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EVALUATION AND COMPARISON OF LIFE STYLE AND FITNESS AMONG SOFTWARE AND NON-SOFTWARE PROFESSIONALS

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ABSTRACT

Work related stress is the physical and emotional responses that can happen when there is a conflict between job demands on the employee and the amount of control an employee has over meeting these demands. The present study is planned to investigate whether job level will influence once occupational stress at workplace. The information on job level leaving full time employment was obtained on the questionnaire for inclusion in the analysis. Respondents provided the job profile and grade on the basis of which they were recognized as professionals for the purposes of the analysis. This study highlights the interplay among the lifestyle habits, body weight, physical activity and aerobic fitness, work stress and disruption of circadian rhythm among Software Professionals and Non-Software Professionals.

KEYWORDS: Stress, aerobic fitness, sleep, lifestyle, mental health.

INTRODUCTION

Aerobic fitness is one of the non invasive and simplest parameters which help in accessing one's fitness. Aerobic fitness indicates one's capacity to undergo strenuous work. Hence it can be used to access one's lifestyle indirectly. A major public health challenge at the moment is to tackle sedentary lifestyle, to prevent obesity and thereby to enhance health and well-being.[1]

Over the last century, stress as an interdisciplinary concept has become an area of great interest and has been researched extensively. The endeavor to understand psychological stress did not only involve the link between stress and illness; other human characteristics such as emotion, motivation, and performance will be linked to stress. The realm of stress carries many diverse and distinct factors concerning the person and his or her environment. In organizational psychology, for example, stress is understood as a long-lasting and harmful emotional and somatic response to stressors when the requirements of work do not accord with employees' capabilities, expectations, and needs.[1-4]

The hasty urban life no longer follows the time signals of nature. Because of the constantly used artificial lights, the trees are dropping their leaves later in the fall and we are exposed to irregular sleep-wake cycles. In modern societies people work and socialize around the clock and thus it is not a surprise that the circadian rhythm disruptions are becoming more common.[5,6] Circadian rhythm disruptions lead to sleep deprivation and cause brain dysfunction and may decrease mood, motivation, attention and alertness. Lack of alertness and attention may predispose individuals to accidents such as car crashes. Decrease of mood and motivation may trigger mental illnesses such as depression and manic episodes.[7]

Because of the significance of sleep and normal circadian rhythm to health, abnormalities in these factors may have a wide-range of deleterious effects to public health. To anticipate how and to what extent the circadian rhythm disruptions cause physiological and mental dysfunctions and to prevent and cure these conditions we must carefully study both the genetics and the physiology behind the circadian rhythms.[8-10]

Therefore the present study aimed to understand the interplay among the lifestyle habits, body weight, physical activity and aerobic fitness, work stress and disruption of circadian rhythm among Software Professionals and Non-Software Professionals.

MATERIALS AND METHODS

A minimum of 50 software professionals will be recruited for the study .Equal numbers of age matched non-software professionals will be selected. Both groups will be studied over a period of three years.

Subject Selection

Inclusion criteria

1. Subjects age between 22 to 35 years, regardless of gender.

Exclusion criteria

1. Patients with previous history of myocardial infarction or clinical evidence of coronary artery disease (CAD).
2. Patients with diabetes on insulin treatment.
3. Patients with a history of cancer.

Study design

I Group: Control Group: Non-Software professionals.
II Group: Experimental Group: Software professionals.

Laboratory analyses: Total cholesterol, HDL cholesterol, triglycerides, and CRP levels were analyzed from serum blood samples, and later the HDL cholesterol to total cholesterol ratio was calculated. A high-sensitivity CRP concentration was determined using an immunoturbidometric method. All values below the detection level were coded as 0.1 mg/L.

Questionnaires: Using an in-house designed questionnaire, background information will be gathered from the subjects. An exhaustive questionnaire to document the following details of the study subjects is developed and validated. The information to be collected and documented are – Personal and family information, Medical/ Health status, Physical activity scale, Dietary habits and Leisure time activities.

Self-rated physical fitness - Self-rated physical fitness will be assessed by asking "How do you consider your current physical condition?" The answer options were "very poor", "fairly poor", "satisfactory", "fairly good", and "very good".

Other self-reported variables - Participants received by mail a self-administered questionnaire to be filled in at home, before arriving at the study site. The questionnaire assessed medical history, smoking, and alcohol consumption in all subjects and menopausal status and the use of hormone replacement therapy in women. Medical history included questions on CVD, such as angina pectoris, myocardial infarction, coronary artery bypass surgery, coronary angioplasty, stroke, and heart failure, and other diseases, such as diabetes mellitus and acute infections. Medical history also included questions on the use of antihypertensive drug treatment. Smoking behavior was assessed by the frequency of smoking, this being divided into daily smokers, ex-smokers, or non-smokers. Alcohol consumption was calculated as grams of pure alcohol per week using the recall of the preceding week. Participants will be excluded from the analysis if any information on these background and confounding variables are missing.

Questionnaires Depend On Different Scales: Job satisfaction was measured using a Job Satisfaction Scale of Occupational Stress Indicator.[10] It consists of 22 items measuring intrinsic and extrinsic satisfaction with the job and the organization rated on a 6 point scale with 6 indicating maximum satisfaction. The reliability coefficient was calculated using Crown Bach′s Welch as 0.94. This scale has shown good validity correlation with Warr *et al*,[10] satisfaction with the Job Itself Scale.[11]

The physical and mental health of the Occupational Stress Indicator[10] was used to assess the health and well-being of the respondents. The Mental Health Scale consists of eighteen items of mental health symptoms, which were rated on a 6- point scale, some of which were reverse score. This scale has shown good validity correlation with sub-scale of Crown Crisp Experimental Index measuring free-floating anxiety, somatic anxiety and depression.[11] The Physical Health Scale consisted of 12 items relating to somatic symptoms, which the respondents were asked to rate on a six point Scale from 1 (never) to 6 (frequently). For both scales, the lower score indicated greater well-being.

The information on job level leaving full time employment was obtained on the questionnaire for inclusion in the analysis. Respondents provided the job profile and grade on the basis of which they were recognized as professionals for the purposes of the analysis.

The source of stress scale of the occupational stress indicators (OSI)[10] was used to measure the source of pressure at work. This consisted to six sub-scales viz., factors intrinsic to job, relationship with others, career and achievement, organizational structure and climate; home/work interface. The items were rated in terms of the degree of pressure. The respondents were asked to indicate if their job was very definitely a source of stress or very definitely not, on a scale of 1 to 6. The data collected is analyzed and presented in the tables.

Assessments of Sleep Deficit or Jet Lag: The Epworth Sleepiness Scale (ESS) questionnaires was used to assess the disturb sleep pattern. For biochemical estimation blood samples were collected from all the subjects at 7.30 a.m. immediately after their night-shift. Demographic and sleeping pattern information was also collected through small questionnaire

Statistical Analysis: The data obtained was analyzed for its statistical significance by one way ANOVA using SPSS. $P<0.05$ was considered the level of significance.

RESULTS

The study comprised 100 participants: 50 Software Professionals and 50 Non-Software Professionals. The baseline characteristics of the study population are presented in Table 1.

Table 1: Baseline characteristics; comparison between Software Professionals and Non-Software Professionals.

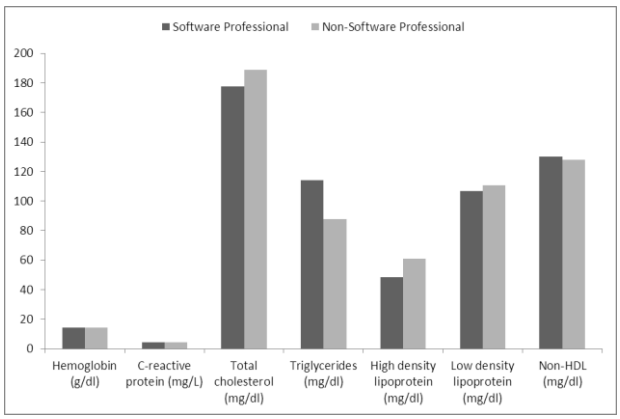
Parameters	Software Professional	Non-Software Professional
Gender: Male (Female)	37 (13)	42 (8)
Age (in Years)	22.44 ± 2.8	23.12 ± 2.34**
Born in Karnataka	35 (70%)	44 (88.6%)
Work Experience (in Years)	2 ± 1	2 ± 1
Smoking	37	16
Smoking pack/week	6.314 ± 8.97	5.1 ± 1.41*
Alcoholics	50%	2%
Excess Caffeine	14%	3%
Hours of sleep / night	5.89 ± 0.81	7.23 ± 0.73**
Hours of work / week	70.21 ± 8.23	48.41 ± 4.21*

Values are expressed as mean ± SD, *p<0.001, **p<0.05.

Table 2: The Epworth Sleepiness questionnaires results, comparison between Software Professionals and Non-Software Professionals groups.

Activity	Software Professional	Non-Software Professional
Sitting and reading	1.98 ± 0.47	1.21 ±0.93*
Watching TV	3.32 ± 0.72	2.14 ± 0.92*
Sitting inactive in a public place	1.78 ± 1.33	1.57 ± 0.48*
As a passenger in a car for an hour without a break	2.89 ± 1.29	1.21 ± 1.03*
Lying down to rest in the afternoon when circumstances permit	2.26 ± 1.02	2.49 ± 0.83**
Sitting and talking to someone	0.94 ± 0.09	0.57 ± 0.24*
Sitting quietly after dinner without alcohol	2.65 ± 1.02	1.36 ± 0.81**
In a car, while stopped for few minutes in the traffic	0.64 ± 0.28	0.19 ± 0.24*
Total score	16.46 ± 6.22	10.74 ± 5.48**

Values are expressed as mean ± SD, ***p<0.001, **p<0.05.**



Values are expressed as n (%) or mean ± SD

Figure 1: The comparison of biochemical parameters among - Software Professionals and Non-Software Professionals.

The Software Professionals has shown significantly low HDL level and slight increase in triglyceride level as compared to the Non-Software Professionals. CRP levels were almost similar in both groups. There was no other significant differences were observed in the biochemical parameter estimation between Software Professionals and Non-Software Professionals.

DISCUSSION

The results highlights that Software Professionals have shown reduced professional performance and decision making ability after working in the night shift, as well as a increase incidence of falling asleep while driving and most of the such individuals faced high risk of being involved in a motor vehicle accident.[3-5]

The results of the present study also shows that Software Professionals are working on an average nearly 70 hours a week, which results in disturbances in sleep pattern with decreased HDL level and increased triglyceride levels as compared to Non-Software Professionals.

The results of our study showed that lipid profile had a significantly healthier pattern among the non-software professionals as compared to the software professionals. Also the statistical analysis showed a significant difference in mean HDL and Total Cholesterol /HDL values in all these two groups and since these are the two factors of prime importance in the primary prevention goal of CAD. It can be said that the non-software professionals had a significantly greater protective effect against CAD than the software professionals though both the groups had lipid profile range within the normal limits. Most population studies have used self-reported physical activity instead of aerobic fitness, but their findings, nevertheless, are similar to the observations of the present study on lipid profile and blood pressure.[8-12]

CONCLUSION

We would like to conclude that software industry should redesign their working hours, at regular interval try to monitor the work stress on employee, asses their physical

health and mental health with the help of expert physicians and psychologists. Work stress which leads to disturbance in sleep pattern may severely affect the employee health. In this regard we would like to propose the intervention of regular physical activity as stress-relief factor as well endurance modulator for the better physical health among Software Professionals.

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