Workplace Health Initiatives

Abeer Al Saweer, FMAB* Saniya Salehi, MD, FPRP (AUB)**
Mona Al Tiho, MD, FMAB, FPRP(Irish)***Amal Alekri, MB, BCh, FMAB, FPRP (Irish)***
Hanan Al Hawaj, MD, FMAB, FPRP(Irish)*** Shaikha Al Zayani, MB, BCh, FMAB***

Objective: To support employees maintain a healthy lifestyle.

Design: A Prospective Cohort Study.

Setting: A'ali Health Center, Bahrain.

Method: Ninety-seven medical staff were encouraged to participate in different health work initiatives aimed to improve physical activity; this included the recommended 150 minutes of moderate activity per week, improvement of nutritional status, increasing awareness of age and gender-appropriate preventive measures, smoking hazards and absences from work.

Result: Ninety-seven employees were included in the study. Vaccination increased to 80 (83%). Periodic women examination increased to 52 (54%). Obesity was reduced to 58 (60%). The average BMI reduced from 28.57 to 26.72. Fruits and vegetables consumption increased to 59 (60.8%). Fast food consumption reduced to 29 (29.8%). Regular exercise was increased to 46 patients. None of the smokers quit smoking. Eighty-seven (89.7%) employees had dental screening and scaling.

Conclusion: Work health initiatives (WHI) were effective tools in reducing multiple risk factors and disease burdens. The most effective WHI are those that combine health education and physical activities directed towards multiple risk factors.

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The chronic disease epidemics, such as obesity, diabetes, hypertension, ischemic heart diseases, and smoking are rampant in the Kingdom of Bahrain, as revealed by the national survey performed in 2007[1]. Most of these diseases are related to life styles such as dietary habits, physical activity, stress and smoking.

Health programs at work could be defined as the joint effort of workers and employers to enhance and improve the health and safety conditions and facilities at work[2].

Health programs at the workplace are increasing as employers recognized that health and wellness are associated with improved productivity and decreased absenteeism[3].

Physical and psychosocial elements and factors are forecasters of a good, safe and healthy workplace. The physical working atmosphere and the environment are essential in a healthy workplace. It should be an ergonomically planned work space. The psychosocial environment is very important[2,3].

The most popular components of the WHI are health education about tobacco, alcohol, drugs, physical inactivity and obesity. Screening programs and preventive services are other popular programs offered to employees[4].

The effectiveness of these health initiatives are demonstrated in several reviews[5]. The most effective WHI are weight reduction, increased consumption of fruits and vegetables and increased physical activity[3,4,5].

The aim of this study is to present a program to support employees maintain a healthy lifestyle.

METHOD

Workplace health programs were initiated for six months from 1 October 2012 to 31 March 2013.

Data gathered before and after the program; the following were documented: personal characteristic, biometric studies, history of noncommunicable diseases (NCD), dental assessment and vaccination status. Laboratory investigation documented were serum lipids, fasting blood sugar (FBS), serum hemoglobin (HB) and thyroid tests, gender and age-specific periodic examination, such as Pap smear, breast examination and mammogram for women and occult blood and PR for men. Hospital Anxiety and Depression Scale (HADS) was used to assess the level of stress. An average number of sick days of the employees was compared to the same period of the previous year.

* Consultant Family Physician and Diabetologist
Ministry of Health
Assistant Professor, Arabian Gulf University
** Consultant Family Physician and Nutritionist
*** Consultant Family Physician
Ministry of Health
Kingdom of Bahrain
E-mail: ASaweer@health.gov.bh

Employees were offered the following programs during working hours: physical activity (PA) breaks during the day and flexible work schedules to allow time for PA. Reduced health club membership fees were offered; enrollment of overweight employees in weight reduction programs. Enrollment of obese employees in Nutrition clinics; healthier food options in the vending machines and snack bars; dental care services and completion of vaccination; periodic examination for both sexes according to national guidelines; workshops for smoking cessation for smokers and referral to Quit Smoking clinics and stress management program through periodic meditation sessions.

RESULTS

Ninety-seven employees participated in the program; 73 (75.2%) were females, 53 (54.6%) were in the age group 31 to 40 years, and the average age was 46.3 years. Fifty-four (55.7%) of employees were university graduates, and 10 (10.3%) were non-Bahraini.

Eighteen (18.5%) were consuming fruits and vegetables on a daily basis, 41 (42.2%) consume fast food more than three times per week, 35 (36%) did regular exercise more than 120 minutes per week, and 7 (7.2%) were smokers. At the end of the program, fruits and vegetables consumption increased from 18 (18.5%) to 59 (60.8%). Fast food consumption reduced to 29 (29.8%). Regular exercise increased to 46 (48%), see tables 1 and 2.

Table 1: Physical Parameters of the Employees before and after the Program

Parameter	Before the Program	After the Program	Difference
Mean BMI Kg/m²	28.57	26.72	-1.85
Over Weight and Obesity BMI ≥ 25	65 (67%)	58 (59.7%)	-7%
Morbid Obesity BMI ≥ 40	5 (5.1%)	3 (3.0%)	-2%
Average BP mmHg	137/82	132/79	-5/-3
High BP	5 (5.1%)	3 (3.0%)	-2

Table 2: Lifestyle and Periodic Examination of the Employees before and after the Program

Parameter	Before the Program	After the Program	Difference
Daily Fruit and Vegetables	18 (18.5%)	59 (60.8%)	+41
Fast Food > 3 Times Weekly	41 (42.2%)	29 (29.8%)	-12
Regular Exercise	35 (36%)	46 (47.4%)	+11
Smoking	6 (6.1%)	6 (6.1%)	0
Vaccination Up To Date	51 (52.5%)	80 (82.4%)	+50
Periodic Women Examination	41 (42.2%)	69 (71.1%)	+29
Dental Screening and Scaling	32 (32.9%)	87 (89.6%)	+55
Vulnerable to Stress	54 (55.6%)	34 (35.0%)	-20

Forty-one (42.2%) employees had periodic examination over the past year including Pap smear and breast examination in females and occult blood and prostate screening in males. Fifty-one (52.5%) employees had updated vaccination, and 32 (32.9%) had dental screening and scaling in the past year. After the program, 35 (36.0%) females had their timed Pap smear and breast screening. None of the males had periodic occult blood or prostate examination; vaccination rate increased significantly from 51 (52.5%) to 80 (82.4%), and 87 (89.6%) employees had dental screening and scaling, see table 2.

Thirty-two (32.9%) were found to be overweight (BMI 25), 33 (34%) were obese (BMI 30) and 5 (5.1%) were morbidly obese (BMI 40). The average BMI was 28.57. After the program, the average BMI reduced to 26.72. Weight loss in the morbidly obese ranged from 2 kg to 18 kg by the end of the six months with a mean of 8.2 kg, see table 1.

Six (6.1%) employees had hypercholesterolemia (total cholesterol ≥ 5.2 mmol/L), 6 (6.1%) had hypertension (BP ≥ 140/90 mmHg), 8 (8.2%) had type 2 diabetes and one (1%) had cardiac disease. No cases of thyroid problems were detected, see table 3.

Table 3: Laboratory Parameters of the Employees before and after the Program

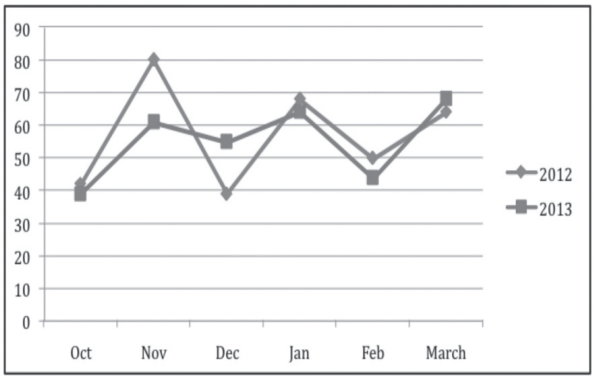
Parameter	Before the Program	After the Program	Difference
Average FBS	5.1	4.8	-0.3
FBS > 5.8 mmol/l	20 (20.6%)	9 (9.2%)	-11
Average cholesterol mmol/l	4.58	4.5	-0.08
Cholesterol > 5.2 mmol/l	27 (27.8%)	17 (17.5%)	-10%
Average HB g/dL In Females	11.75	11.8	+0.05
Average HB g/dL In males	13.7	13.9	+0.2
HB < 11 g/dL	7 (7.2%)	2 (2.0%)	-5
Average TSH mg/dL	3.1	2.1	-1.0
Abnormal High TSH	7 (7.2%)	0% (0/97)	-7

After the program, employees' average blood pressure dropped to 137/82 mmHg. Twenty-one (21.6%) employees had fasting blood sugar (FBS) above 5.8 mmol/l, (average FBS of 5.1 mmol/l). Average cholesterol concentration was 4.6 mmol/l, 8 (8.2%) had HB below 11 g/dL with an average of 12.3 g/dL, see table 3.

Vitamin D3 was below the normal range (N ≥ 50 ng/mL) in 94 (96.9%) employees; the average was 34.2 ng/mL. Eight (8.2%) had abnormal high TSH (N 0.25 to 5 mg/dL) and average TSH was 3.1 mg/dL, see table 3. According to the HAD scale, employees vulnerable to stress were reduced to 34 (35.0%).

Sick leaves were reduced during the six months compared to the previous record of past year from 5% to 23%, see figure 1. None of the smokers quit smoking.

Figure 1: Sick Leaves of the Employees before and after the Program



DISCUSSION

The program had a positive health impact on several aspects. The average weight loss in our cohort of morbidly obese employees ranged from 2 kg to 18 kg with a mean of 8.2 kg. That might be incomparable to other studies where the average loss is 1.27 kg. In our study, the BMI average reduction was 1.85 kg/m^2 compared to the average of 0.5 kg/m^2 in another study[9]. The period of the studies about weight loss averaged 1 to 3 years while our study was for six months only[6,7].

The average consumption of fruits and vegetables in our cohort increased by 42% and the average consumption of fat decreased by 13%. In similar studies, the increase in fruits and vegetables consumption was between 3% and 16% and the decrease in fat consumption was between 2% and 9%[6]. Our results show better improvements in diet, which might be attributable to the small number of employees and the availability of fruits and vegetables throughout the year in affordable prices[8,9,10].

The average blood pressure reduction was 5 mmHg systolic and 3 mmHg Diastolic. The average fasting blood sugar reduced by 0.3 mmol/L and the average total cholesterol was reduced by 0.08 mmol/L. Similar studies revealed an average reduction in BP of 3.5 systolic and 4.7 Diastolic, FBS of 0.4 mmol/L and the total cholesterol of 0.20 mmol/L[10,11,12].

In our study, improvement in physical activity was 12%, less than the improvement noted in similar studies of 63%[4,5,6]. That may be attributable to Bahrain's hot weather; employees complain that they could not exercise outdoors.

The HADS results improved after the intervention in 20% of the employees. In a study, the mean post-intervention state anxiety score was (M = 13.70, SD = 6.70), which was significantly lower than the mean pre-intervention state anxiety score (M = 18.60, SD = 10.25)[13]. Sick leaves trend was not improve compared to the previous year; other studies revealed improved attendance and work ethics[6,12,13].

The age and gender specific screening rates have improved dramatically which reflects a profound improvement in the employees' future health. Though adults spend most of their time at work, the concept of health initiatives is still not appealing to employers despite the positive response.

Our intervention results need to be interpreted with caution as the duration of the intervention is short and thus incomparable. A case control study would be more assertive in such interventions.

CONCLUSION

Work health initiatives (WHI) is an effective tool in reducing multiple risk factors and disease burdens. The most effective WHI are those that combine health education and physical activity directed towards multiple risk factors. Ultimately, WHI will improve productivity and attendance along with the reduction of major risk factors for cardiovascular disease. In addition, it improves age and gender-specific screening rates.

The intervention proves that WHI is applicable in Bahrain and could be popularized in workplaces. A longer duration of the intervention is recommended; in addition, to a control group.

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REFERENCES

1. Ministry of Health. National Non-Communicable Diseases Risk Factors Survey 2007. http://www.who.int/chp/steps/2007_STEPS_Survey_Bahrain.pdf Accessed in May 2015.
2. KM Cheung-Larivee. What Hospitals are doing for Employee Wellness. Fierce Healthcare 2015. http://www.fiercehealthcare.com/story/what-hospitals-are-doing-employee-wellness/2012-03-15 Accessed on 11 November 2015.
3. C3 Collaborating for Health. Workplace Health Initiatives: Evidence of Effectiveness. http://www.c3health.org/wp-content/uploads/2009/09/Workplace-health-initiatives-review-of-the-evidence-v-1-20111205.pdf Accessed in November 2015.
4. Anderson LM, Quinn TA, Glanz K, et al. The Effectiveness of Worksite Nutrition and Physical Activity Interventions for Controlling Employee Overweight and Obesity. Am J Prev Med 2009; 37(4).
5. Kirsten W, Karch R. Global Perspectives in Workplace Health Promotion Sudbury. Jones & Bartlett Learning

2012. http://samples.jbpub.com/9780763793579/J10846_Kirsten_FM.pdf Accessed on 11 November 2015.

6. Bonauto DK, Lu D, Fan ZJ. Obesity Prevalence by Occupation in Washington State, Behavioral Risk Factor Surveillance System. Prev Chronic Dis 2014; 11:130219.
7. Canadian Centre for Occupational Health and Safety. Workplace Health and Wellness Program - Getting Started: OSH Answers Fact Sheets, 2015. https://www.ccohs.ca/oshanswers/psychosocial/wellness_program.html Accessed on 11 November 2015.
8. Bergerman L, Corabian P, Harstall C. Effectiveness of Organizational Interventions for the Prevention of Workplace Stress (Report). Alberta, Canada: Institute of Health Economics. http://www.healthevidence.org/view-article.aspx?a=21300 Accessed in December 2015.
9. Dugdill L, Brettle A, Hulme C, et al. Workplace Physical Activity Interventions: A Systematic Review. International Journal of Workplace Health Management 2008. 1(1): 20–40.
10. Leeks KD, Hopkins DP, Soler RE, et al. Worksite-Based Incentives and Competitions to Reduce Tobacco Use. A Systematic Review. Am J Prev Med 2010; 38(2 Suppl): S263-74.
11. Byrd K, Silliman K, Morris MN. Impact of a Three-year Worksite Wellness Program on Employee Blood Lipid Levels. Californian Journal of Health Promotion 2008; 6(1): 49-56.
12. Workplace Interventions that are Effective for Promoting Mental Wellbeing Synopsis of the Evidence of Effectiveness and Cost-Effectiveness.https://www.nice.org.uk/guidance/ph22/documents/promoting-mental-wellbeing-at-work-synopsis-of-the-evidence2 Accessed in December 2015.
13. Mattke S, Liu H, Caloyeras JP, et al. Workplace Wellness Programs Study. http://www.rand.org/content/dam/rand/pubs/research_reports/RR200/RR254/RAND_RR254.pdf Accessed in December 2015.