STRESS AND DIETARY APPROACH

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Abstract

Stress is the body's natural defense against predators and danger. It flushes the body with hormones to prepare systems to evade or confront danger. This is known as the "fight-or-flight" mechanism. When we are faced with a challenge, part of our response is physical. The body activates resources to protect us by preparing us either to stay and fight or to get away as fast as possible. The body produces larger quantities of the chemicals cortisol, adrenaline, and noradrenaline. These trigger an increased heart rate, heightened muscle preparedness, sweating, and alertness. All these factors improve the ability to respond to a hazardous or challenging situation. . In short bursts, stress can be positive, such as when it helps you avoid danger or meet a deadline. But when stress lasts for a long time, it may harm your health. Over time, this puts you at risk for health problems, including: High blood pressure, Heart disease, Diabetes, Obesity, Depression or anxiety, Skin problems, such as acne or eczema, Menstrual problems. A healthy, balanced diet with plenty of fruit and vegetables helps maintain the immune system at times of stress. A poor diet will lead to ill health and additional stress. Studies have shown that exercise can benefit a person's mental and physical state. The objective of this study is to know the dietary pattern of people under stress.

Key words : Stress, Anxiety, Depression, Diet, Exercise

Introduction

Stress is a feeling of emotional or physical tension. It can come from any event or thought that makes you feel frustrated, angry, or nervous. Stress is your body's reaction to a challenge or demand. The physical effects of stress include: Sweating, Pain in the back or chest, Cramps, Fainting, Headache, Muscular aches, Nervous twitches, Pins and needles, Sleeping difficulties, Stomach upset.

There are 2 types of stress : Acute and chronic. Acute stress is short-term and is the most common. Acute stress is often caused by thinking about the pressures of events that have recently occurred, or upcoming demands in the near future. It does not cause the same amount of damage as long-term, chronic stress. Short-term effects include tension headaches and an upset stomach, as well as a moderate amount of distress *(McGonagle et al., 1990).* cute stress response includes suppression of appetite and food intake (*Torres SJ et al., 2007).*

Chronic stress is the most harmful type of stress and grinds away over a long period. Chronic stress can continue unnoticed, as people can become used to it, unlike acute stress that is new and often has an immediate solution *(Bowman, et al.,2003).* People with chronic stress are likely to have a final breakdown that can lead to suicide, violent actions, heart attacks, and strokes *(McEwen BS 2004).* Noradrenaline and CRF may suppress appetite during stress, whereas cortisol may stimulate appetite during recovery from stress *(Takeda E et al., 2004).* Moreover, those under chronic stress tend to eat more under acute stress conditions *(Gibson EL 2006)* and show heighted preference for and consumption of hyperpalatable, energy-dense foods high in sugar and fat *(Warne JP et al .,2009).*

Including healthy fats such as avocados, eggs and walnuts — has the opposite effect, creating a "favorable hormone signaling in the brain, which supports satiety, mood regulation, and sleep and energy balance," Miller says. Refined carbs — such as chips, cookies, and crackers — are tied to inflammation, stress, and depression. Whole grains are healthier than refined grains because the process of refining carbohydrates results in the elimination of much of the fiber, vitamins, minerals, phytonutrients, and essential fatty acids (*Giugliano D,et al.,2006).* the omega-3 (*n*-3) PUFAs, found in fish, fish oil, walnuts, wheat germ, and some dietary supplements such as flax seed products can curb the production of AA-derived eicosanoids (*Maes M et al., 2000) (Pischon T et al., 2003).*

Study area, Study design and Sample size

A community based cross sectional study was carried out among 153 people Over 20 years of age, living in Secunderabad area. An e-Questionnaire was formed through google forms and was sent to the target population . The data was then converted into charts and tables.

The samples were educated to manage stress by eating Right and have a well balanced diet. They were educated to eat foods containing complex carbohydrates rather than simpler ones, Emphasis was on fruits and vegetables. They were counselled to sleep for atleast 6-7 hours everyday and also to be physically active.

Results and discussion

Fig. 1: The subjects were distributed based on the age and sex. Of the 153 subjects, 116 were females and 37 were males. 25 males and 85 females fall under 25-30 years of age while 12 females and 4 males were between 25-30yeras, 11 females and 4 males were between 30-35 years, 6 females and 2 males between 35-40 years, 2 and 2 females and males respectively over 40years of age.

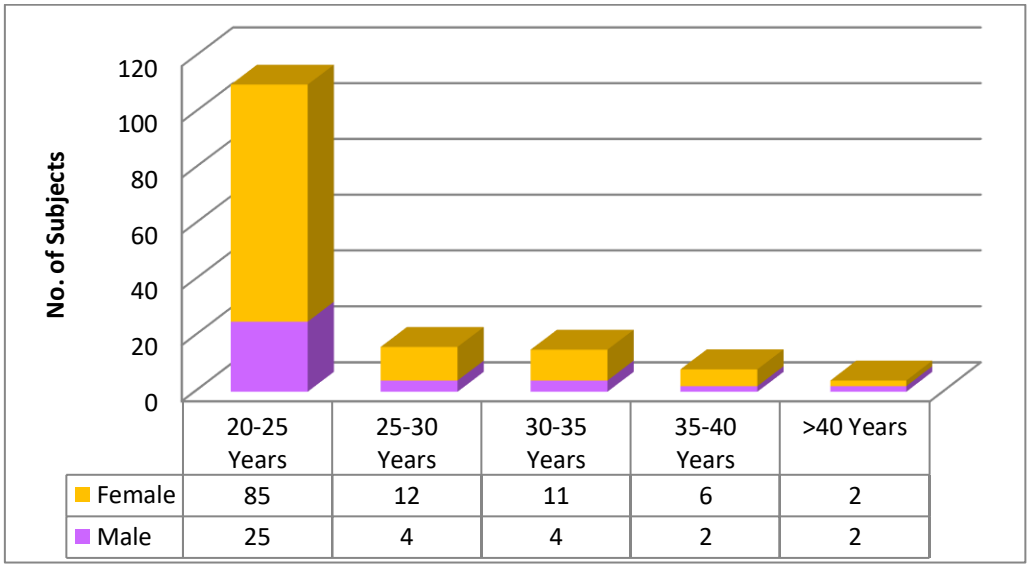

Figure 1: Classification according to age and sex

Conclusion: Stress-related disorders such as depression, anxiety and post-traumatic stress disorder (PTSD) have a higher incidence in women than in men (Solomon M.B et al., 2009) (Bangasser D.A, 2014) (Shansky R.M., 2015). The onset of stress-related psychopathologies, including anxiety and depression, often occurs in late adolescence and is frequently precipitated by exposure to chronic stress *(McCormick C.M, 2013).* women tend to express higher levels of stress and anxiety than men, *(Muñoz F, 2003)* as well as more happiness, which may mean that women tend to feel and express feelings with more intensity than men.

Fig. 2: The subjects were divided based on the frequency and level of stress. Nearly Quarter of the subjects will suffer from stress everyday and once a month respectively while 36% feel stressed once a week. 9% of the study subjects are stressed occasionally.

The subjects have marked the level of stress On a scale of 1 to 5, (from very low to very high). 10 subjects have a very low and 15 have a low stress level. More than half of the subjects have normal, 31 have high and 18 has very high level of stress.

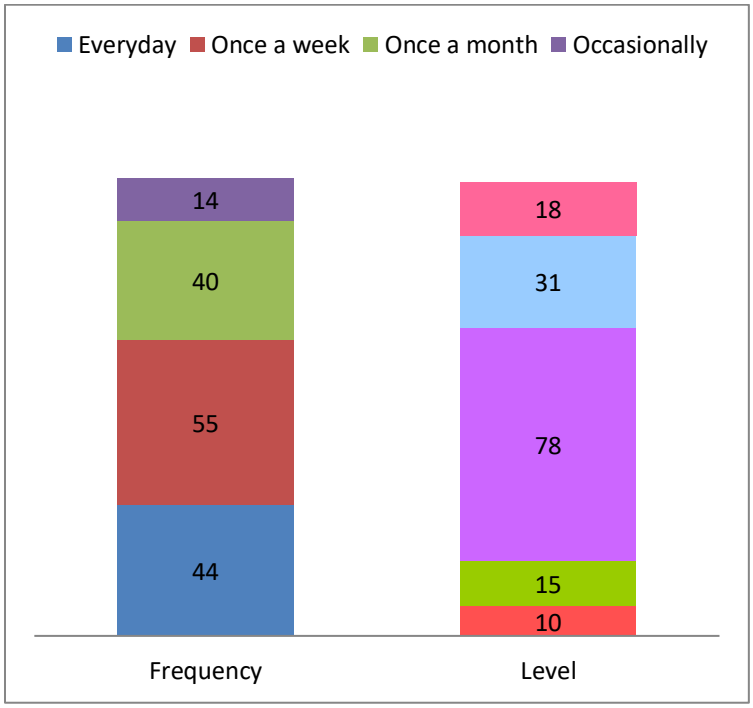

Figure 2: Frequency and level of stress

Conclusion: Psychological morbidities are most common psychiatric health problem worldwide *(World Federation for Mental Health. 2012).* Students with DAS (Depression, anxiety, stress) are prone to academic difficulties, drop outs, relationship disturbance with friends and family members, failure to cope with anxious situation, and it could advance to panic disorders *(Ali A, 2014).* That leads to lack of self-confidence, compromises the ability to cope with daily life problems which directly affects the academic performance of student.

Fig.3 : Of the 153 Respondents, Nearly half will prefer home cooked foods when they are stressed, 21.7 and 21.7% will prefer fried foods, chips and chocolates respectively. 7.2% will have beverages when they are in stress.

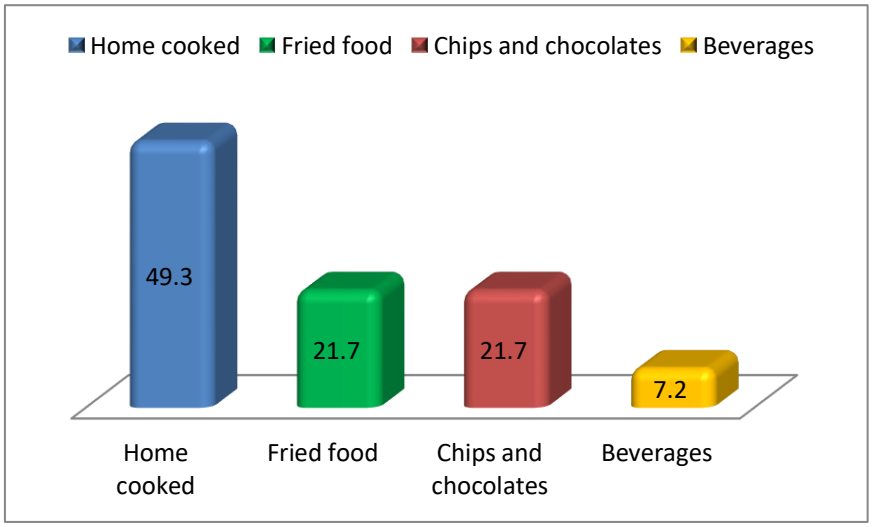

Figure 3: Type of food Preferred during stress

Conclusion: The intensity of the salt hitting your senses and the oh-so-satisfying crunch would bring most people immediate comfort and relief. After all, a lot of research goes into finding the so-called "bliss point" that help food companies create the greatest amount of craving for junk food and fast food (Perez-Cornago.A et al.,2016). The food-mood relationship is maintained by neurotransmitters — chemical messages that relay thoughts and actions in our brain. Some such as serotonin have a relaxing effect, while others such as dopamine have a stimulating effect. The food we eat … create changes in the behaviour of these neurotransmitters, thus impacting our mood (Wenk, G. L. 2015).

Fig. 4: The subjects manage stress by eating more or eating less or stop eating. Nearly half of the subjects eat less during stress and 29% eat more while 21% stop eating when they are in stress.

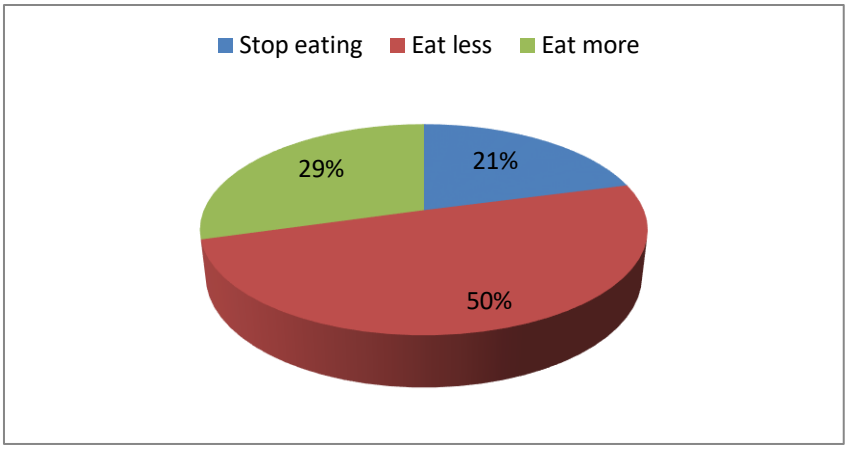

Figure 4: Distribution based on stress management

Conclusion: Acute and chronic exposure to stress can alter both the quantity and quality of calories consumed *(Epel ES, et al., 2000) (Oliver G, et al., 1999).* Furthermore, for many people stress alters food selection towards eating a greater proportion of calories from highly-palatable foods (i.e., tasty, calorically-dense foods containing high amounts of sugars, other carbohydrates, and/or fats *(Groesz LM, et al., 2012).* The intake of palatable and/or high carbohydrate food is associated with improved mood, decreased perceived stress and reduced plasma cortisol concentration in people *(Anderson KE.,1987)(Gibson EL, 2006).*

Fig. 5: Of the subjects 39% were students, 56% were employees and 5% were home makers.

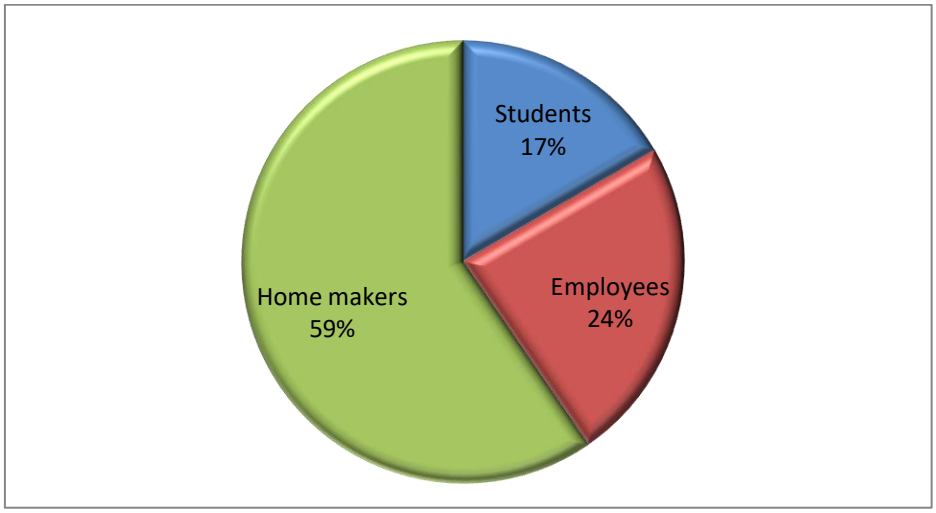

Figure 5 : Occupation

Conclusion: Work stress can lead to physical illness, as well as psychological distress and mental illness *(Eskelinen L, et al., 1991) (Nieuwenhuijsen K, et al., 2010)*. The students in this study reported that exams were their greatest source of stress, which may indicate that students need help to improve their study skills *(Álvarez R, 2000)* and they may also need additional vocational guidance, as making career choices was the second greatest source of stress in this study.

Fig.6 : The subjects were divided based on alcohol consumption. 137 subjects were alcoholics and 16 were alcoholics.

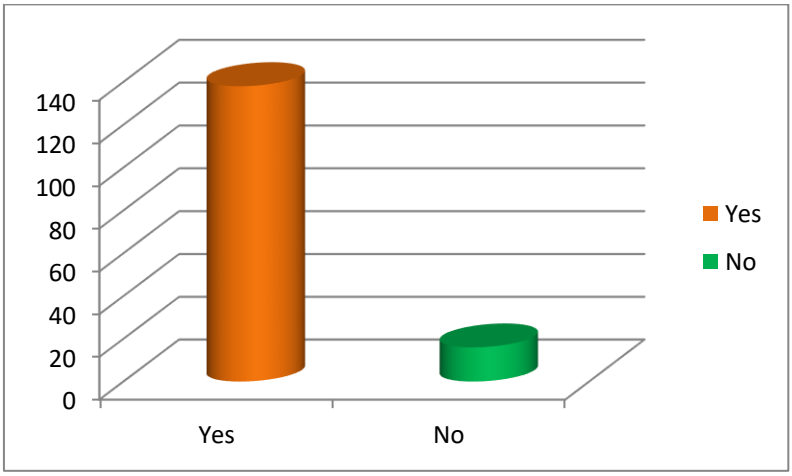

Figure 6: Alcohol Consumption

Conclusion: The connection between stress and alcohol consumption was made early on in alcohol research *(Horton DJ, 1943)*. In the tension-reduction hypothesis, stress was seen to increase anxiety, and in response alcohol was consumed to reduce the anxiety. Chronic alcohol consumption is associated with elevated basal glucocorticoid secretion, whereas the

hormonal response to a stressor was blunted. In addition, a high dose of alcohol increases the adrenal hormone glucocorticoid ***(****Robert M. Anthenelli, 2012).*

Fig. 7: The figure represents the number of hours of sleep. More than half of the population i.e., 60% will sleep for 6-7 Hours and 2% for more than 7 hours. More than Quarter of the subjects sleep for 5-6 hours and 4% for less than 5 hours.

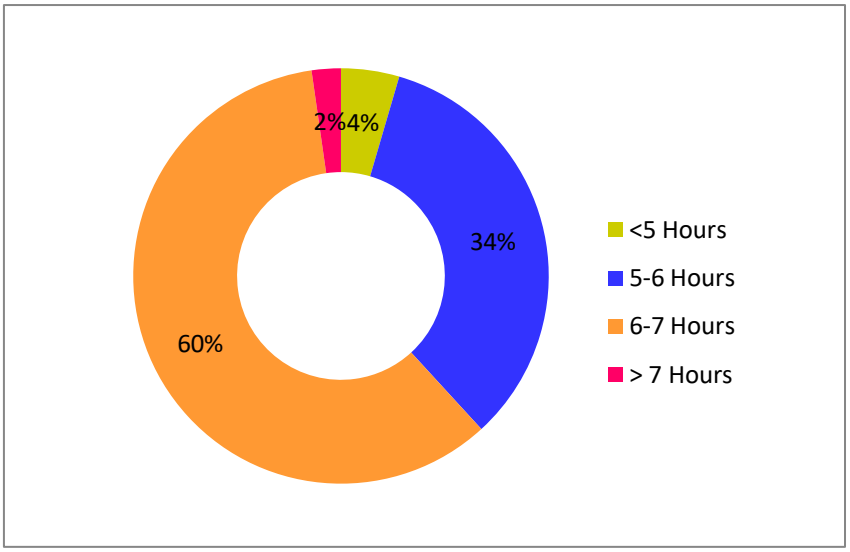

Figure 7: Hours of sleep

Conclusion: Sleep deprivation is a common chronic stressor that may contribute to increased risk for obesity and metabolic diseases, including abdominal obesity, insulin resistance, hypertension, atherosclerosis, that may predispose individuals to cardiovascular disease and type II diabetes *(Knutson KL, et al.,2008).* Cross-sectional analyses have found a significant association between short sleep duration and increased prevalence of obesity or higher BMI in both adult and child samples *(Patel SR, 2008).*

Discussion:

It is concluded from the data obtained from 153 subjects that dietary and lifestyle factors were the main reason behind stress. They were given education about the well balanced diet, to consume more fruits and vegetables, to eat less of junk food or food outside home. The emphasis was made on consumption of complex carbohydrates. They were explained that sleep deprivation can lead to weight gain and were counselled to sleep atleast for 6-7 hours everyday. They were explained about the importance and benefits of physical activity.

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Everyone is exposed to stress at some time in their lives *(L M Santiago, et al, 2010)*