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ORIGINAL RESEARCH ARTICLE

EFFECTS OF HEALTH EDUCATIONAL INTERVENTION ON KNOWLEDGE TOWARDS NON-COMMUNICABLE DISEASES AND ITS RISK FACTORS AMONG STUDENTS OF A SELECTED SCHOOL OF CHITWAN

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ABSTRACT

Background: There is rising prevalence of non-communicable diseases (NCDs) and associated mortality in developing and moderately developed countries. Nepal is currently moving in a transition from infectious diseases to NCDs. In Nepal, NCDs are the leading causes of death with two thirds (66%) of death attributable to NCDs. The aim of the study was to assess the effects of the health educational intervention on knowledge towards NCDs and its' risk factors among school students.

Methods: This study is quasi experimental pre-test-post-test design conducted among the plus-two students of a selected school of Chitwan. All the plus-two students studying at Sunrise school were enrolled for the study. Complete enumeration technique was used for selecting study units. A "one-hour educational intervention package" was administered by researcher themselves with NCDs and NCD risk factors related information. Pretested, self-constructed, structured questionnaire was administered 20-minute prior the intervention and immediately after the intervention. Both descriptive and inferential statistics were computed at 5% level of significance

Results: Median knowledge score was 9 out of total 25 in pretest and it increased to 19 after intervention. The change in the score was significantly different in pre and posttest ($p<0.001$). Pre-test and post test scores were almost similar in both male and female except in pre-test in total knowledge score.

Conclusions: One-hour educational class room package was found effective to improve the NCD related knowledge of plus two students in study area.

INTRODUCTION

There is rising prevalence of non-communicable diseases (NCDs) and associated mortality in developing and moderately developed countries.[1,2]Nepal is currently moving in a transition from infectious diseases to non-communicable diseases as causes of deaths from NCDs outnumbers the infectious diseases deaths.[3,4] The Nepal Burden of Disease 2017 study shows that NCDs are the leading causes of death with two thirds (66%) of death attributed to NCDs, and an additional 9% to injuries.[5]Some findings published by WHO demonstrate an 8 percent surge in NCDs-deaths between 2014 and 2016.[6,7]

There are numerous risk factors of NCDs classified as modifiable (physical inactivity, unhealthy diets tobacco consumption and alcohol consumption) and non-modifiable (age, genetic factors). Majority of the NCDs are associated with lifestyle related factors along with environmental and genetic factors. Plenty of literature has shown that behavioral risk factors of NCDs are often emerged during the earlier years of life.[8,9,10] It is estimated that approximately 70% of premature deaths occurring during adulthood are the result of health-related behaviors that are begun in childhood and adolescence.[11]

More than half of the NCDs burden may be averted by health promotion and prevention initiatives.[12] Evidence suggests that health education interventions focused on behavioral factors are more fruitful if conducted by targeting settings rather than population-based approaches alone.[13]

The aim of this study was to assess the effects of the educational intervention package on knowledge regarding NCDs and their risk factors among the plus-two students of selected school of Chitwan.

METHODS

This study is a quasi experimental pre-test-post-test interventional study conducted among the plus-two students of a selected school of Chitwan on 24th March 2022. Pretested, self-constructed, structured questionnaire was made with four-options-objective questions consisting 3 parts, i.e., Socio-demographic information, knowledge related to NCDs and knowledge related to risk factors of NCDs based on the previous references.[14,15] Complete enumeration

technique was used for selecting study units. All the plus-two students studying at Sunrise school situated in Bharatpur - 4 were enrolled for the study. Students, who were currently on leave or absent during the day of intervention were excluded from the study.

Study participants enrolled were kept in a large hall by maintaining suitable gap between the students. Self-administered questionnaire with objective questions were distributed 20 minutes prior the actual educational intervention. All participants filled questionnaire which were collected after 20 minutes. A self-constructed "one-hour educational intervention package on NCDs and its' risk factors" was administered by the researchers themselves. The intervention package was a one-hour lecture delivered by the principal investigator with the prior-developed PowerPoint presentation (PPT). The PPT contained two parts, i.e., Major non-communicable diseases and its magnitude in global and national level, and Risk factors of NCDs and measures to reduce these. After the completion of the educational session, participants were requested to fill the same questionnaire with their own unique code within 20 minutes time.

The scoring was used to measure the level of knowledge of students by giving 1 score for the correct response and 0 score for an incorrect or don't know response for each question. Finally, the total knowledge score was computed by summing the scores of total questions. Collected data was entered into IBM SPSS Version 20 and analyzed. Descriptive statistics like frequencies, percentages, measures of central tendency and measures of dispersion were computed. Wilcoxon signed rank test were applied to assess the changes in pretest and post test scores.

Ethical clearance was obtained from the Chitwan Medical College (CMC-IRC-078/79/227) prior the data collection. Informed consent was taken from the participants aged 18 years and above and an assent form was sent to their respective parents prior the data collection day and their approval was retrieved in the form of signature. Participants were asked to sign the informed consent form before the data collection.

RESULTS

Nearly 60% of participants were male. Highest proportion of the participants (44.6%) were the Brahmin. Regarding religion, 85.1% of participants were Hindu followed by Buddhist (11.4%) (Table 1).

Table 1: Baseline characteristics of participants

Parameters	Frequency (%)
Age (in years)	
16	33 (27.3)
17	72 (59.5)
18	16 (13.2)
Sex	
Male	73 (59.3)
Female	48 (39.7)
Ethnicity	
Brahmin	54 (44.6)
Chhetri	27 (22.3)
Others*	40 (33.1)
Religion	
Hindu	103 (85.1)
Buddhist	14 (11.4)
Others**	4 (3.3)

*Janajati, Adibasi; **Muslim, Christian

There were significant differences (p<0.001) between pre-test and post-test in NCDs related basic knowledge (Median/ Interquartile Range (IQR): 4.0/2.0 versus 9.0/1.0); NCDs risk factors related knowledge (Median/IQR: 5.0/3.0 versus 11/3.5) and total knowledge (Median/IQR: 9.0/5.0 versus 19.0/4.0) (Table 2).

Table 2: Change in pre and post test score of NCD related knowledge before and after the educational intervention

Parameters	Pre-test		Post-test		P value*
	Median (IQR)	Minimum/ Maximum	Median (IQR)	Minimum/ Maximum	
Knowledge score on NCDs	4.0 (2.0)	0.0-8.0	9.0 (1.0)	4.0-11.0	<0.001
Knowledge score on risk factors of NCDs	5.0 (3.0)	0.0-9.0	11.0 (3.5)	3.0-13.0	<0.001
Total knowledge score	9.00 (5.0)	4.0-16.0	19.0 (4.0)	10.0-23.0	< 0.001

Table 3: Change in pre and post test score of NCD related knowledge before and after the educational intervention across male and female

Knowledge score	Male Median (IQR)	Female Median (IQR)	P value*
NCD knowledge			
pretest score	4.00 (2.50)	4.00 (3.00)	0.70
posttest score	9.00 (1.00)	9.00 (3.00)	0.98
Risk factors of NCDs			
pretest score	5.00 (2.00)	5 (2.75)	0.231
posttest score	10 (4.00)	11 (3.00)	0.206
Total knowledge score			
pretest score	9.00 (4.00)	10.00 (4.00)	0.049
posttest score	18.00 (4.00)	19.00 (5.00)	0.314

*Mann-whiteny U test

The distribution of NCD knowledge was same across both sexes, which indicated there was not significance difference in the NCD knowledge in pretest. Although the score has significantly increased in post-test, the difference was not significant across sexes in post test score. Similarly, the distribution of NCDs risk factors knowledge was same between both sexes in pre-test as well as in posttest. However, the distribution of total knowledge score had significant difference between male and female in pre-test. There was no significant difference in post test score across male and female. The distribution of NCD risk factor knowledge is same across both sexes which indicated there was not significant difference in the NCD risk factor knowledge before intervention. Similar result was observed on post test score as well (Table 3).

DISCUSSION

The study aimed to assess the impact of "one-hour educational intervention" regarding NCDs and NCDs risk factors among the plus-two students. Main finding suggests that the intervention was successful to improve the NCDs related knowledge of plus two students in study area through the intervention as assessed through pre-test and post-test method

In the present study, very brief one-hour training program was conducted among the study participants to see the effect of the low-cost intervention. The intervention has proven effective as there was a huge knowledge difference between pre-intervention and post-intervention level of knowledge. Findings demonstrated that there were significant differences($p<0.001$) between pre-test and post-test in NCDs related knowledge (Median/IQR: 4.0/2.0 versus 9.0/1.0); NCDs risk factors related knowledge (Median/IQR: 5.0/3.0 versus 11/3.5) and total knowledge (Median/IQR: 9.0/5.0 versus 19.0/4.0). Similar effectiveness of educational intervention on NCDs were observed in the studies conducted in Jordan[16], Arab[17] and India[18]. A school-based intervention conducted among Malaysian adolescents also showed that there was significant improvement in knowledge of healthy life style practice of the participants.[19] Present study highlighted that there were no significant differences in the total NCD knowledge on pretest among males (Median/IQR: 4.0/2.5) and females (Median/IQR: 4.0/3.0). Although the score has significantly increased in post-test, the difference in knowledge level was not significant across sexes in post test score. However, the distribution of total knowledge score had significant difference between male and female in pre-test only ($p<0.05$), there was no significant difference in post test score across male and female. Similar study conducted in Jordan reported increased level of NCDs knowledge was observed regardless of gender.[16] Similar findings were reported in an Indian study where improvement was significant among both genders after short training.[20]

The finding of the present study couldn't be compared with the similar studies of Nepal as there was no study conducted through the similar approach in Nepal. Although the intervention modalities were different, most of the studies in a systematic review of school-based interventions to prevent NCDs risk factors showed positive effect; 80% of the studies found at least some evidence of a positive interventional effect.[21] A previous study of rural India also concludes that school based interventions are feasible and effective in improving knowledge as well behavior of non- NCD risk factors in adolescents.[22] Therefore, schools are important places for health instruction and behavior change.

The study finding suggests that there is huge need of cost-effective intervention among plus-two students apart from routine academic classes to upgrade their knowledge on NCDs and NCDs risk factors irrespective to the gender of the students. It is important to integrate health education regarding NCDs into the school curricula using innovative approaches to reduce unhealthy behaviors in young population. Raising awareness about specific health problems among plus-two students can increase their responsibility towards their own health by adopting healthy lifestyles to reduce their risk for developing diseases later in life. Single centric study and limited to a small catchment area are the limitations of the present study.

CONCLUSION

This was a quasi-experimental study conducted to assess the effect of the low-cost one-hour health education intervention package among the plus-two students. One-hour educational class room package was found successful to improve the NCD related knowledge of plus two students in study area. Such education interventions have to be conducted on a regular basis to improve students' knowledge and discourage them from adopting harmful lifestyles.

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CONFLICT OF INTEREST: None

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