DETERMINANTS OF QUALITY OF LIFE AT WORKPLACE: CLUSTER-RANDOMIZED CONTROLLED TRIAL

ORIGINAL ARTICLE

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ABSTRACT

Introduction: About one-third of the day goes on in the workplace. Therefore, strategies that benefit the quality of life of workers become important. Objective: To investigate determinants of quality of life after three months of workers' health promotion programs. Methods: An experimental design was used to verify the quality of life outcomes of 190 workers. The interventions lasted three months. Company A received the exercise program, posters with recommendations on health and quality of life and computer software; Company B received only an exercise program; Company C received posters with recommendations on health and quality of life and computer software, Company D was the control. All assessments of the quality of work life occurred through the questionnaire QVS-80. Data were analyzed through descriptive statistics, the Z test and Cronbach's alpha test. Results: The main factors that interfered in the quality of life were: physical activity focused on aesthetics, physical fitness, smoking, physical activity recommended by a doctor, sitting time, family life, sleep quality, income. Comparing national data to the present study for all chronic diseases self-reported, statistically significant differences were observed. Physical activity for aesthetic reasons is the variable that most negatively influences on the perception of quality of life. Conclusion: These data help to reflect on the importance of combined strategies such as physical activity implementation and the understanding on the lifestyle components in the workplace.

Keywords: motor activity, occupational health, public health surveillance, occupational health services.

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INTRODUCTION

The work environment has been studied by many fields of knowledgement and with different approaches[1,2]. It has been observed that work offers meaning to people's lives and it is directly connected to the lifestyle adopted outside the workplace[3,4], e.g.: people who work long hours have a short leisure period or even do not have it[5,6].

Thus, health and quality of life interventions gain space in the workplace, with a potential of improving habits and healthy behavior, as well as preventing diseases[7-11].

The evaluation of indicators, such as stress, regular practice of physical activity, diet, safe behavior and personal relationships have become important influences on quality of life[12,13].

Therefore, quality of life becomes a fairly complex general indicator which tries to estimate the capacity of having or building a life with dignified conditions. Thus, the aim of the research was to investigate factors which are crucial in quality of life after three months of programs of health promotion of workers.

METHODS

Type of study

The present study was an experimental investigation[14] classified as a cluster random clinical trial, since it tried to compare the efficiency of interventions under outcomes concerning quality of life.

Subjects

Workers of the administrative sector of both sexes, mean age of 26.10 ± 6.03 of four companies in Londrina, PR. The selected companies had never participated in programs of health and quality of life promotion in the workplace.

All workers were invited to participate in the questionnaires' application. Initially, all of them were informed about the aims of the research, the institution in charge and the secret character of each one's participation.

All research procedures were approved by the Ethics in Research Committee of the Methodist University of Piracicaba, under the protocol 14/10.

Instrument

The questionnaire QVS-80 was chosen to investigate the outcomes related to quality of life in the workplace due to its consideration of objective and subjective aspects of the workers. The instrument contains 80 questions, out of which 67 are structured in Likert Scale. In the QVS-80 four domains are identified: health (Health), physical activity (PA), workplace (WP) and QL perception (QL)[4].

The health domain is composed of 30 questions, being the 13 initial ones an anamnesis about the presence of chronic diseases, such as hypertension, diabetes, obesity, dyslipidemias, bronchitis, allergic rhinitis and cancer; the remaining questions refer to the lifestyle and habits, such as sleep quality, smoking and consumption of alcoholic beverages.

The physical activity domain is composed of 15 questions about leisure time physical activity. The workplace domain is composed of 11 questions about physical activity in the workplace and to the work environment. The QL perception domain is composed of 24 questions about personal, collective and autonomy characteristics.

The assessment scale is of 0-100 points; the authors of the instrument recommend that the acceptable values are ≥ 70 points. The calculation of the values of each domain is performed by the syntax of the instrument made available by the authors.

Procedures

In a first moment, companies in the city of Londrina which had never received interventions related to quality of life in the workplace were searched in the internet and after that, they were reached by telephone. Later, the interested companies were reached by phone and were visited so that the research could be explained.

On the first meeting it was explained that a draw was going to happen to decide on the kind of intervention each company would receive. Therefore, the *Research Randomizer* program which was freely available on the internet was used to randomly define the interventions the companies would receive. After agreement, the researcher asked for a letter of acceptance from the companies. The workers' participation was volunteer and those who were interested in participating received and signed the Free and Clarified Consent Form and filled out the questionnaire at the first moment (pre) and after three months of research (post). Adherence and participation frequency of the workers to the interventions were determined by the question 47 of the Questionnaire of Quality of Life and Health (QVS-80) (Do you participate in the Physical Exercise in the Workplace?), being considered those who replied frequently and very frequently[4].

Interventions

Each company received a different kind of intervention: company A (CA) received the physical exercise in the workplace, posters with tips on health and quality of life and computer *software*; company B (CB) received physical exercise in the workplace; company C (CC) received posters with recommendations on health and quality of life and computer *software*; company D (CD) was the control (figure 1).

The messages related to quality of life and health were offered through software and posters. The computer *software* Health with Awareness[15] was developed with a professional from the computer sciences field. Daily messages about quality of life and health appeared in the computers as soon as they were switched on, in a pre-set order defined by the researcher

The posters were printed in A3 paper and eight of them were put up per month in different parts of the companies (near water fountains, rest places, cafeterias, near the restrooms and change rooms). The used messages, both by the posters and the software were based on scientific evidence related to quality of life and health.

The interventions with physical exercise in the workplace, were performed in the morning shift and had duration of three months with 15 minutes each and were applied three times per week every other day. In order to keep the workers motivated and participating in the exercise in the workplace, the sessions were very varied, using broomstick, latex tubes, exercises in pairs, massage, sitting exercises and relaxation on mats.

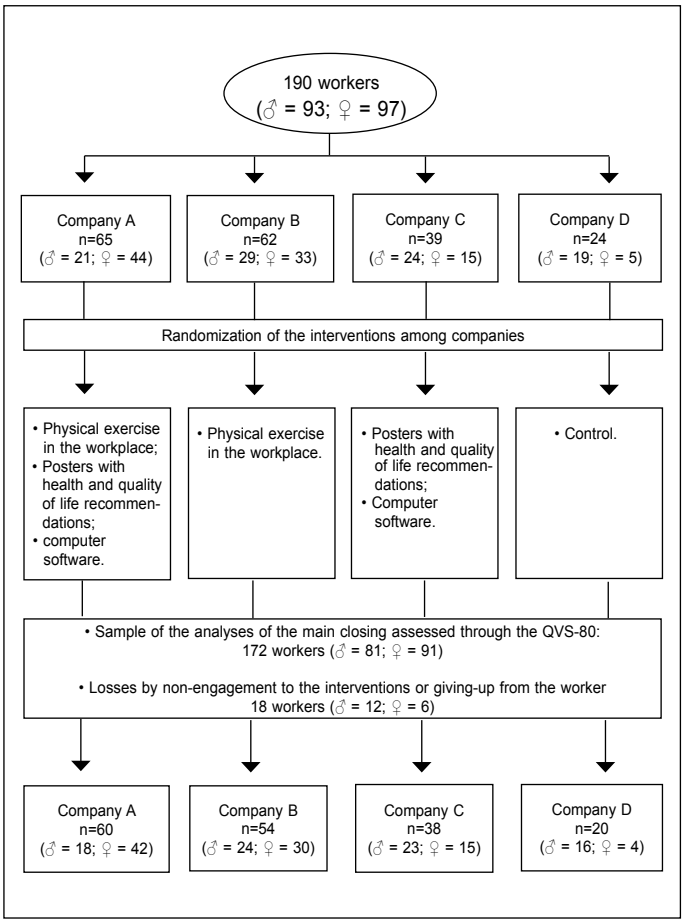

Figure 1. Chart of the study plan and its contribution to the analysis of the final closing.

Data analysis

The data were analyzed in the SPSS version 17.0. Descriptive analysis elements were used for data analysis; the Z test was used to compare the non-transmissible chronic diseases ratios and the questions about quality of life.

The Cronbach alpha test was applied to verify the data inner consistency, when one question with high confidence level was excluded, it was observed that the final alpha value became compromised; therefore, the variables which interfered most negatively in the quality of life were separated to be discussed.

RESULTS

190 workers participated in the research. When the retest was performed, there was sample loss of 18 workers (9.5%), namely: five from the company A; eight from the company B; one from the company C and four from the company D. Thus, the research ended with a total of 172 workers (figure 1).

Table 1 presents the data of the inner consistency assessment and questions which mostly interfere in the QLW. It can be observed that practice of physical activity for aesthetic purposes was the most recurrent in the investigated companies. Other factors such as physical activity for physical fitness, smoking, time seated, Family life, sleep quality and income were determinant in the quality of life perception.

Table 2 presents the data of self-referred chronic diseases in the investigated companies and compared then with the national data available in the literature[16,17]. It was observed through the Z test

that the data presented for all the referred diseases had significant statistical differences.

All the variables of the lifestyle were compared pre and post moments by the chi-square test and significant statistical differences have not been observed (table 3).

Table 1. Assessment of the inner consistency and factors which interfere the most in the worker's quality of life.

	n	α Cronbach	Interfers in QL 1*	Interfers in QL 2*
Company A				
pre	65	0.905	Practice of aesthetic PA	Time seated
post	60	0.856	Practice of aesthetic PA	Family life
Company B				
pre	62	0.864	Practice of aesthetic PA	Medical rec PA
post	54	0.898	Practice of PA and physical fitness	Practice of aesthetic PA
Company C				
pre	39	0.811	Practice pf aesthetic PA	Sleep quality
post	38	0.752	Practice of aesthetic PA	Time seated
Company D				
pre	24	0.807	Smoking	Income
post	20	0.836	Medical rec PA	Practice of aesthetic PA

DISCUSSION

The sedentarism ratio is between 64-70% in the investigated companies. These data are similar to the ones in research with workers from Paraná state, in which the sedentarism ratio of the state ranged in 71% of the investigated workers[18]. However, these data are higher than the ones found by national research, in which 58.2% of the population is considered sedentary[19].

The engagement to the interventions ranged between 68.13 – 81.25%. The women in all the companies presented higher engagement to the programs (figure 1). Engagement data lower than in the present research are found in the literature. In an investigation conducted in the Federal University of Santa Catarina engagement of 44% of workers was reported[10]. In another investigation in the workplace, the researchers observed 60% of engagement from the workers[20].

All the assessed companies presented satisfactory inner consistency indices in the Cronbach alpha test (higher than 0.70), a fact which indicates high confidence of the presented data[21]. In this test, important results of the factors which mostly interfere in a negative way in the quality of life have been found. Practice of physical activity for aesthetic purposes was the one which interfered the most in the quality of life for seven times. The body, for being seen as the temple of beauty, has currently been overvalued. The television media values women with fit bodies and men with hypertrophied musculature, which gives the watchers an idea of the ideal body[22]. The body stereotypization disrespects the biological individuality promoting hence the quest for unsuitable methods which may compromise quality of life and health. This result agrees with the discussions in the physical education filed which has currently been relating problems with body image with problems with anorexia and bulimia[23].

Still about the factors which interfere in quality of life and health, it is observed that smoking, sleep quality and family relations have an important negative association in the quality of life. These variables mentioned here are related to lifestyle and are considered behavior which may be altered. Sleep quality and smoking may be related to stress. The cigarette may be a way of relieving the tensions and sleep quality is negatively influenced by subjects with high stress levels[12].

Medical recommendation of physical activity practice was considered a factor which influenced in the quality of life, as well as practice of physical activity with physical fitness purposes.

Table 2. Comparison between the national prevalence[16,17] and the companies investigated for self-referred non-transmissible chronic diseases.

	Company											
	A		B		C		D		Total		National	p
	n	%	n	%	n	%	n	%	n	%	%	
Hypertension												
Men	1	1.5	2	3.2	1	2.6	1	4.2	5	2.6	15.4	0.0001*
Women	1	1.5	0	0	0	0	0	0	1	0.5	18.3	0.0001*
Dyslipidemia												
Men	0	0	5	8.1	0	0	0	0	5	2.6	9.3	0.01*
Women	3	4.6	1	1.6	1	2.6	0	0	5	2.6	10.7	0.004*
Asthma												
Men	1	1.5	5	8.1	4	10.3	3	12.5	13	6.8	4.7	0.0001#
Women	12	18.5	6	9.7	2	5.1	0	0	20	10.5	7.0	0.0001#
Thyreopathies												
Men	0	0	1	1.6	2	5.1	0	0	3	1.6	12	0.0001*
Women	2	3	2	3.2	0	0	0	0	4	2.1		

*Data obtained of the VIGITEL research, 2009; # MACEDO (2007).

Table 3. Main aspects assessed which compose lifestyle and post-intervention factors.

	Company							
	A (%)		B (%)		C (%)		D (%)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Health perception								
Positive	75	83,3	80,6	80	92,3	81,1	87,5	78,9
Negative	25	16,7	19,4	20	7,7	18,9	12,5	21,1
Sleep perception								
Positive	68,3	63,3	56,5	66,7	71,8	73	66,7	36,8
Negative	31,7	36,7	43,5	33,3	28,2	27	33,3	63,2
Family life perception								
Positive	88,3	90	88,7	87	100	94,5	95,8	100
Negative	11,7	10	11,3	13	0	5,5	4,2	0
Smoking								
Non-smoker	80	66,7	67,7	75,9	66,7	70,3	62,5	73,7
Smoker	20	33,3	32,3	24,1	33,3	29,7	37,5	26,3
Consumption of alcoholic drinks								
Yes	28,3	38,3	46,7	40,7	30,8	40,5	45,8	36,8
No	71,7	61,7	53,3	59,3	69,2	59,5	54,2	63,2
Consumption of fruit								
Sufficient	35	28,3	32,2	29,6	25,6	45,9	33,3	21,1
Insufficient	65	71,7	67,8	70,4	74,4	54,1	66,7	78,9
Consumption of vegetables								
Sufficient	58,3	58,3	51,6	55,6	61,5	62,2	54,2	31,6
Insufficient	41,7	41,7	48,4	44,4	38,5	37,8	45,8	68,4
Tie seated								
< 4 hours	10	13,3	11,3	11,1	12,8	24,3	75	73,7
> 4 hours	90	86,7	88,7	88,9	87,2	75,7	25	26,3

Currently, the countless benefits of physical activity practice are acknowledged and, whenever there is medical recommendation, the clients associate it with some health problems. The physical activity with fitness purposes may lose its relaxed characteristic of physical activity and be seen as an additional responsibility in life[24]. Similar data were found in an investigation with workers of Paraná state and revealed that physical activity practice for medical and aesthetical reasons were the most mentioned ones[18].

The amount of hours seated in the workplace was reported as a factor which interferes in the quality of life. Long seated work hours favor muscle shortening in the posterior region of the thigh and in the iliopsoas, increases the probability of overweight and the risk factors for cardiovascular diseases. The first factor occurs as consequence of the hip articulation lack of movement in its total amplitude. The second and third ones may influence each other, since the worker tends to reduce the energy expenditure due to the seated position while maintains caloric ingestion, making it possible hence that the worker gains body weight. Thus, the workers develop overweight, which is considered a risk factor for development of cardiovascular diseases[25].

Epidemiological data of the degenerative chronic diseases have been observed in smaller ratios for the workers when compared with the national data for the same age group[16,19]. Such fact may be explained, since these diseases are considered silent; that is, there may negative alteration in the body; however, the problem is only identified when the situation is already severe. Moreover, it is reported in the literature that these diseases are neglected by the health managers and the individuals themselves[26]. Therefore, it is believed that many workers may develop such conditions; however, they will not be aware of them. An example of this fact is the data obtained on asthma. It is usually a known clinical condition; the observed ratios between the present research and the national data are very close.

The issues which constitute the lifestyle factors deserve some concern. The percentage data which refer to physical activity practice in leisure, fruit ingestion, alcoholic drinks consumption and smoking are worse than for the Brazilian population reported by national research[16,19], but similar to the research performed in the same state[18]. These factors on lifestyle are related to the development of degenerative chronic diseases and the increasing expenses with public health and already count for one third of the deaths worldwide[13]. The physical education professionals are one example of professionals responsible for actively acting in an attempt to alter lifestyle through programs of health promotion[27].

In agreement with the social reality, the physical activity practice for aesthetical reasons seems to be the variable which mostly influences in a negative way in the quality of life.

Quality of life and health are fields which demand further research, given the complexity of their intervenient factors; however, the data obtained help to think upon the importance of strategies combined with the effectiveness of physical activity and the understanding on the lifestyle components in the workplace.

CONCLUSION

This study has outlining suitable for cause-effect inferences; therefore, the main findings were: physical activity performed with aesthetical purpose harms the quality of life perception; none of the lifestyle components studied has interfered on the quality of life of this sample; the chronic diseases were less reported by these workers compared with national estimations. Future studies with interventions with longer periods of time are recommended since changes in behavior require a longer period of time of stimulus and may last a lifetime.

All authors have declared there is not any potential conflict of interests concerning this article.

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