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The impact of Dr Barry Sears' diet on employee stress: a preliminary study

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Abstract

Work stress can lead to health and performance problems for employees who are unable to cope with it. The main objective of this study was to investigate whether Dr Sears' diet affects employees' stress. Data was collected from a sample of 100 employees who were employed by different companies in the broader area of Attica, once a week for a period of three weeks. Of those who participated in the study 56% were male. The results showed that Dr Sears'diet had a beneficial effect on participants' stress levels, which decreased from the first week of implementation and continued to decline during the second and third week. Future research should focus on long-term effects of this diet on employee behavior related to motivation and performance, to deepen our understanding of the significant role of nutrition at work.

Keywords

Dr Sears' diet, work stress, occupational stress, nutrition.

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Introduction

The definition of "stress" often takes on different meanings and interpretations.[1] It is acknowledged as an individual's psychological and physical state in response to the demands and pressures generated by a stimulus.[2] These reactions might be negative ("distress"), neutral, or positive ("eustress"). Small levels of stress might be desirable and tolerated, while high levels can cause discomfort and difficulties in one's daily life.[1] Research has shown that work stress is the leading cause of poor health and ineffective work behaviour.[3] Lately academic literature has focused on work-related intervention programs which aim at preventing work stress[4] in order to reduce psychosomatic health issues and absenteeism, while increasing the levels of commitment, performance, and employee empowerment.[5]

The role of nutrition is critical in preventing various diseases[9] and frequently creates more favorable conditions to deal with them.[10] Conversely, poor nutrition contributes to the emergence[11] or exacerbation of ill health.[12] Nowadays, increased workload often leads employees to adopt unhealthy habits, such as consumption of convenience or fast food, in order to relieve themselves of high levels of stress. Over time these unhealthy habits can result in an increased risk of various diseases associated with the manifestation of different physical and mental symptoms, such as reduced levels of self-esteem, increased dissatisfaction, embarrassment, and frequent absences from work.[13] Therefore, it is paramount that employees should meet the energy and nutritional requirements established by different public health organizations, to protect their health, increase work productivity and reduce the risk of occupational accidents.[14]

In light of this, our research investigated how the application of a specific diet can help employees cope with work-related stress. Dr Barry Sears' diet was chosen because it meets the American Heart Association (AHA) guidelines for a nutritional intervention in the workplace promoting a balanced diet.[18] Followers of this diet consume no or very low amounts of saturated fats, limit refined carbohydrates, and increase consumption of healthy fats (e.g. omega-3),[20,21] fruits and vegetables. According to this diet, proteins, fats and carbohydrates are consumed daily according to a ratio of 30%, 40%, and 30% respectively.

By applying Dr Sears' diet[23,24] to a sample of 100 Greek employees,[19] we investigated whether this balanced diet could stabilize the eating habits of employees over a three-week period, provide them with nutritional benefits and result in a reduction in stress levels caused either by their work or their social environment. Our research fills two gaps in current literature: a) an absence of knowledge of the effect of different diets on chronic stress[17,18] and the lack of studies related to the effects of Dr Sears' diet on employee health.[17]

Methodology

Research Strategy

The study is considered quasi-experimental because the control and intervention groups were not matched for demographic/anthropometric characteristics and dietary habits.[30] The key dependent variable was stress, which was monitored for three weeks (week 1, week 2 and week 3), the period in which participants followed Dr Sears' diet. The group that applied Dr Sears' diet was considered the intervention group, which included participants with poor eating habits. The control group consisted of participants with regular eating habits. Demographic/anthropometric characteristics and physical activity were used as control variables in the analyses.

Data collection tool

The questionnaire included the following scales/questions:

Dietary Habits: This included 18 questions, 14 of which referred to pre-experiment dietary habits of control and intervention groups. In particular, eight questions (1=never, 2=sometimes, 3=often, 4=always) referred to the frequency of breakfast consumption, the adherence to a schedule of three main meals (i.e. breakfast, lunch, dinner), consumption of fruit, vegetables, dessert, alcoholic drinks, milk and water. The remaining six questions (closed-ended) referred to preferences for breakfast, snacks, drinks, and general eating habits. In addition, this section included four further questions about: a) the use of dietary supplements during the intervention (for both groups); b) the use of sugar and salt; and c) changes in eating habits.

Stress: The short form (four questions) of the Perceived Stress Scale (PSS)[31] used. Some sample items include: "In the last month, how often have you felt that you were unable to control the important things in your life?" and "In the last month, how often have you felt that things were going your way?" (reverse scored).The scale was measured with a Likert-type scale (1=never, 2=almost never, 3=sometimes, 4=quite often, 5=very often). Cronbach's alpha was above .70 for all three weeks of intervention.

Demographic and Anthropometric Characteristics: Included seven questions (one closed-ended and six short-answer questions) regarding gender, weight (kg), height (m), age, work experience, working hours, and resting heart rate.

Sample

The sample consisted of 100 employees (intervention group) who followed Dr Sears' diet for three weeks and a control group of 175 people who did not follow any specific diet. Both groups answered a questionnaire once per week.

In general, the two samples (intervention and control) had no significant differences in height, age, years of work experience and resting heart rate. Differences were observed for gender, BMI and work hours (Table 1).

Results

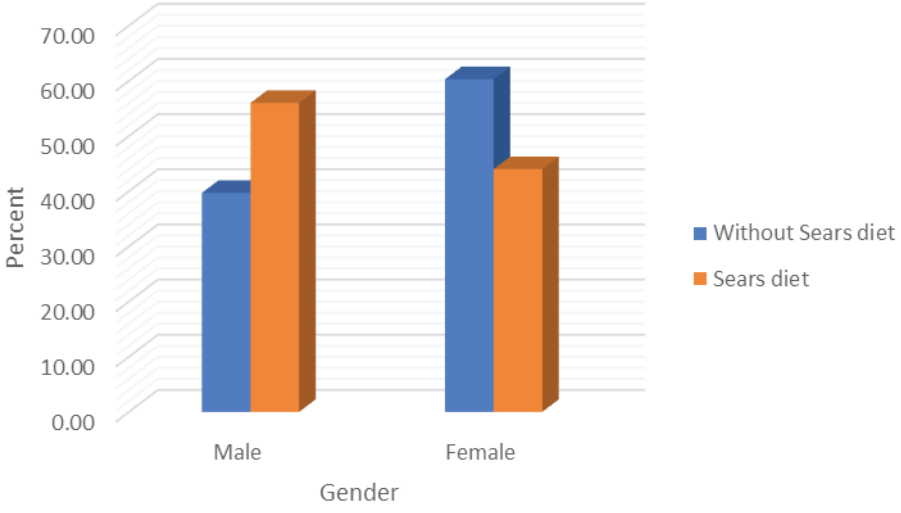
In the following statistical analyses, categorical variables are presented as frequencies and percentages, while quantitative variables are presented as means and standard deviations. Table 1 presents demographic data for the control and intervention groups.

Demographic–Anthropometric Characteristics

Table 1 presents the demographic characteristics for the control and intervention groups. The groups were similar in terms of height (mean without SEARS=1.72, mean with SEARS=1.73), age (mean without SEARS=45.32, mean with SEARS=44.67), years of work experience (mean without SEARS=21.02, mean with SEARS=20.11), and resting heart rate (mean without SEARS=68.66, mean with SEARS=69.62).

Table 1. Demographic data of control and intervention groups

Demographic	Control (N=175)	SEARS (N=100)	Statistic	p-value
Gender	Male: 69 (39.7%) Female: 105 (60.3%)	Male: 56 (56%) Female: 44 (44%)	X2 (1) = 6.839	**0.009**
Weight	74.02 (16.66)	85.11 (21.75)	t (273) = -4.741	**<0.001**
Height	1.72 (0.10)	1.73 (0.10)	t (272) = -1.271	0.205
BMI	24.93 (4.23)	28.29 (7.20)	t (272) = -4.856	**<0.001**
Age	45.32 (11.05)	44.67 (9.26)	t (271) = 0.491	0.624
Work experience	21.02 (10.36)	20.11 (8.83)	t (233.845) = 0.772	0.441
Hours of work per week	21.02 (10.36)	39.74 (6.47)	t (270.067) = -18.392	**<0.001**
Resting heart rate	68.66 (9.35)	69.62 (25.71)	t (114.173) = -0.355	0.724



Graph 1. Gender distribution (Sears vs. Control)

Normality Check

Table 2 presents the results of the normality check for stress, where normality was not confirmed in any case.

Table 2. Results of normality test for stress.

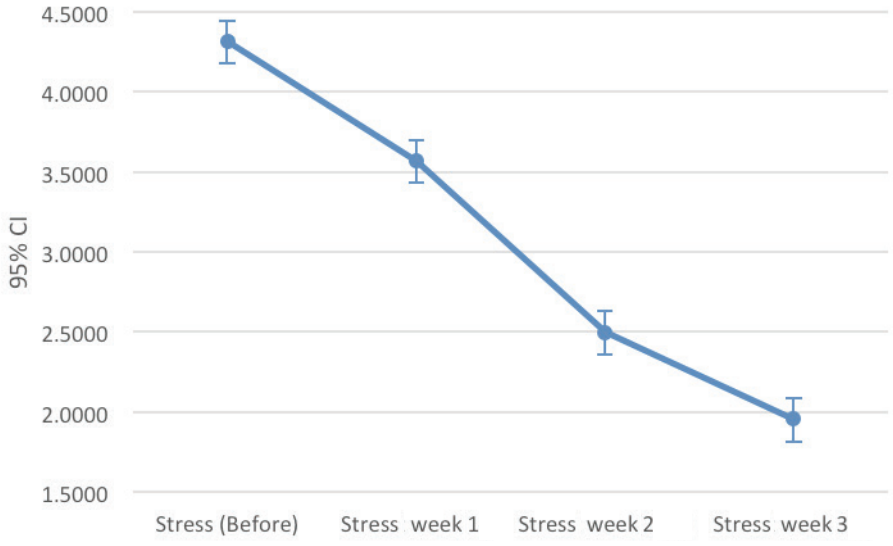
Variable	p-value
Stress (Before)	<0.001
Stress week 1	0.004
Stress week 2	<0.001
Stress week 3	0.001

Temporal evolution for the intervention group

Table 3 presents the results of comparisons for stress levels of the intervention group at different time points where statistically significant differences were detected (F(3.97)=501.567, p<0.001). From Tables 3 and 4 it can be inferred that stress levels steadily decrease over time (Graph 2).

Table 3. Temporal evolution of stress for the intervention group

Variable	Mean	S.D	F (3,97)	p-value
Stress (Before)	4.32	0.65	501.567	<0.001
Stress week 1	3.57	0.76		
Stress week 2	2.50	0.59		
Stress week 3	1.96	0.56		



Graph 2. Error bars for stress for the intervention group, over time.

Table 4. Multiple comparisons of stress for the intervention group over time

Factor	Time (I)	Time (J)	M (I-J)	p-value
Stress	Before	week 1	0.748*	**<0.001**
		week 2	1.820*	**<0.001**
		week 3	2.363*	**<0.001**
	Week 1	Before	-0.747*	**<0.001**
		week 2	1.072*	**<0.001**
		week 3	1.615*	**<0.001**
	Week 2	Before	-1.820*	**<0.001**
		week 1	-1.072*	<0.001
		week 3	0.543*	**<0.001**
	Week 3	Before	-2.362*	**<0.001**
		week 1	-1.615*	**<0.001**
		week 2	-0.542*	**<0.001**

Comparison of control group and intervention group

Table 5 presents the results of the stress comparisons between the control group and intervention group. It appears that during the first week the intervention group had higher levels of stress, which reduced during the second week (in comparison to the control group) and further declined in the third week.

Table 5. Comparison of stress between the control group and intervention group

Variable	Control	S.D.	Statistic	p-value
Stress week 1	2.64 (0.82)	3.57 (0.76)	t (273) = -9.285	**<0.001**
Stress week 2	2.64 (0.82)	2.50 (0.59)	t (259.423) = 1.636	0.104
Stress week 3	2.64 (0.82)	1.96 (0.56)	t (264.524) = 8.159	**<0.001**

Stress

Table 6 presents the results of Spearman correlations of stress with independent variables for the intervention group. It appears that in all three weeks the predictive factor was the resting heart rate.

Table 6. Spearman correlations of stress with independent variables for the intervention group

Independent variables	1st week	2nd week	3d week
Gender	0.036	-0.036	0.080
BMI	0.159	0.066	0.046
Age	0.178	0.157	0.053
Work experience	0.131	0.119	0.033
Hours of work per week	0.146	0.094	0.061
Resting heart rate	0.304**	0.369**	0.385**

** p < 0,01, * p < 0,05

Table 7 shows the results of multiple linear regression with stress as the dependent variable and the correlation factors as the independent variables for each week. The predictive role of resting heart rate was found to be related to stress.

Table 7. Multiple linear regression of stress with correlated independent variables for the intervention group

Independent variables	1st week	2nd week	3rd week
Gender	-	-	-
BMI	-	-	-
Age	-	-	-
Work experience	-	-	-
Hours of work per week	-	-	-
Resting heart rate	0.283**	0.161	0.179*
R2	0.181	0.201	0.307
df1	2	2	2
df2	95	95	95
F	10.530	11.944	21.081
p-value	<0.001	<0.001	<0.001

** p < 0,01, * p < 0,05

Discussion

The rapidly changing nature of work makes working life extremely demanding.[31] Chronic stressors and poor diet can generate physical and psychological problems[32] for employees who are unable to cope with them.[33] This might explain why several employees are unable to fully contribute to their work.[34]

This study aimed to fill a gap in the existing literature by investigating the effect of Dr Sears' diet on the stress levels of employees in Greece. The results of the present study showed that stress decreased immediately from the first week of using Dr Sears' diet, with reduced stress levels being recorded at the end of the second week. With most anti-inflammatory diets, the reduction in stress and nervousness levels is more intense after the first week, as the body adapts to new conditions, since the diet itself represents a state of stress for the body.[41]

The present study has some limitations that need to be addressed. There are questions regarding the generalisability of the results to the entire Greek population, since our sample consisted mainly of employees in the Attica region. In addition, the sample size of our intervention was modest, which could potentially raise some statistical doubts about the power of our analyses. To overcome these limitations, researchers who want to expand these findings should try to collect more data over a longer period of time.

In conclusion, our preliminary findings are optimistic and suggest that a balanced diet, such as Dr Sears' diet, can have a positive effect on employees' stress management.

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