

Effectiveness of Educational Intervention on Life Style Management among Coronary Heart Disease Patients Attending a Cardiac Care Centre in Kathmandu

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Abstract

Introduction: Adopting healthy life style reduces Coronary Heart Disease (CHD) progressions which help to enhance quality of life of CHD patients. The aim of this study was to identify the effectiveness of educational intervention on "Living well with CHD".

Methods: A one group pretest-post test design was used. The study was conducted during November to December 2015. Total 100 subjects were selected for pre test, base line information were collected using convenient sampling technique. The educational intervention package of one hour teaching sessions were arranged in separate room in OPD of Sahid Gangalal National Heart Centre (SGNHC) regularly for one week period with one session per day and each participant was provided the booklet prepared in Nepali language during the education sessions. After one month of education intervention program, post test was conducted with 90 subjects using same interview questionnaire and feedback questionnaire.

Results: The result shows that the knowledge regarding life style management was significantly higher among post test group than pre test group at 0.0001 levels. The percentage of respondents with inadequate level of knowledge decreased sharply from 57% to 1% where as those with adequate knowledge increased to 99% from 43%, which was found to be statistically significant (p value=0.0001).

Conclusion: Study concludes that the education intervention programme has considerably increased knowledge regarding life style management among CHD patients. Therefore, it is recommended that this educational intervention programme may be conducted to CHD patients in similar settings with fruitful outcome.

Key words: Educational intervention, lifestyle management, coronary heart disease.

Introduction

World Health Organization (WHO) estimates that non-communicable disease will soon become the principal global cause of morbidity and mortality in Nepal¹. Non communicable diseases such as diabetes, hypertension, obesity and coronary heart disease are on the rise in Nepal during recent years, which is attributed mainly to changes in the lifestyles; lack of exercise and unhealthy dietary patterns are believed to be responsible for the shift in the disease patterns in recent decades². Decreased physical activity, unhealthy diet (such as a preference for fatty food, bakery items and excessive use of dates, etc.), a culture of fast food and increasing popularity of soft drinks and artificially sweetened fruit juices, and smoking are becoming a part of the culture in Nepal³. All of these factors have a direct impact on the risk of obesity, Coronary Heart Disease (CHD), hypertension

and type 2 diabetes mellitus⁴. Lifestyle changes are the largest challenge to health status of the population in Nepal⁵. Unfortunately, patients of chronic diseases most of the time fail to make changes in dietary habits and increase physical activity, as advised by their physicians after the diagnosis is confirmed. This leads to a higher risk of complications, particularly among CHD patients⁶. Health education to the patients with CHD, both in the form of tailored patient education, or participation in education programme on life style management topics, have a profound effect on the patient's knowledge and understanding of the risk involved with carelessness about their health⁷. Compliance to the doctor's orders with regard to the pharmacological treatment regimen, as well as brining about fundamental and lasting changes in the lifestyle play a central role in prolonging survival and improving quality of life⁸. Many studies showed

patient education to be successful in altering compliance⁹⁻¹². In Nepal, a community based intervention program for non-communicable diseases prevention and health promotion was found to be successful in addressing diet related diseases at primary, secondary, and tertiary levels prevention¹³.

The health literacy is the most important part in secondary prevention of coronary heart disease¹⁴. The self instructional module on living well with CHD is to consider the people custodians of their own health, and to empower them with the information to make decisions for their health and lifestyle¹⁵. Thus the people themselves decide about their daily life activities and routines to ensure achievement of good health¹⁶. Health education and awareness is the effective way to disseminate information and encourage people to adopt healthy lifestyles. Adoption of a healthy lifestyle not only helps in the prevention of diseases, but also in reducing the complications resulting from these diseases¹⁷. However, health education plays an important role in rehabilitation of these patients, who routinely visit the OPD of SGNHC for follow-up and replenishment of their drug supplies. This gives an excellent opportunity for educational intervention including counseling program that provides the tools for secondary prevention of CHD management. In this paper, we present the results of an educational intervention to CHD patients for secondary prevention. In particular, we focused on the patients of myocardial infarction, angina pectoris and ischemic heart failure. Among these patients, educational intervention including information booklet on "living well with CHD" was directed to minimize cardiac events, avoid complications, promote healthy lifestyles and ensure compliance to the physician's instructions. This study was conducted to assess the effectiveness of educational intervention on the life style management of patients with coronary heart diseases.

Methods

The study used a pre-experimental research design namely one group pre test-post test design. The study was conducted in Sahid Gangalal National Heart Centre (SGNHC) during November and December 2015. The study population comprised of the CHD patients visiting the SGNHC for follow up purposes. Ethical approval was taken from Institutional Review Committee (IRC) of SGNHC. Pre-test was carried out with 100 CHD patients in total, in one week period, which was followed by an educational intervention each day. During the intervention, the patients received interactive health education intervention along with information booklet on "Living well with CHD" from the investigator. Each day about 15 to 20 CHD patients participated in pre test, which was followed by educational intervention. Four enumerators (public health students) along with the principal investigator collected the data. Post-test was

conducted after one month of education intervention, using the same questionnaire as at the pre test. The post test data was also collected in the same hospital during the follow up visit.

The data from the pre test and post test were compared to assess the effectiveness of the educational intervention on knowledge regarding life style management of respondents. The questionnaire was developed according to content of the booklet "living well with CHD" for enhancing quality of life among CHD patients. Both the questionnaire and information booklet were prepared in Nepali language. The questionnaire included sections on socio-demographic characteristics (age, sex, living place, living status, ethnicity, religion, family type, educational status and occupation), disease related characteristics (types of CHD, duration of treatment, co-morbidities, financial burden and participated in other CHD awareness program, and questions related to knowledge about life style management of CHD patients.

Calculation of the sample size was based upon the assumption that respondents with 'adequate knowledge' life style management would constitute $50\% \pm 10\%$ (40 – 60%) of the target population. Assuming 95% confidence interval ($\alpha = 0.05$), we calculated sample size of 100 OPD of SGNHC for each group. The questionnaires were administered to the first 100 patients (male or female) visiting the SGNHC during the pre-specified period of times assigned to collect data before intervention (pre-test) and one month after the intervention (post-test).

Results

The actual number of completed interviews was 100 in the pre-test group and 90 in the post test group with 10% sample loss in post test. The obtained data are presented in tables. Table 1 presents the Sociodemographic characteristics of the CHD patients. Table 2 presents Disease related characteristics of the CHD patients. Table 3 presents Knowledge about living well with CHD before and after education intervention and Table 4 presents Difference in level of knowledge on living well with CHD before and after education intervention.

Table 1 presents the comparison of sociodemographic characteristics of respondents, which showed that age variation was found from 30-88 years, mean $\pm$ SD age of respondents was 53.23 ± 14.22 years in pre test and 52.86 ± 14.03 years in post test. Highest group of respondent (34%) were from the age group 45-59 years and male (55%) and (53.23%) in pre test and post test respectively. Similarly, more than half (52%) and (51.1%) of respondents residing in urban region in pre test and in post test respectively. Similarly, more than two third (76%) and 75.6 % were living with their family in the pre test and post test respectively. Brahmin/ Chhetri were the highest ethnic group in pre test (59%) as well as in post test (62.2%). Most of the respondents followed

Hinduism as a religious belief among pre test (84 %) and post test (82.2%). Half of the respondents (51%) and (50%) of the respondents belonged to the joint family, about more than half (58%) and (61%) of the respondents

were literate and thirty five percent and thirty six percent of respondents were engaged in house work between baseline and end-line surveys respectively.

Table 1 Sociodemographic Characteristics of the Coronary Heart Disease Patients

Socio-demographic Characteristics	Responses in percent	
	Pre-Test	Pre-Test
	n=100	n=90
Age group (in years)		
30-44	29.0	30.0
45-59	34.0	34.4
60-74	26.0	25.6
>74	11.0	10.0
Mean	53.23	52.86
SD	14.22	14.03
Minimum & Maximum	30 - 88	
Sex		
Male	55.0	54.4
Female	45.0	45.6
Place of Residence		
Rural	48.0	48.9
Urban	52.0	51.1
Living Status		
Living with family	76.0	75.6
Living single*	24.0	24.4
Ethnicity		
Brahmin/Chhetri	59.0	62.2
Indigenous/Janajati	35.0	32.2
Dalit	6.0	5.60
Religion		
Hindu	84.0	82.2
Non-Hindu	16.0	17.8
Type of Family		
Nuclear	49.0	50.0
Joint	51.0	50.0
Education Status		
Literate	58.0	61.1
Illiterate	42.0	38.9
Occupation**		
Farmer	21.0	22.2
Housework	35.0	35.6
Service	23.0	23.3
Business	21.0	18.9

* Included unmarried, divorced, widower/widow **Included household activities like cooking, washing, cleaning, etc but do not earn money.

Table 2 presents the comparison of disease related characteristics of the respondents, majority were found that angina pectoris, in pre test (47%) and post test (47.8), belongs to more than 1 years of duration of treatment, in pretest (56%) and post test (56.6%), under continuous medical treatment, in pre test (52%) and post test (48.9%), (37%), presence atleast one co-morbidities equally(37%) among pre and post test group and not getting chances to participate in CHD awareness program in pre test (56%) and in post test (58.9%) between baseline and end-line

groups respectively.

Table 2 presents the comparison of disease related characteristics among pre and post test group, majority were found that angina pectoris (47%) and (47.8), belongs to more than 1 years of duration of treatment (56%) and (56.6%), under continuous medical treatment (52%) and (48.9%), presence at-least one co-morbidities equally (37%) and not getting chances to participate in CHD awareness program (56%) and (58.9%) respectively.

Table 2 Disease related Characteristics of the Coronary Heart Disease Patients

Disease related characteristics	Responses in percent	
	Pre-Test	Post-Test
	n=100	n=90
Types of CHD		
Myocardial Infarction	28.0	25.6
Angina Pectoris	47.0	47.8
Ischemic heart failure	25.0	26.7
Duration of Treatment		
<1 year	44.0	45.6
>Years	56.0	54.4
Mode of Treatment*		
CMT	52.0	48.9
PI	11.0	12.2
CABG	8.0	8.9
CMT+PI	13.0	14.4
CMT+CABG	8.0	7.8
CMT+PI+CABG	8.0	7.8
Presence of Co-morbidities		
None	16.0	16.7
Only one	37.0	36.7
Only two	20.0	20.0
All three	27.0	26.7
Participated other CHD awareness Program before		
Yes	44.0	41.1
No	56.0	58.9

*CMT=Continuous Medical Treatment, PI= Percutaneous Intervention and CABG= Coronary Artery Bypass Graft
Table 3 presents the results of McNemar test, whereby the knowledge about life style management was found statistically significant at 0.0001 levels in pre-test and post test positively which indicates educational intervention has positive effect on CHD patients.

Table 3 Knowledge about Living Well with Coronary Heart Disease Before and After Education Intervention

Knowledge related Statement	Responses in Percent		Difference	P-value*
	Pre-Test	Post-Test		
	(n = 100)	(n = 90)		
Meaning of CHD	75.0	100	25	0.0001
Type of CHD	45.0	93.3	48	0.0001
Cause of Angina	35.0	94.4	59	0.0001
Cause of MI	44.0	94.4	50	0.0001
Cause Heart failure	47.0	94.4	47	0.0001
Diagnostic Measure for CHD	32.0	87.8	56	0.0001
Meaning of Stent	27.0	85.6	59	0.0001
Tips for control of CHD	58.0	91.1	33	0.0001
Type of Exercise	26.0	76.7	51	0.0001
Time and duration need for exercise/week	14.0	56.7	43	0.0001
Point to be consider before starting exercise	21.0	55.6	35	0.0001
Meaning of healthy diet	63.0	98.9	36	0.0001
Special point to maintain QOL of CHD patients	53.0	91.1	38	0.0001
Right time for resume duty after Open heart surgery	24.0	68.9	45	0.0001
Precaution to be taken to avoid same type of problem arise after intervention also	59.0	97.8	39	0.0001
Management of emergency conditions	49.0	100.0	51	0.0001
Felt need of Cardiac Rehabilitation Centre	85.0	98.9	14	0.002
Complications of CHD	53.0	93.3	40	0.0001

* Using McNemar Test

Table 4 reveals difference between the level of knowledge on living well with CHD was found to be statistically significant (p value=0.0001). The percentage of respondent with inadequate knowledge decreased sharply from 57 to 1.11% where as those with adequate knowledge increased to 89% from 43%. This clearly indicates that educational intervention has positive effective on knowledge regarding life style management on CHD patients.

Table 4 Difference in Level of Knowledge on Living Well with Coronary Heart Disease Before and After Education Intervention

Knowledge Level	Category	Responses		P-value*
		Pre-Test	Post-Test	
		No. (%)	No. (%)	
Inadequate	<57%	57 (57)	1 (1.1)	<0.0001
Adequate	>57%	43 (43)	89 (98.9)	
Total		100 (100%)	90 (100)	

* Using McNemar Test; Median score of overall knowledge=17 (57%)

Table 5 presents that 57.8% reported that the educational intervention booklet was very useful for their daily life. Sixty percent respondents felt that the contents included in information booklet were very good. Similarly, sixty six percent respondents confirmed that their knowledge about life style management has upgraded and seventy nine percent respondents suggested that overall evalu-

ation of the education intervention program was very good.

Discussion

Findings of this study suggest that the educational intervention program was successful in bringing significant changes in the knowledge about lifestyles management in coronary heart disease patients. The results from this study are similar to several other similar intervention studies such as an education intervention

and counseling with a nurse involved found that these interventions were very effective in the increase of compliance among patients with coronary heart disease^{7, 8, 15, 18, 19}. These findings are in accord with the findings of the Shrestha (2012) reported that the effect of health education has helped CHD patients to adoption healthier lifestyle⁵.

Similarly, a study conducted in Sweden reported that significant correlation between patient's general knowledge about coronary heart disease risk factors and improvements in weight loss ($p=0.040$), physical activity ($p=0.005$), stress management ($p=0.004$), dietary changes ($p=0.018$)²⁰. A systematic review reported that cardiac rehabilitation measures have shown to reduce risk factors, such as medication and lifestyle related intervention including physical exercise, diet, and stress management. These intensive lifestyle interventions program lead to improved quality of life and significantly lifestyle changes and reduction of coronary artery stenosis in patients with CHD^{11, 12, 21, 22}.

Moreover, a randomized clinical trial conducted in Australia also supported this study finding which revealed that the use of text messaging service to convey any problems regarding life style management compared with usual care resulted in a greater improvement in cardiovascular disease risk factors¹⁹.

The conclusion of this study is that education intervention program on "living well with CHD" in hospital based health setting tends to have considerable effect on raising the knowledge about life style management among CHD patients. It follows that specially designed education programs directed at such patients would have a much large effect. It is recommended that this awareness program may be conducted for the CHD patients to enable them for the modification of their life style which will also be useful for the enhancement of their quality of life.

Limitations

Due to the use of one group pre test and post test design the result might have been influenced by mortality testing, maturation and history effect. Likewise sampling might also have affected the result of the study.

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Authors Contribution

RS conceived this research work; SS is RS's supervisor and contributed to all aspects of this study from making proposal to finalization of the manuscript.

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