

Effect of Coping and Threat Intervention on Physical Activity Intention among Government Employees of Baglung Municipality

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ABSTRACT

Physical inactivity is one of the major risk factors for non-communicable diseases. Physical activity related to work was categorized into vigorous, moderate and low levels. Dissatisfaction with body image proportionally increases with increasing BMI and engagement in some form of physical activity. The main objective of this study was to determine the effectiveness of coping and threat intervention to increase the physical activity intention among employees of governmental offices in Baglung Municipality. This study was done among 15-69 age group which are at risk of developing obesity and its related diseases. Since obesity and physical activity are associated it is essential to explore obesity related information session for change physical activity intention, which provides the rationale for the current study. One group pre-test, post-test design was used in this study. Physical activity intention was measured applying protection motivation theory based on self-administered questionnaire, and anthropometric assessment was used to measure the body mass index. Formative research was done to develop educational intervention. Forty eight samples from different governmental organization of Baglung Municipality selected from simple random sampling without replacement technique. Frequency, percentage, mean and standard deviation for univariate, chi-square and paired t-test for bivariate analysis was done. Most of the participants were male (81.3%) with mean age of (40.19 ± 10.61) years and plurality of the participants were in 45-69 age groups (41.7%). There was significant increase in self efficacy towards physical activity (p<0.049) and severity towards obesity (p<0.001) after the intervention. Both intention towards physical activity (p<0.001) and health literacy (p<0.001) were significantly increased after intervention. Interactive lecture was effective to bring about changes in self efficacy, severity, intention and health literacy. Interactive lecture method based on coping and threat strategies of protection motivation theory is recommended to increase physical activity intention and health literacy among governmental employees.

Key words : Physical exercise, Protection motivation theory, Body image, Health literacy, body mass index.

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INTRODUCTION

Physical inactivity is one of the major behavioral risk factors for Non Communicable Diseases, which is categorized into vigorous, moderate and low levels of activity. Vigorous physical activity means any activity that causes a significant rise in heart rate and breathing rate with continuous engagement in such activities for at least ten minutes. Moderate physical activity was defined as any activity that causes a moderate increment in heart rate and breathing rate with continuously engaging in such activity for at least 30 minutes.^{1,2} Physical activities are lower among government employees, self-employee and house wives than agro farmers.³ A study conducted in Brazilian adolescents investigated body image dissatisfaction and its relationship with physical activity and body mass index. Body image dissatisfaction was strictly related to BMI, but not to physical activity.⁴ Obesity related health information is important

for increasing physical activity. Average number of days young adult performed physical activity was increased significantly from baseline to 2-week period.⁵ A formative research was done prior to study which shows that only 20% participants had knowledge on physical activity and only 10% meet physical activity as recommended by WHO in the study area. Literature shows that inadequate physical activity was more likely among government employees, self-employees and housewives. Similarly, applications of protection motivation theory including coping and threat interventions have positive outcomes; both at intention and behavioral levels; in sedentary lifestyles, obesity and physical inactivity.⁶⁻¹⁰ The objective of this study was to determine effect of coping and threat intervention on increasing physical activity intention among employees of government offices in Baglung Municipality.

METHODS

Interventional study (one group pre-test, post-test design) was conducted by enrolling 48 employees of government offices in Baglung Municipality. Sample size was calculated based on the study carried out by Mirkarimi and colleagues with the findings of mean self-efficacy of 29.83 (standard deviation, 7.34) in the intervention group and 25.085 (sd, 7.58) in the control group, with 95% confidence interval, and 80% power, the initial sample size was 40 by applying the formula, $n = (s_1^2 + s_2^2) (z_{1-\alpha/2} + z_{1-\beta})^2 / (x_1 - x_2)^2$. Assuming 16% loss to follow-up, final sample size was 48. Pre-intervention assessment was done in first week of April, 2018. Then interactive lecture was delivered focusing severity, self-efficacy and intention towards physical activity in third week of April, 2018. The intervention was followed by post-intervention assessment. Ethical approval was taken from Institutional Review Committee of Pokhara University Research Center.

Data collection tools and techniques

The digital weight measuring instrument and portable height measuring instrument was used to measure the weight and height of the participants. The questionnaire for PMT construct is adopted from the similar study done in Wayne State University's Graduate School/Department of Psychology, among young adults student.⁵ Questionnaire was converted in Nepali language for better understanding of the respondents. Information was collected about self-efficacy towards physical activity, severity towards obesity and intention on physical activity. Godin Leisure-Time Exercise Questionnaire was used to assess the physical activity level of the participants. Questionnaire for body image dissatisfaction was adopted from study conducted in Kathmandu among adolescent.¹¹

Formative study, pre-testing, reliability and validity of tools

Formative research was carried out before the study and revealed the need of educational intervention on physical activity. Formative research showed that only 20% of the participants had knowledge on physical activity and only 10% met physical activity criteria as recommended by WHO in this area. Tools were pre-tested and further corrections were incorporated in the questionnaire. Translation and Re-translation of the tools in English and Nepali language to ensure the same meaning was done. Experts' views of behavioral science and health promotion were taken to finalize the lecture.

Data collection and analysis

Data was entered in Epi Data version 3.1 then exported to SPSS for analysis. Frequency, percent, mean, and standard deviation for descriptive and chi-square test and paired t-test for bivariate analyses were done.

Operational definitions of the terms

Body mass index (BMI)

Body Mass Index (BMI) was operationally defined as per WHO recommendation: weight in kilograms divided by the square of the height in meters (kg/m^2) and cut-off taken as 18.5, 25 and 30 for underweight, normal, overweight and obese.

Body image dissatisfaction (BID)

Body image dissatisfaction was measured with the valid pictorial tool of perceived and ideal body size and further classified as negative body dissatisfaction (score<0), no body dissatisfaction (score=0), and positive body dissatisfaction (score>0) based on the calculation of difference between perceived and ideal body size.

Physical activity self-efficacy

Self-efficacy was measured as a belief of one's capability of performing the recommended behavior. It refers to total sum score derived from all 10 items of self-efficacy toward physical activity ranging from 10 to 50.

Obesity severity

Severity was measured as one's perception of the seriousness of the health threat. It refers to total sum score derived from all 30 items severity towards physical activity ranging from 30-150.

Physical activity intention

Physical Activity intention was operationally defined as intention to do at least 30 minutes of moderate physical activity at least once, 3-5 times a week. It refers to total sum score of intention on physical activity ranging from 5 to 25.

RESULTS

Forty eight government employees having mean age of 40.2 ± 10.6 , including nine females, from health, education and others sectors voluntarily participated in this study, among whom two-thirds were from non-officer level. Pluralities of participants were of 45-69 age-group (41.7%). Mean BMI was 23.5 ± 2.6 and 25 percent were found to be overweight (Table 1).

Table 1 : Socio-demographic characteristics of the participants

Variables	Number (n=48)	Percent
Sex		
Male	39	81.3
Female	9	18.8
Age		
15-29	12	25
30-44	16	33.3
45-69	20	41.7
Mean±SD	40.2±10.6	
Education		
Up to primary school	6	12.5
Secondary school completed	9	18.8
Higher secondary (10+2,PCL) completed	11	22.9
Bachelors degree completed	11	22.9
Postgraduate degree completed	11	22.9
Ethnicity		
Dalit, Janajati, non-dalit terai caste	8	16.7
Upper Caste (Brahmin, Chhetri, Thakuri)	40	83.3
Marital Status		
Married	40	83.3
Unmarried	8	16.7
Service Sector		
Education	13	27.1
Health	8	16.7
Others (Agriculture, Administration and similar)	27	56.3
Involve in Government Service		
1-10 years	18	37.5
11-20 years	15	31.3
21 and above years	15	31.3
Level		
Non-Officer	32	66.7
Officer	16	33.3
BMI		
Under Weight	1	2.1
Healthy Weight	35	72.9
Over Weight	12	25
Mean±SD	23.5±2.6	
BID		
Negative body dissatisfaction	6	12.5
No body dissatisfaction	18	37.5
Positive body dissatisfaction	24	50.0

Majority (50%) of participants had positive body dissatisfaction (i.e., BID score > 0), and more than one-third (12.5%) had negative body dissatisfaction (BID < 0) (Table 1).

Table 2: Association between age, BMI, and health literacy with BID

Variables	Chi-statistic	p-value
Age	0.46	0.35
BMI	5.80*	0.018
Health literacy	0.38	0.39

*Cramer's V

Participants' BMI and perception towards body image was significantly associated ($p=0.018$, Cramer's V = 5.80), although age and health literacy were not significant (Table 2).

Table 3: Physical activity

Variables	Number	Percent
WHO recommended physical activity score		
Inactive	16	33.3
Active	32	66.7
Mean±SD	36.6±32.8	
Engage in physical activity		
Often	13	27.1
Sometimes	22	45.8
Never	13	27.1

Two-third (66.75%) employees were active who completed WHO recommended physical activity score. Less than half (45.8%) of the employees were sometimes engaged in physical activity in previous week (Table 3).

Table 4: Summary scores and differences of health literacy, self-efficacy, severity and intention

Variables	Possible Range	Pre-test		Post-test		Mean Diff.	t-statistic	p-value
		Actual Range	Mean±SD	Actual Range	Mean±SD			
Health literacy on physical activity and obesity	0-20	0-16	5.5±5	9-20	18.1±2.6	12.6	16.87	<0.001
Self Efficacy	10-50	26-45	38±4.6	30-49	39.4±4.5	1.35	2.02	0.049
Severity	30-150	69-149	110.5±17.6	95-150	125.7±14.0	15.21	6.287	<0.001
Physical activity Intention	1-5	1-5	4.1±0.9	4-5	4.8±0.4	0.71	5.08	<0.001

There is a positive increase in mean score of all the variables in post-test compared to pre-test mean score. Self-efficacy was observed just significant ($p<0.049$). The mean scores for health literacy towards obesity and physical activity between pre-test and post-test were found to be statistically different ($p<.001$). Mean scores for intention towards physical activity was found statistically different ($p<.001$) between pre-test and post-test. Range, mean and standard deviation of the sum score of the result of pre-test and post-test are presented (Table 4).

DISCUSSION

Educational intervention and physical activity intention

This study indicated that there is a significant difference in mean score before and after the intervention. After intervention, physical activity intention was significantly increased ($p<0.001$). Similar study conducted in Iran, America and Canada also reported consistent finding with this study where educational intervention increased the mean

score of physical activity intention on intervention group compared to the control group.¹²⁻¹⁵

Present study showed that Precaution Motivation Theory (PMT) based intervention had a significant effect on physical activity intention. These findings are in line with study conducted in Wayne State University's Psychology department which shows that over time, physical activity increased significantly from baseline to two-week follow-up period.^{5, 16}

Educational intervention and severity towards obesity

This study revealed that educational intervention increases the mean score of severity towards obesity from pre-test (110.50 ±17.63) to post test (125.71±14.02). There was significant difference ($p<0.001$) in mean score of severity towards physical activity after the intervention. Similar study conducted in Iran revealed that intervention package increased weight loss and severity scores.^{12, 15}

Educational intervention and self-efficacy towards physical activity

Present study showed that the mean score on self-efficacy is marginally significant ($p=0.049$). This result is consistent with the result of several studies which suggest that people associate the coping mechanisms highly effective than threat mechanism for maintaining exercise with combating obesity.^{12, 13, 17}

Educational intervention and health literacy towards obesity

This study shows that mean score of health literacy towards obesity and physical activity was increased after the intervention where mean score 5.48 ± 5 , 18.08 ± 2.56 before and after intervention respectively. There was significant difference on health literacy before and after the intervention that means health literacy play important role to increase physical activity intention. Health literacy was significant contributor to control body weight and intervention focused information related to obesity which was important to increase physical activity. This results supported by an experimental study which showed that obesity related information are important to control body weight and increase the physical activity.¹⁸

CONCLUSION

Interactive lecture method including coping and threat intervention was effective to increase health literacy, self-efficacy, severity, and intention towards physical activity. There is evidence for the effectiveness of the PMT based educational intervention for guiding the development of physical activity intervention among healthy populations. The study suggests that PMT-based information can be a powerful intervention to increase the physical activity intention.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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