Original Research Paper

Home Science

IMPACT OF COUNSELING ON RISK OF METABOLIC SYNDROME AMONG THE WORKING YOUTH IN THE AGE GROUP OF 20-30 YEARS

Maya Jhanwar*	M.Sc., Clinical Dietician, (Dietetics & Food Service Management) *Corresponding Author
Dr. Munira Husain	Professor M.J.B Govt. Girls PG College, Indore, India

ABSTRACT   The young employees are at increasing risk of metabolic syndrome because lack of physical activities, changes in dietary patterns etc. 100 youth who were further equally divided into control and experimental group were selected by getting their consent and ethical clearance. The information regarding physical activity, nutritional status, and dietary habits were collected at the onset and after a lap of 6 months of the experimental intervention. The results showed significant increase in the mean scores of physical activity (13.84-13.86), beverage intake (24.00-25.16), snacks intake (27.14-30.26), and food group intake (22.74-24.70) in experimental group. The percentage of youths had decreased significantly from 16% to 14% in high risk, 62% to 36% in low risk, 50% to 22% in moderate risk of metabolic syndrome at post test level. So, lifestyle and dietary modification has proved a sustainable tool in bringing down risk of metabolic syndrome among working youth.

KEYWORDS : metabolic syndrome, lifestyle modifications, ethical clearance

INTRODUCTION
Metabolic syndrome is a disorder of energy utilization and storage, diagnosed by a co-occurrence of three out of five of the following medical conditions: abdominal (central) obesity, elevated blood pressure, elevated fasting plasma glucose, high serum triglycerides, and high-density cholesterol (HDL) levels. Metabolic syndrome increases the risk of developing cardiovascular disease particularly heart failure, and diabetes.

Metabolic syndrome is increasing in prevalence, paralleling an increasing epidemic of obesity. In the United States, where almost two third of the population is overweight or obese, more than one fourth of the population meets diagnostic criteria for metabolic syndrome (Grundy, 2008). In the United States, data from a 1999-2000 survey showed that the age-adjusted prevalence of metabolic syndrome among adults aged 20 years or older had risen from 27% (data from 1988-1994) to 32% (Ford ES et al.,2004).

Metabolic syndrome is a burgeoning global problem. Approximately one fourth of the adult European population is estimated to have metabolic syndrome, with a similar prevalence in Latin America (Grundy, 2008). The prevalence of metabolic syndrome in East Asia may range from 8-13% in men and from 2-18% in women, depending on the population and definitions used (Hoang KC et al., and Nestel P et al., 2007).

Various strategies have been proposed to prevent the development of metabolic syndrome. These include increased physical activity (such as walking 30 minutes every day), (Lakka TA, Laaksonen DE, 2007) and a healthy, reduced calorie diet (Feldeisen SE, Tucker KL, 2007). So, this study highlighted the importance of encouraging youths who are entering adulthood to eat breakfast regularly and to make healthy food choices, limiting their fast food consumption.

METHODOLOGY
In present study systematic purposive random sampling technique was used for the sample selection. 100 Youths of the age group 20 – 30 yrs were selected through purposive sampling (Volunteering) method out of which 50 individuals who had attended awareness program were considered as experimental youth and 50 individuals who had not attended sessions of awareness program were considered as control youth. All employees were informed about the study, its objectives, its protocol and what was expected from the employees during the study.. An informed consent was obtained from all patients.

Ethical clearance: Approval to conduct the study was received from the Independent Ethics Committee, Vashi (Mumbai).

The information regarding gender, education, marital status, years of working, activity level information regarding their general health status was collected.
- **Anthropometric measurements:** To assess the overall nutritional status of the subjects under study, the anthropometric measurements such as height, weight, circumferences of waist and hip done. Combinations or simple ratios of these measurements such as BMI, WHR are used in this epidemiological study to provide indicators of body composition.
- **Dietary pattern:** To assess the dietary pattern a Food Frequency Questionnaire containing list of food groups, snacks and beverages was used. Food group intakes were found out in daily or weekly. The interviewer instructed respondents to recall and describe their foods and beverages consumption pattern at least over last three months period.
- **Physical activity:** Participants were asked about the frequency and extent of physical activity on a weekly basis, including sports, physically active hobbies, and fitness exercises they are perusing regularly over the past three months period at least.
- **Biophysical markers:** blood pressure (both systolic as well as diastolic pressure) and biochemical markers like fasting blood glucose and serum triglyceride n HDL Cholesterol were assessed.

The risk of metabolic syndrome was calculated according to guidelines of the NCEP Criteria III, metabolic syndrome is diagnosed when a patient has at least 3 of the following 5 conditions:
- Fasting glucose ≥ 100 mg/dL (or receiving drug therapy for hyperglycemia)
- Blood pressure ≥ 130/85 mm Hg (or receiving drug therapy for hypertension)
- Triglycerides ≥ 150 mg/dL (or receiving drug therapy for hypertriglyceridemia)
- HDL-C < 40 mg/dL in men or < 50 mg/dL in women (or receiving drug therapy for reduced HDL-C)
- Waist / hip circumference ≥ 0.9 in men or ≥ 0.85 in women.

Nutrition and Health Awareness Program:
Under one week long systematic Nutrition and Health Awareness Program was conducted. The awareness program started with group lectures where in the subjects were made aware about the causes, symptoms, consequences of wrong food habits with special reference to fast food consumptions and its effects on body physiology and biochemistry. Thereafter a one to one diet counseling sessions were conducted.

At the end they were provided printed material containing a Health

Card and a booklet Nutrition in Lifestyle Disorders.

RESULTS AND DISCUSSION

It is found that dietary patterns characterized by high intakes of vegetables, fruits, and fish are inversely associated with metabolic syndrome (Deshmukh-Taskar PR et al., 2009), whereas dietary patterns characterized by high intakes of red meat, processed meat, refined grains and fried foods are associated with increased risk (Panagiotakos DB et al.,2007). So in present study subject youths were studied about their food pattern and its association with the risk of metabolic syndrome (MetS) was analyzed.

## Impact of counseling on lifestyle and dietary pattern

Metabolic syndrome (MetS) is primarily attributed to an unhealthy lifestyle, which is a modifiable risk factor. Changing dietary and exercise behavior may lead to a healthier waistline measurement and body mass index (BMI), improved values for HDL and triglyceride, lower BP, and lower blood glucose. Lifestyle change must be an integral part of risk reduction therapy for MetS.

Lifestyle features of youths at pre and post counseling level
Table 1

Aspect	Group	Value	Level		t value	Sig
			Pre	Post		
Physical activity scores/week	Control n=50	Mean	14.02	13.86	0.19	0.843
		SD	3.63	3.92		
	Experimental n=50	Mean	13.84	13.86	0.29	0.977
		SD	3.57	3.28		
Beverage intake scores/week	Control	Mean	25.86	25.70	0.19	0.847
		SD	4.49	4.11		
	Experimental	Mean	24.00	25.16	1.44	0.155
		SD	5.21	2.85		
Snacks intake scores/week	Control	Mean	29.26	28.52	0.80	0.426
		SD	5.41	3.44		
	Experimental	Mean	27.14	30.26	2.59	0.013
		SD	7.71	3.92		
Food group intake scores/week	Control	Mean	23.44	23.72	Any	.000
		SD	1.60	1.62		
	Experimental	Mean	22.74	24.70	36.19	0.000
		SD	4.06	6.46		

From the above table it is clear that the mean value for physical activity had decreased in post data in the control group. Whereas the mean value had increased in post data in experimental group though this increase in mean value was not significant. Further it is found that the mean value for beverage intake had decreased in post data in the control group, while the mean value had increased in post data in the experimental group. The mean value for snacks intake had decreased in post data in the control group, whereas the same had increased in post data in experimental group significantly. Further it is observed that the mean value for food group intake had increased in post data in the control group, though this increase in mean value was not significant but there was significant increase in the mean value of post data in experimental group.
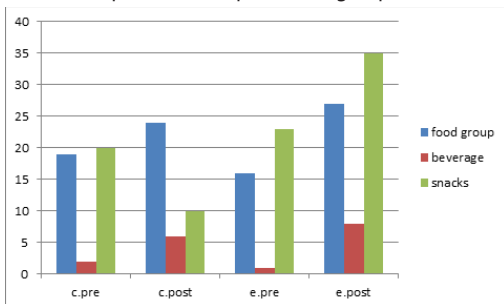
From the above figure it is clear that in experimental group there was significant increase in the consumption of food from all food groups. The healthy choices of snacks and beverages also increased significantly in these youths of experimental group.
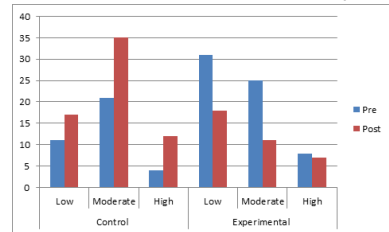
Impact of counseling on risk of metabolic syndrome among youths
Table 2

Group	Risk level	Pre	Post	T value	Sig.
Control	Low	22%	34%	0.30	0.764
	Moderate	42%	70%		
	High	8%	24%		
Experimental	Low	62%	36%	1.34	0.179
	Moderate	50%	22%		
	High	16%	14%		

From the above table it is clear that in the control group the percentage of youths had increased from 22% to 34% in low risk level in the post data. Similarly the percentage of youths had found to increase in moderate risk from 42% to 70% in post data and there was increase in percentage in the high risk from 8% to 24% in the post data.

The above table also indicates that in the experimental group the percentage of youths had decreased significantly from 62% to 36% in low risk level in the post data and the percentage of youths was found to decrease in the high risk from 16% to 14% in the post data. But there was significant decrease in percentage of youths in the moderate risk of MetS which is from 50% to 22% in post data.

According to the graph strong and significant association was observed between impact of counselling and risk of metabolic syndrome. It is very clear from the above graph that in control group where counselling was not done; there was significant increase in number of youths in low, moderate and high risk of MetS. Whereas in experimental group impact of counselling was observed very strongly. In experimental group the number of youths decreased significantly in low, moderate and high risk of MetS. Hence counselling had a positive impact in decreasing the risk of metabolic syndrome.

CONCLUSION :

So, lifestyle and dietary modification has proved a sustainable tool in bringing down risk of metabolic syndrome among working youth through changes in dietary habits, snacks and beverage intake and increase in physical activity.

REFERENCES

1. Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults. "Executive Summary of the Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III)". JAMA: the Journal of the American Medical Association, 2001; 285 (19): 2486–97.
2. Chen AK, Roberts CK, Barnard RJ,"Effect of a short-term diet and exercise intervention on metabolic syndrome in overweight children". 2006; 55(7):871-8.
3. Gohill, BC; Rosenblum, LA; Coplan, JD et al; "Hypothalamic-pituitary-adrenal axis function and the metabolic syndrome X of obesity". CNS Spectr.2001; 6 (7): 581–6, 589.
4. Grundy SM, Brewer HB, Cleeman JI et al., Definition of metabolic syndrome: report of the National, Heart, Lung, and Blood Institute/American Heart Association conference on scientific issues related to definition, 2004; 109:433-438.
5. Keane D, Kelly S, Healy NP et al., Diet and metabolic syndrome: an overview, 2013 ; 11(6):842-57.
6. Park HS, Sim SJ, Park JY, Effect of weight reduction on metabolic syndrome in Korean obese patients, 2004; 19(2):202-8.
7. Perichart-Perera O, Balas-Nakash M, Muñoz-Manrique C et al., Structured hypocaloric diet is more effective than behavioral therapy in reducing metabolic syndrome in Mexican postmenopausal women: a randomized controlled trial, Menopause. 2013.
8. Straznicky NE, Lambert EA, Lambert GW et al., Effects of dietary weight loss on sympathetic activity and cardiac risk factors associated with the metabolic syndrome, 2005;90(11):5998-6005.
9. Tsigos, C; Chrousos, GP, "Hypothalamic-pituitary-adrenal axis, neuroendocrine factors and stress". J Psychosom Res.2001; 53 (4): 865–71.
10. Fauci, Anthony S. Harrison's principles of internal medicine. McGraw-Hill Medical. 2008, ISBN 0-07-147692-X.