

ABSTRACT

Promoting healthy behaviours among productive age population is increasingly being felt as a need due to the increasing prevalence of NCDs and their risk factors among productive age population. Productive population spend long hours in stressful, competitive environments where they have little or no access to healthy foods and opportunities for physical activity. It is thus imperative that adequate attention be paid towards their health and betterment in terms of preventive care in addition to curative care. Investing in their health and wellness is equivalent to investing in the society and in turn the nation's well-being. The current study was thus planned, with the following central objective: To evaluate the impact of a nutrition health promotion program in an industry located in an urban Indian city on the knowledge, attitude, practice & perceptions regarding healthy diet & lifestyle as well as health and nutritional profile of the employees.

The study was a Prospective cohort study. After estimating required sample size (n=384), an industry of Baroda having employee strength of more than 650 was selected as the study setting based on willingness of the management to participate in the study. In the first phase of the study, pretested & standardized Worksite Wellness Index Questionnaire was used to assess the Nutrition and Health related policies of the industry. In phase-2, consenting subjects were enrolled in the study and WHO STEPS methodology was used to identify the "at risk" subjects. In Phase-3 the "at risk" subjects were asked to undergo biochemical estimations for evaluation of lipid profile as well as fasting blood sugar. In phase-4, Nutrition Health Promotion programme was developed, pretested and implemented in the industry. The knowledge, attitude, practices and perceptions of employees regarding healthy diet and lifestyle was assessed prior to initiation of the nutrition health promotion programme and after 6 months of intervention, post intervention data was collected using the same parameters as those at baseline including dietary profile, biophysical and biochemical estimations. Data so collected was subjected to appropriate statistical analysis.

The industry scored only 50% in the area of 'Worksite Policies and Environment' which evaluated the industry in terms of the presence of adequate and well-documented nutrition & health related policies and programmes. However, the industry scored

better (80.9%) when it was evaluated with respect to its policies pertaining to 'Health Promotion for Employees'. No guidelines were in place to ensure availability of healthy, nutritious meals for employees and prevent ready availability of junk foods. Food service was provided by contractual caterers and tiffin-service providers in absence of a regular in-house canteen. The only well-documented health policy was the 'no smoking on premises' policy which was strictly enforced. The company appointed doctor made weekly visits to the industry and employees were free to consult him during these weekly visits. Regular free health check-ups were provided for employees belonging to higher designations (manager level). Reimbursement policies were in place to provide for monetary aide to managerial employees in case of illness with or without hospitalization.

When risk analysis was done for the employees based on WHO STEPS methodology, it was found that more than 3/4th (77.6%) of the subjects were "at risk" methodology in spite of the mean age of subjects being only 29.5 years. Inadequate fruit and vegetable intake was found to be universal and was the leading risk factor followed by physical inactivity (77%) and elevated BMI (53.4%). Nearly 3/4th of the study population had elevated blood pressure levels with 49.4% of subjects suffering from pre hypertension and 23.6% from hypertension. Older subjects (> 25 years of age) had statistically higher prevalence of abdominal obesity ($p<0.001$), high WHR ($p<0.001$) and BMI ($p<0.01$) compared to their younger counterparts (≤ 25 years of age). Abdominal obesity (WC > 90 cm in males and WC > 80 cm in females) was significantly associated with hypertension ($p<0.05$). Alcohol consumers had significantly higher Waist Circumference ($p<0.001$) and BMI ($p<0.01$) than those who did not consume alcohol.

A large majority of the 'at risk' population who consented to undergo blood tests for lipid profile and fasting blood sugar ($n=158$) was dyslipidemic (84.8%) and 12% of them had Impaired Glucose Tolerance (IGT). Smokers had significantly lower HDL cholesterol levels compared to non smokers ($p<0.05$). Males had significantly higher TC, LDL cholesterol TG and VLDL cholesterol ($p<0.05$) compared to female subjects.

Post intervention data was collected from the subjects who remained in the study till the end ($n=83$) and a comparison of their KAP scores before and after intervention showed that there was a significant improvement in the average knowledge, attitude, perception and practice scores of these subjects ($p<0.001$). These results suggest that the Nutrition Health Promotion Programme conducted in the industry was successful in bringing

positive change in the nutrition, health and lifestyle related knowledge, attitude and practices of the subjects who participated in the same which was reflected in the improved health profile of subjects. There was a substantial reduction in the percent prevalence of suboptimal blood pressure (56.6% v/s 14.5%), physical inactivity (78.3% v/s 61.5%), abdominal obesity (32.5% v/s 21.7%), smoking (7.2% v/s 3.6%), overweight & obesity (42.2% v/s 39.8%) and inadequate fruit & vegetable intake (100% v/s 98.8%). The reduction in prevalence of suboptimal blood pressure ($p<0.001$) and physical inactivity ($p<0.05$) among the study subjects at the end of the intervention period was statistically significant. There was a significant reduction in the mean values of SBP ($p<0.001$), DBP ($p<0.001$) as well as hip circumference ($p<0.001$) of subjects after intervention. Post intervention data regarding biochemical parameters such as lipid profile and fasting blood sugar was collected from those who remained in the study till the last phase and consented to undergo biochemical estimations again ($n=51$). This data showed that there was a reduction in the percent prevalence of IGT (17.6% v/s 7.8%) as well as dyslipidaemia (88.2% v/s 78.4%). Also, there was a statistically significant increase in mean HDL cholesterol levels ($p<0.05$) and a significant decrease in mean fasting blood sugar levels ($p<0.001$) of study subjects after intervention period as compared to before. Additionally, at the end of the intervention period, 31.7% of 'at risk' subjects had moved to 'not at risk' category, thus diminishing their risk of developing NCDs in the future.

These results reiterate the need for a health promotion program for these vulnerable working age population, using their workplace as a setting. It can be concluded that there is a need to frame and adopt mandatory Worksite Wellness Policies for industries to succeed in developing more "employee friendly" workplaces and a healthier work force.