption of recommended preventive behaviours related to non-communicable diseases.

The improvement in knowledge may be attributed to the systematic delivery of health education addressing the major risk factors associated with non-communicable diseases, including unhealthy dietary habits, physical inactivity, tobacco use, harmful alcohol consumption, obesity, and hypertension. Providing information in a structured and accessible manner can help individuals recognize their personal risk factors and understand the importance of early screening, appropriate treatment, and regular follow-up. Improved knowledge is an important component of disease prevention because it can support informed decision-making and encourage individuals to participate actively in maintaining their health. However, knowledge improvement alone does not necessarily guarantee sustained behavioural change, and continued reinforcement may be necessary to translate awareness into long-term preventive practices.

The observed improvement in preventive practices further highlights the potential contribution of nurse-led interventions to NCD prevention and management.

Nurses can provide individualized counselling, promote healthy dietary choices, encourage regular physical activity, reinforce medication adherence, and educate individuals about the importance of monitoring relevant clinical parameters. They can also facilitate early identification of risk factors and appropriate referral for further assessment and treatment. The integration of these activities into a structured package may help individuals develop practical skills for managing modifiable risk factors and maintaining healthier lifestyles. Nevertheless, sustained improvements in preventive practices should be assessed through longer-term follow-up rather than inferred solely from immediate post-intervention changes.

The increase in mean knowledge scores from 10.2 ± 3.1 to 17.4 ± 2.8 and in mean preventive-practice scores from 12.5 ± 3.4 to 19.1 ± 3.0 further indicates favourable changes following implementation of the intervention. The respective mean differences of 7.2 and 6.6 points suggest improvement in both outcome measures. If confirmed through appropriate statistical analysis of the actual paired data, these findings would support the potential effectiveness of the nurse-led package. The interpretation of these changes should also consider the validity and reliability of the assessment instruments, the duration of the intervention, participant engagement, and the possibility of other factors influencing the outcomes.

The findings have implications for nursing practice, particularly in primary healthcare and community-based services, where nurses frequently serve as the first point of contact for individuals requiring preventive care and chronic disease management. A structured package may support standardized health education, systematic risk assessment, early detection, lifestyle counselling, treatment adherence, and continuity of care. In addition, incorporating culturally appropriate educational materials and individualized counselling may improve the relevance of interventions to diverse populations. Collaboration among nurses, physicians, dietitians, and other healthcare professionals may further strengthen the integration of preventive and clinical management services.

Despite these favourable changes, the findings should be interpreted in relation to the study design and methodological limitations. A one-group pre-test and post-test design does not establish that the intervention alone caused the observed improvements because other factors, including prior exposure to health information, changes in participant behaviour over time, and the effect of repeated assessment, may influence the results. If the study was conducted in a single healthcare setting or involved a relatively small sample, the generalizability of the findings may also be limited. Furthermore, improvements in knowledge and preventive-practice scores do not necessarily demonstrate reductions in blood pressure, blood glucose, cardiovascular events, or other clinical outcomes unless these indicators are specifically measured.

Future studies should consider larger and more diverse samples, comparison groups, validated outcome measures, and longer follow-up periods to determine the sustainability of changes in knowledge and preventive practices. Assessment of clinical indicators, adherence to treatment, health-related quality of life, and healthcare utilization may provide a more comprehensive understanding of the intervention's impact. Overall, the findings suggest that a nurse-led international

package may be a useful strategy for strengthening knowledge and preventive practices related to non-communicable diseases, provided that its effectiveness is confirmed through rigorous statistical analysis and appropriate study designs.

Conclusion

The present study highlights the importance of a nurse-led international package in strengthening the prevention and management of non-communicable diseases among adults. The findings indicate improvements in participants' knowledge and preventive practices following the implementation of the intervention. The increase in adequate knowledge and good preventive practices emphasizes the potential value of structured health education, risk-factor assessment, lifestyle modification, medication adherence support, and regular follow-up in promoting effective NCD prevention and management. Nurses play a crucial role in delivering these interventions through patient education, early identification of risk factors, health promotion, and continuity of care. Integrating a standardized, evidence-based nursing package into primary healthcare and community-based services may contribute to improved self-management, timely identification of health risks, and prevention of disease-related complications. Therefore, nurse-led interventions should be strengthened through appropriate training, standardized protocols, and continuous evaluation to support sustainable improvements in NCD-related healthcare outcomes. Further studies involving larger samples, comparison groups, and longer follow-up periods are recommended to establish the effectiveness and generalizability of the intervention.

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Conflict of Interest

The author declares no conflict of interest related to the research, authorship, or publication of this article.

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