# EVALUATING WORKPLACE HEALTH PROMOTION PROGRAM

**Melita Peršolja**[1]

**Abstract:** Due to the complexity of health promotion interventions, uneconomical evaluation indicators are recommended. The purpose of this study was to determine the effects of multi-component workplace health promotion intervention. The goals were to study the association of health promotion with health status. In a controlled study trial, 278 workers of primary schools and municipal administration had the chance to participate in six-month workplace health promotion program. Employees have fulfilled a questionnaire at baseline and then again after completion of the program. The results showed that in the test group, the incidence of problems with health significantly declined, but the rating of health status decreased and the average absence days increased over time. The higher working hours per week correlated to obesity and high blood pressure. It can be concluded that workplace health promotion activity could support a change in health status and therefore contribute to higher quality of life.

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## Introduction

Problem statement

Health promotion includes many meanings under which are hidden all the activities and programs that support human health (Development, 2004). In Europe, organizations introduced health promotion mainly due to pressures from laws, requirements of workers and their health problems, and in order to raise their reputation. The European model treats the individual and his environment includes a wide range of work methods and tries to integrate into the existing structure of the organization. Europe is therefore somewhat less focused on the risk factors in an individual and more on the quality of working life and working environment (O'Donnel, 2002). As is clear from the research, there are many potential benefits of health promotion in the workplace (Aldana et al., 2005; Baxter et al., 2014; Goetzel & Ozminkowski, 2008; Rongen et al., 2013): improved satisfaction with work, increased loyalty, increased involvement of employees, improved interpersonal relationships at work, enhanced self-esteem, creativity, employee productivity, improved organizations' reputation, smaller turnover, easier recruitment of new personnel, improved health of employees, reduced absenteeism, tardiness, and injuries at work, less use of health services, reduced treatment costs, amongst many others.

Health is determined by changes in which a person can consciously make decisions and achieve the best in given circumstances. Understanding health as a complex entity, therefore, sets health promotion as intricate, and health interventions as difficult to synthesize (Waters et al., 2006). Workplace health promotion efficiency evaluation is crucial for managers to support these activities in organizations. Process evaluation provides an analysis of the development during implementation of the program and measures the ratio between the result and the expectations. The program evaluation measures the changes that have occurred in connection with the activities carried out. A cause-effect relationship between health promotion and its outcomes could be revealed with evaluation research (Thorogood & Coombes, 2010). In this study, it was assumed that a workplace health promotion program would improve the health status of employees.

## Methods

The population consisted of eleven organizations in public administration and elementary schools. The organizations were divided into tested or control groups according to their involvement in health promotion activities. The subjects from test groups were included due to their voluntary participation in workplace health promotion programs. The control group subjects were selected with simple random sampling. The data were collected in two time periods (T1, T2), with a six month time interval.

The instrument for the current study was a combination of research questions implemented by the Clinical Institute of Occupational, the Traffic and Sports Medicine of University Medical Centre Ljubljana (Strgar & Urdih Lazar, 2005), the Tri fit Organizational Health Audit (Tri Fit, 1998), and

[1] Melita Peršolja,Faculty of Health Sciences, University of Primorska, melita.persolja@fvz.upr.si

other questions developed for the purpose of the actual study. The questionnaire consisted of 14 questions divided into three sections, namely sample characteristics and health outcomes.

IBM SPSS Statistics, version 20.0 was used for data analysis: A paired, independent samples, one-way ANOVA T-test was used to examine the differences between organizations, and follow the changes within groups over time. Correlation and regression analyses were performed to find associations within variables.

The researched population consisted mostly of women, with an average age of approximately 40 years, and who were married. Most respondents had attained a higher education degree. Employees worked mainly morning schedules and in average 40.64 hours per week. Two observed groups differed significantly in autonomy at work.

**Findings & Results**

Program activities

Program activities included obtaining management support, preparing health education materials and newsletters, online specialist support, measurements of health risk factors, six two-hour health education workshops including risk factors, physical activity, stress management, and healthy meals. Employee participation in workplace health promotion activities was in general low. The sum of 341 (20.4%) employees from the tested group participated in all health promotion activities. Minimum participation was for the Walk test (n=2, 0.72%), and the highest participation was for the Risk factors educational workshop (n=187, 67.0%)

Health status descriptors

Most of the respondents rated their health in general as "good" (average 3.85±.68 on the scale from 1 to 5). In a tested group, the trend of average self-perceived health decreased over time (by .15 points). The average number of days absent in 6-months caused by health problems decreased in control but increased in the tested group. The changes within and between the observed groups were not significant.

The majority (81.4 to 100%) of employees expressed that they had some problem with their health in the last six months. This proportion significantly declined over time for 15.0 in the test group (t=-2.23, Df=67, Sig.=.03) and increased for 4.1 in the control. According to the data, the employees' health problems consisted mostly of headaches, neck and low-back pain. In the test group, the pain incidence persisted over time, but in the control low back pain decreased significantly (t=2.212, Df=102, Sig.=.02). The differences between groups were not statistically significant.

The proportion of people with elevated blood pressure in control group significantly decreased (t=2.14, Df=81, Sig.=.03), and in tested group retained below ten percent (Table 1).

Average body mass index (BMI) slightly increased with time in both groups. In a tested group, the proportion of people with BMI above the recommended value of 25 kg/m2 increased 1.3%, average body weight for 0.9 kg, and abdomen circumference for 1.94 cm. In control group, the proportion of excessive BMI increased by 3.1%, the average body weight of 2.1 kg, and the average value of abdomen circumference increased for 4.6 cm. The differences between groups were not statistically significant.

Health status correlations

Good health status was positively correlated with the level of education. Self-perceived health was not significantly correlated to socio-demographic variables, but it was higher in younger, single, highly educated men, those with fewer children and working fewer hours per week. Women often indicated to have more health problems than men, while men had more problems with obesity. The abdomen circumference was significantly associated with age, male gender and long working hours. The analysis showed that higher working hours per week correlated to obesity, high blood pressure, but connection with health issues and absenteeism was not significant (Table 2).

A regression model showed that health status index, could be defined by abdomen circumference ($r=.39$, $p<0.01$), health problems ($r=.38$, $p<0.01$), blood pressure ($r=.35$, $p<0.01$), BMI ($r=.33$, $p<0.01$), absenteeism ($r=.29$, $p<0.01$), and self-perceived health ($r=.28$, $p<0.01$). The proposed variables define nearly 90 percent ($R^2=88$) of the health statuses.

Table 1. Employee health status

| Variable / Group | Test | | Control | | t *Sig.* |
|---|---|---|---|---|---|
| | T1 (n=37) | T2 (n=41) | T1 (n=44) | T2 (n=64) | |
| **Abdomen circumference more than recommended, % (average cm ± SD)** | 21.9 (82.6±9.5) | 15.0 (84.5±11.2) | 28.6 (82.0±10) | 48.0 (86.6±11.5) | .72 *.47* |
| **Absenteeism in last 6 months, average days ± SD** | 3.22±6.55 | 6.75±17.4 | 4.23±14.5 | 3.14±4.44 | 1.58 *.12* |
| **Blood pressure elevated, %** | 8.1 | 8.8 | **31.4** | **12.5** | .52 *.61* |
| **BMI[a] 25 or higher, %** | 25.0 | 26.30 | 33.4 | 36.5 | .51 *.61* |
| **Body weight, average kg ± SD** | 65.9 ± 13.2 | 66.88±12.5 | 65.53±9.9 | 67.63±11.5 | .31 *.75* |
| **Chest pain, %** | 3.4 | 5.0 | 9.3 | 8.1 | .59 *.55* |
| **Has health problems, %** | **100** | **85.0** | 81.4 | 85.5 | .07 .95 |
| **Headache, %** | 55.2 | 47.5 | 39.5 | 35.5 | 1.21 *.23* |
| **Insomnia, %** | 20.7 | 17.5 | 25.6 | 27.4 | 1.15 *.25* |
| **Low back pain, %** | 37.5 | 25.0 | **57.1** | **35.5** | 1.11 *.27* |
| **Neck pain, %** | 37.9 | 27.5 | 48.8 | 35.3 | .84 *.41* |
| **Self-perceived health rate, average rate± SD (1-low, 5-the highest)** | 4.05±.52 | 3.90±.58 | 3.75±.72 | 3.76±.77 | .37 *.71* |

Legend: Test group=subjects from the organization included in the workplace health promotion program; T1=data collected before starting the program; T2=data collected 6 months after starting the program; n=number of subjects; %=percent; t=t-test analysis coefficient, two independent groups at T2; SD=standard deviation; Sig.=statistical significance; [a] calculated from weight and height, related to gender; BMI=body mass index.

Source: Author

Table 2. Correlation of health status with socio-demographic variables

| Variables | | Gender. female | Age | Education level | No. children | No. Working hours per week |
|---|---|---|---|---|---|---|
| **Abdomen circumference** | **r** | -,**376**** | ,**442**** | -,131 | ,180 | ,**317**** |
| | **Sig.** | ,000 | ,000 | ,153 | ,100 | ,004 |
| | **n** | 121 | 113 | 120 | 85 | 79 |
| **Absenteeism** | **r** | ,038 | ,049 | -,101 | ,100 | -,016 |
| | **Sig.** | ,612 | ,523 | ,174 | ,229 | ,852 |
| | **n** | 184 | 175 | 183 | 147 | 138 |
| **Blood pressure** | **r** | -,015 | -,**238**** | ,**187*** | -,050 | -,**218*** |
| | **Sig.** | ,855 | ,004 | ,021 | ,590 | ,023 |
| | **n** | 154 | 145 | 153 | 117 | 108 |
| **BMI** | **r** | -,**192**** | ,**359**** | -,109 | ,**186*** | ,**332**** |
| | **Sig.** | ,010 | ,000 | ,149 | ,027 | ,000 |
| | **n** | 179 | 171 | 178 | 142 | 133 |
| **Has health problems** | **r** | ,**208**** | -,098 | -,**174*** | -,023 | -,118 |
| | **Sig.** | ,006 | ,211 | ,022 | ,787 | ,170 |
| | **n** | 174 | 165 | 173 | 144 | 136 |
| **Self-perceived health rate** | **r** | -,117 | -,135 | ,135 | -,017 | -,067 |
| | **Sig.** | ,111 | ,074 | ,067 | ,835 | ,433 |
| | **n** | 186 | 177 | 185 | 148 | 138 |

Legend: r= Pearson correlation; Sig.= statistical significance, *p<0,05; **p<0,01; n= number units

Source: Author

## Discussion

The link between health status and the health promotion program was not significant. In this study, the health status of employees', which was included in the workplace health promotion program, did not change significantly over time. Surprisingly, the trend of average self-perceived health in the tested group decreased after six months of the health promotion.

The perception of one's own health is an important indicator, as it is correlated to the number of days absent due to sickness. Self-perceived health rating depends on leisure-time physical activity, occupational workload, gender, age, stress and many other factors. However, it seems, that the strongest connection of health-related self-report comes from physical activity, which increases resistance to physical and mental health problems (Bogaert et al., 2014; Kaleta et al., 2006; Paulik, 2010).

A health promotion strategy that aims to encourage healthy behaviors compel participants to think critically and responsibly (Cancelliere et al., 2011) but hardly impacts perceived self-efficacy which determines whether an individual will implement and insists on the healthy lifestyle (Babnik & Štemberger Kolnik, 2013). In fact, the tested group tried to take care of health and implemented exercising at the workplace, but failed to insist on regular physical activities. The result achieved did not comply with the aim of the workplace health promotion program, and raised concern about the complexity and the importance of self-regulation in life style.

Organizations in public administration and elementary schools offer good working conditions, but in this study, the highly educated had longer working hours.

Abramowitz (2016) stated that 10 additional hours spent working are associated with an increase of 1.13 kg for women and 0.63 kg for men. Similarly, Berniell (2012) has found that working time

reduction positively affects individuals' health behaviors. This study showed that the increase in BMI and body weight was lower in the tested group than in the control group and that visceral obesity was more common in older aged man with greater working hours per week. It could be that the study observation time could not find a direct effect because the health promotion activities were too short.

But considering that obesity is a serious health risk factor and that its' prevalence is constantly increasing in developed countries, the slowdown in weight gain of the tested group should not be ignored.

The majority of employees indicated to have some health problems in both researched groups and at both observation times. The most common health problems of respondents were headaches, low back-pain, and neck pain. Women reported more health problems, but in general, their health status indicators were not worse. A larger indication of health problems in women is partly a reflection of the culture, stereotypes and increasing congestion of informal work compared with men (Toš & Malnar, 2002). In addition, fewer women participate in regular exercise and thereby lose the direct benefits of movement on one's welfare and health (Zaletel-Kragelj & Fras, 2004).

Studies have shown that musculoskeletal disorders are the most common cause of sick leave and disability, and that neck pain is very common in the general population (Aas et al., 2011).

However, it is important to explore the history of employees' past work, lifestyle, health assessment and domestic work (Ravnik, 2012), this is not the aim of health promotion program. A workplace health promotion program mostly used traditional methods and was prepared considering organizations' but not individual employees' specific needs. Nevertheless, the proportion of health problems in a tested group significantly decreased over time and in general employees of the tested group always felt better. Similarly, some researchers indicated that overall well-being of participants was the most common effect of health promotions (Kumar & Preetha, 2012), even though the course and the interactions of agents are still a mystery.

The health issues and the absenteeism variables were not correlated in this study and the average absence days caused by health problems increased in the tested group over time. The cause is probably reduced presentism, as previous studies have demonstrated that the number of days of sickness absence from work correlate to critical and responsible assessment of health (Cancelliere et al., 2011), to perception of one's own health (Paulik, 2010), to self-perceived job strain and to social support at work (Magnavita & Garbarino, 2013). Social support is conceptualized as the resources provided to an individual in a difficult situation (Yayan & Celebioglu, 2017). Health promotion activities support interpersonal relationships since it operates through cooperation, promotion of informal contacts, warmth and friendly relations (Peršolja, 2012).

**Conclusion**

In this study, the association of health promotion activities with a change in employees' health status was not confirmed. Despite describing fewer health problems, the tested employees expressed lower health rating and were absent more frequently compared to control group. Workplace health promotion can, therefore, be beneficial but can give atypical outcomes which are not always congruent with the program's objectives.

Future research should be built with a long-term perspective in order to accurately assess the impact of programs on employee health management. The data should be maintained by more organizations and a representative sample.

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Ethical approval: Approval was obtained from the organization's management and informed consent from employees. The study was conducted in accordance with the code of Ethics of the World Medical Association (Declaration of Helsinki)

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