

# Perceived Stress, Coping Styles and Impact on Eating Behavior of Health Employees

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**Abstract:** There is connection between how people feel, what they eat and how they adapt at different times in day to day life. The aim of this study is to identify Perceived stress, coping styles to reduce stress and in particular the effect of stress on eating behavior of health employees. Perceived stress scale with ten items was used for determining perceived stress in addition to self administered pilot tested questionnaires for coping styles and eating behavior that were adapted with modification after literature review. This study involved the medical and non medical staff(n=177) at King Fahad Medical City, KSAUHS, in the year 2013-2014. In our study, majority of the respondents perceived moderate stress, and among them females displayed perceived stress score more than males (p value=0.000), had a higher eat score (p value=0.001) and under stress, respondents indicated that they not only consumed unhealthy foods (p value=0.027) but also felt that they could overcome stress by eating (p value=0.06). As for the coping styles, physicians adapted better than the non physicians (p value=0.05). The role of organization is considerably important to provide its employees sufficient time and venue for proper food and recreation to prevent stress.

**Keywords:** coping strategies; eating disorders; stress; stress coping; health promotion.

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## 1. INTRODUCTION

Stress is physical or psychological reaction to a real or unrealistic perceived threat. In recent years, there has been an alarming increase in the incidence of reported stress in employees due to various reasons. Employees who are stressed experience many physical and mental effects and at times resort to snacking as a coping mechanism (Oliver and Wardle, 1999). Many studies have assessed the association between stress and eating (Gibson, 2006; Rafael et al, 2009; Stone and Brownell, 1994;). Nevertheless disconnection still exists between the different types of eating patterns people follow and perceived stress. Poor nutritional habits associated with stress that differ by gender were also reported by (Rafael et al, 2009). Both men and women are affected by stress, but in general women are more likely to cope stress with unhealthy behavior such as poor eating habits (Swanson, 2000).

Eating habits have been a major concern as a determinant of health status. Unhealthy eating patterns were observed in employees characterized by a high level of stress (Potocka and Moscicka 2011). In a survey of 1248 enterprises conducted in 2010, the prevalence of anorexia nervosa reported was (0.27%), Bulimia nervosa (0.21%), and night eating syndrome (12.9%) in stressed employees (Inoue et al, 2010). Another study on 4320 school children revealed that greater stress was associated with more fatty food intake, more snacking and less consumption of breakfast, fruits and vegetables (Cartwright et al, 2003). Five classes of emotion have been specified that induced changes of eating namely emotional control of food choice, emotional suppression of food intake, impairment of cognitive eating controls, eating to regulate emotions, and emotion congruent modulation of eating (Macht, 2008).

During the stress, people acclimatize to different coping strategies which are identified as actions or initiatives to alleviate stress thus enabling execution of their work functions. (Wickramasinghe V, 2010). Coping strategies adapted may be constructive which are direct and positive and destructive which are negative (Mc Carty et al ,2007). Active coping can moderate the effect of stress on mental and physical health, and is positively associated with cellular immunity whereas avoidance coping is detrimental (Jeffrey et al 2001).

King Fahad Medical City is one of the largest health complex in the Middle East which has multinationals working in different departments and provides quality healthcare. The current study is intended to identify Perceived stress, Coping styles to reduce stress in particular the effect of stress on eating behavior and the interrelationship between stress, coping styles and eating behavior among health employees. In our study we hypothesized that people resort to different coping mechanisms during stress, and determined that physicians were coping more efficiently than the non physicians and also women adapt unhealthy eating behavior during stress.

## 2. METHODS

**Population and sample:** This study involved the medical and non medical staff at King Fahad Medical City, King Saud Bin Abdul Aziz University For Health Sciences, Riyadh-Saudi Arabia in the year 2013-2014. Approval of the study was taken from Institutional Review Board of King Fahad Medical city on June 1st, 2013. (IRB No-13-138).

**Data collection:** A total of 250 questionnaires were distributed to the staff at convenience in different departments, out of which 4 people were excluded from data analysis as they did not complete the survey.

**Measures:** Survey elements included the demographic data such as age, sex, height, weight, nationality, education level, designation, department, institution, and work time such as regular, on call, shifts and overtime etc. BMI was calculated from the given height and weight. For all the three scales regarding stress, coping styles and eating behavior, Cronbach alpha was determined.

**Stress:** Perceived stress scale with 10 items was used for determining stress among health employees (Cohen S et al, 1983; <http://www.psy.cmu.edu/~scohen/scales.html>). The questions in this scale ask about how people felt during the last one month. The degree of stress was checked by 5 points Likert scale ranging from never=0 and always=4. The ten item Cohen scale had Cronbach alpha of 0.7.

**Coping styles:** A self administered pilot tested questionnaire for coping styles to reduce stress adapted with modification after literature review and from previously published studies (Wickramasinghe V, 2010) was administered to the staff to respond with Cronbachs alpha of 0.5. The questions in this scale ask about the measures taken by the people to cope with stress such as adequate sleep, exercise, walking, smoking or drinking alcohol, medications, and seeking social support.

**Eating Behaviour:** A self administered pilot tested questionnaire for eating behavior adapted with modification after literature review and from previously published studies (Bes Rastrollo et al ,2009; Cartwright et al ,2003 ; Eun et al, 2007; Rafael et al, 2009; Jaclyn S Wainer, 2010; Wardlea et al 2000) was administered to the staff to respond (Cronbach alpha of 0.5). The questions in this scale ask about the eating behavior of people for example ,regularity of meals, frequency, snacking, eating junk food, and if they could overcome stress by eating etc. The responded questionnaires were collected and anonymously analyzed, followed by statistical analysis.

**Analysis:** The statistical analysis of the data was done using Excel and SPSS version 17, Illinois, USA. At first, for general demographic data, stress related factors, coping styles adopted and eating behavior of the subjects, frequency and percentage, Means and Standard Deviation were calculated. To investigate the association and relationships among these factors independent sample t test, one way Analysis of variance, and Kendall taus correlation coefficient was performed. Also we performed Linear regression analysis with stress as an independent factor and eat score as the dependent factor after controlling for age, gender, education, nationality, marital status and title.

## 3. RESULTS

The response rate was 71.9%, (Females=123) and (Males=54). Mean age of participants was 32 years, and mean years of service at KFMC was 3.32 yrs. Demographic data of participants is represented in (Table 1). Perceived stress score of the respondents (n=177) is depicted in (table 2), The characteristics of dietary behavior in (table 3), and Coping styles adapted to reduce stress in (table 4).

#### 4. DISCUSSION

**Perceived stress:** One of the main goals of the current study was to determine perceived stress among health employees working at our institution. In our study, majority of the respondents perceived moderate stress, and among them females displayed higher perceived stress score than males (p value=0.000) which is similar to that reported by Rafael et al (2009), who conducted a study in three European countries and suggested that efforts to reduce stress may lead to consumption of healthier food. Further, in our study respondents who had a doctorate had a low stress score compared to graduates and post graduates (p value=0.01). In a study conducted by Alireza et al (2012), 88% had higher education and majority of these (85.1%), were not exposed to any stress management courses.

#### Coping strategies:

Cooper et al (1988) described six subscales regarding individual use of coping strategies, such as social support, task strategies, logic, home work relationship, hobbies and outside interests, time management and involvement. In our study, physicians adapted better coping styles than the non physicians (p value=0.05). It may be because they had more knowledge about the detrimental effects of stress and hence they adapted various strategies to reduce it. In 2010, Wickramasinghe reported in his study that individual positive coping and workplace initiatives moderate the relationship between relationships with others and job stress.

**Eating behaviour:** In our study, females had a higher eat score than males (p value=0.001) and under stress respondents indicated that they not only consumed unhealthy foods (p value=0.027) but also felt that they could overcome stress by eating (p value=0.06). In the year 1999, Oliver and Wardle, reported that 73% of respondents in his study had snacking behavior i.e. intake of snack type foods that were increased due to stress regardless of gender or dieting status but while snacking 42% reported decreased intake whereas 38% reported increased intake. In a study conducted by (Jeong et al, 2007), 33% of the subjects consumed snacks when stressed. Gluck in the year 2006 explained in his paper how cortisol secretion plays a role in binge eating. In a study conducted by Jaclyn S Wainer, (2010), Males scored lower across eating behavior scales than females, but there was no significant relationship between BMI and perceived stress and perceived social support. Bes Rastrollo M et al in the year 2009 reported that usual snackers had a statistically significant higher mean weight gain per year thereby becoming more obese.

#### 5. CONCLUSION

In our study, majority of the respondents perceived moderate stress, and among them females displayed perceived stress score more than males (p value=0.000), had a higher eat score (p value=0.001) and under stress, respondents indicated that they not only consumed unhealthy foods (p value=0.027) but also felt that they could overcome stress by eating (p value=0.06). As for the coping styles, physicians adapted better than the non physicians (p value=0.05). The role of organization is considerably important to provide its employees sufficient time and venue for proper food and recreation to prevent stress.

#### ACKNOWLEDGEMENT

The authors would like to thank the employees of KFMC for their participation in this study. This work was supported by a research grant from the Faculty of Medicine, at King Fahad Medical City, King Saud Bin AbdulAziz University for Health Sciences (Grant No. 7/34/4).

#### Conflict Of Interest:

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

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## APPENDIX – A

### List of tables:

**Table 1: General Demographic data of the participants (n=177).**

<b>Gender</b>	<b>N (%)</b>	<b>Nationality</b>	<b>N (%)</b>
Female	123	Filipinos	124(70.1%)
Male	54	Saudis	36(20.3%)
<b>Marital status</b>	<b>N (%)</b>	Egyptians	4(2.3%)
Single	87(49.2%)	Sudanese	3(1.7%)
Married	86(48.6%)	Indians	2(1.1%)
Widowed/Divorced	3(1.7%)	South Africans	2(1.1%)
<b>Title</b>	<b>N (%)</b>	British	1(0.6%)
Physician	25(14.1%)	Malaysians	1(0.6%)
Non Physician	149(84.2%)		
<b>Education</b>	<b>N (%)</b>		
Graduate	108(61%)		
Post graduate	50(28.2%)		
Doctorate	14(7.9%)		

**Table 2: Perceived stress score of the respondents (n=177)**

Perceived stress scale	Never	Almost never	Sometimes	Fairly often	Very often	Mean/SD
In the last month , how often have you been upset because of something that happened unexpectedly?	10(5.6)	33(18.6)	100(56.5)	22(12.4)	12(6.8)	1.96/.901
In the last month , how often have you felt that you were unable to control the important things in your life?	15(8.5)	41(23.2)	84(47.5)	31(17.5)	6(3.4)	1.84/.928
In the last month how often have you felt nervous and stressed?	7(4)	18(10.2)	102(57.6)	38(21.5)	12(6.8)	2.17/.849
In the last month,how often have you felt confident about your ability to handle personal problems?	4(2.3)	6(3.4)	45(25.4)	76(42.9)	46(26)	2.87/.917
In the last month,how often have you felt that things were going your way?	5(2.8)	12(6.8)	59(33.3)	70(39.5)	31(17.5)	2.62/.946
In the last month,how often have you felt that you could not cope with all the things that you had to do?	25(14.1)	52(29.4)	71(40.1)	25(14.1)	4(2.3)	1.61/.971
In the last month,how often have you been able to control irritations in your life?	5(2.8)	12(6.8)	68(38.4)	65(36.7)	27(15.3)	2.55/.929
In the last month,how often have you felt that you were on top of things?	2(1.1)	10(5.6)	90(50.8)	60(33.9)	15(8.5)	2.43/.774
In the last month,how often have you been angered because of things that were out of your control?	11(6.2)	35(9.8)	107(60.5)	18(10.2)	6(3.4)	1.85/.815
In the last month,how often have you felt difficulties were piling up so high that you could not overcome them?	25(14.1)	53(29.9)	78(44.1)	17(9.6)	4(2.3)	1.56/.928

The characteristics of dietary behaviour are as follows:

**Table 3: Characteristics of Dietary Behavior (n=177)**

Dietary habits	Never N(%)	Sometimes N(%)	Often N(%)	Always N(%)	Mean/SD
<b>Eating Regular Meals at work</b>	10 (5.6)	66 (37.3)	33 (18.6)	48 (27.1)	2.76/.963
<b>Skipping Breakfast</b>	54 (30.5)	89 (50.3)	24 (13.6)	10 (5.6)	1.94/.817
<b>Eating Healthy Foods</b>	8 (4.5)	46 (26)	74 (41.8)	48 (27.1)	2.92/.845
<b>Eating Unhealthy Foods</b>	13 (7.3)	125 (70.6)	29 (16.4)	10 (5.6)	2.20/.651
<b>Snacking in between Meals</b>	13 (7.3)	119 (67.2)	30 (16.9)	15 (8.5)	2.27/.717
<b>Eating Healthy Snack</b>	18 (10.2)	68 (38.4)	65 (36.7)	24 (13.6)	2.54/.856
<b>Eating Unhealthy Snack</b>	18 (10.2)	68 (38.4)	65 (36.7)	24 (13.6)	2.24/0676
<b>Eating Junk Food</b>	13 (7.3)	119 (67.2)	33 (18.6)	11 (6.2)	1.86/.771
<b>Overcome Stress with food</b>	59 (33.3)	89 (50.3)	20 (11.3)	7 (4.0)	1.83/.822

Table 4: Coping styles adapted to reduce stress (n=177)

Coping styles to reduce stress	Never N(%)	Sometimes N(%)	Often N(%)	Always N(%)	Mean/SD
Sleep for 6-8 hrs	8 (4.5)	51 (28.8)	61 (34.5)	57 (32.2)	2.94/.890
Engage in physical activity >= 3times/wk	22 (12.4)	84 (47.5)	36 (20.3)	35 (19.8)	2.47/.948
Seek social support from peers/ friends/relatives	10 (5.6)	69(39)	51 (28.8)	46 (26)	2.76/.909
Meditation 2-3 times/wk	59 (33.3)	75 (42.4)	21 (11.9)	21 (11.9)	2.02/.968
Smoking	156 (88.1)	12 (6.8)	-	8 (4.5)	1.20/.662
Drinking Alcohol	149 (84.2)	26 (14.7)	2 (1.1)	-	1.17/.405
Medication use	154 (87)	19 (10.7)	2 (1.1)	1(0.6)	1.15/.429

**Key points:**

- There could be organization or individual related factors that could affect perceived stress.
- Coping styles differ due to individual differences in the perception of stress and
- Perceived stress can affect eating behavior of individuals.