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RESEARCH ARTICLE

PRE-EXAMINATIONSTRESS AMONG UNIVERSITYSTUDENTS AT WESTERN RIYADH

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ABSTRACT

Study Design and Objective: This was a descriptive cross sectional study aimed to evaluate the behavioral and psychological status of University Students in the period preceding regular exams.
Materials and Methods: Questionnaires included several questions were filled by 189 students of both sexes and different university colleges. The data collected was analyzed using SPSS program.
Results: Level of concentration during exam periods decreased in 30.7% of students. About 16.9% of students were nervous before exam and about 56.6% were scared. Sleeping hours were irregular in 59.3% of students. About 40% of female students reported menstrual cycle disturbances.
Conclusion: Caffeine consumption and lack of regular exercise can aggravate stress-related changes in university students during the period preceding exams.

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INTRODUCTION

Stress is the body's reaction to a change that requires a physical, mental or emotional adjustment or response. (Azhar, 2004) Stress can come from any situation or thought that makes person feels frustrated, angry, nervous, or anxious. (Koolhaas *et al*., 2011) Human responses to stress reflect differences in personality, as well as differences in physical strength or psychological health. (Ulrich-Lai and Herman, 2009) Physiological studies have shown that stress from any source can affect several systems in the human body. Stressful events may result in changes in immune functions and lead to disease. (Dorshkind and Horseman 2001, Khansari *et al*., 1990) The study of university sciences is hard and stressful. In order to maintain a remarkable grade-point-average (GPA), students often have to work beyond their mental threshold and physical strength. It has been observed that female students respond to examination situation with stronger anxiety and more intense behavioral, metabolic, psychological, and menstrual cycle changes. (Bayram and Bilgel, 2008; Dahlin *et al*., 2005). Local studieson exam related stress are lacking. Therefore, this study was planned and designed to determine the behavioral and physiological changes in a sample of university level students during the pre-examination period.

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MATERIALS AND METHODS

The study was conducted during April and May 2014, the period before, during, and after the final exams in the year 2013/2014 at Shaqra University in Saudi Arabia. Participants were 189 male and female students from colleges of applied medical sciences, humanity sciences, and community. Questionnaires were distributed among the students; thequestionnaire included questions about daily habits and their change (meals, smoking, sleeping, etc.), physiological conditions (e.g., menstrual cycle), and health disturbances (headache, polyuria, abdominal disturbances, visual disturbances, etc.). Data obtained was collected and analyzed using SPSS program version 16.

RESULTS

About 58% of Respondent students were from applied medical sciences colleges and 42% from humanity sciences and community colleges, 40.7% females and 59.3% males. About 59% of students were in levels (semesters) 2 and 4 (Table 1).

Changes in meals, drinking coffee or tea, level of concentration during exams, and smoking are shown in Table 2.

Table 1. Academic levels of participants

Academic level	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth	Total
Frequency	14	55	16	57	13	25	7	1	1	--	189
Percentage	7.4%	29.1%	8.5%	30.2%	6.9%	13.2%	3.7%	0.5%	0.5%	--	100%

Table 2. Change in some daily habits of students

	Meals (number and amount)	Caffeine/energy drinks	Level of Concentration span during exam periods	Smoking
Increased	25.4%	54.5%	42.3%	18%
Decreased	31.2%	11.1%	30.7%	27%
Not changed	43.4%	34.4%	27%	55%

Note: About 55% of participant students were smokers.

Feelings and emotions of students before, during, and after exam are shown in Table 3.

Table 3. Feelings and emotions of students in the day of exam

	Normal	Nervous	Happy	Scared
Before exam	24.3%	16.9%	2.2%	56.6%
During exam	26.5%	10%	4.8%	58.7%
After exam	40.5%	8%	27.5%	24%

Positions taken by students while reading for exam were as follows: 12.2% on bed, 38.1% on chair, 5.8% walking, and 43.9% all positions (irritability). Sleeping hours during days of exam were not changed in 24.3% of students, but irregular in 59.3%, prolonged in 11.1%, and shortened in 5.3% of students. Concerning exercise during exam periods, about 61.9% of students stopped exercise, 9.5% continued without change, 2.6% increased rate of exercise, 23.3% decreased rate of exercise, and 2.6% of students had no exercise. Presence or absence of polyuria, headache, gastrointestinal disturbances, visual disturbances, general illness, stressfulness, and menstrual cycle disturbances in females are shown in Table 4.

In this study, about 57% of students showed change in number and amount of daily meals(either decrease or increase). Several studies (Adam and Empel, 2007; Epel *et al*., 2004; Stone and Brownell, 1994) showed that stress affects eating by decreasing or increasing food intake and may lead to weight loss or obesity. About 54.5% of participants in this study consumed increased amounts of coffee and tea during exam periods. This is because they thought it can help lift their mood and improve alertness. However, increased caffeine increases the levels of adenosine, adrenaline, cortisol and dopamine in blood (Papadelis *et al*., 2003; Farag *et al*., 2006) Elevated level of these hormones maylead to fatigue and moods wings (Patz *et al*., 2006). In this study, about 39.2% of students suffered from illness and fatigue.In addition, increased caffeine intake can affect sleeping patterns (Areeba Husain Rizvi *et al*., 2010). In this study, about 75.7% of students suffered from sleeping disturbances. Challenging situations, such as reading for exam, can cause increased concentration span. Stress often causes increased levels of cortisol, epinephrine and norepinephrine (Stress hormones), in blood. This increase may affect level of concentration, emotional stability, and physiological activities (Lovallo *et al*., 2006).

Table 4. Presence or absence of some abnormalities during period of exams

	Polyuria	Headache	GIT disturbance	Visual disturbance	General illness	Stressfulness	Menstrual cycle disturbance
Present	30.2%	60.8%	41.3%	44.4%	39.2%	66.1%	40%
Absent	69.8%	39.2%	58.7%	55.6%	60.8%	33.9%	60%

Table 5. Types of GIT disturbances during exam periods

	Diarrhea	Constipation	Abdominal pain	Dyspepsia	More than one type	Total
Frequency	4	3	45	7	20	79
Percentage	5%	4%	57%	9%	25%	100%

The most frequent type of GIT disturbances was abdominal pain (Table 5).

DISCUSSION

Pre-examination stress is one of the most worldwide suffered problems in university students. Excessive or prolonged stress can lead to metabolic disorders and disease. The changes in the period preceding exams include physiological, hormonal, immunological, psychological and behavioral changes. These changes are different in students according to several factors such as gender, age, and physical activity (Aktekin *et al*., 2001)

In this study, 42.3% of students reported an increased concentration span during studying prior to exams, 56.6% were scared, 60.8% complained of headache, and 44.4% suffered from visual disturbances. In this study, 41.3% of students reported GIT disturbance. It was reported previously (Naliboff *et al*., 2004; Bhatia and Tandon, 2005) that caffeine increases the acidity of human gastrointestinal tract, which may lead to heartburn and gastric ulcer. Imbalance in levels of estrogen and progesterone in females may lead to disturbed menstrual cycles. Psychological stress is thought to trigger these changes (Loucks and Redman, 2004; Wang *et al*., 2004). In this study, 40% of female students suffered from menstrual cycle disturbance.

In this study, about 61.9% of students stopped exercise, 9.5% continued without change, 2.6% increased rate of exercise, and 23.3% decreased rate of exercise. In some studies (Lovallo *et al*., 2006), it was noted that students who exercised regularly experienced less severe symptoms of exam related stress; daily physical activity helped improve the digestive system, improves immune responses and enhanced cognitive functioning.

Conclusion

It can be concluded that caffeine consumption and lack of regular exercise can aggravate stress-related changes in university students during the period preceding exams.

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