

## IMPACT OF OCCUPATIONAL STRESS ON FOOD INTAKE AMONG NURSES

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### ABSTRACT

Job stress is an enforced experience for an individual in the era of a highly globalized world. This study has been conducted to assess the impact of occupational stress on the food intake among nurses from district Rohtak, Haryana, India. Snowball sampling technique was adopted for the selection of the subjects. Fifty nurses, moderately stressed, belonging to the age groups of 30-60 years were selected for the study from various private hospitals and PGIMS, Rohtak. Occupational Stress Index by Dr. A. K. Srivastva & Dr. A. P. Singh (for the year 2002-2003) was used to assess the occupational stress level among nurses. Mean daily food intake was calculated by taking the mean of three days intake and compared with Recommended Dietary Intake or Allowances (RDI/ RDA) (ICMR, 2010). Food adequacy ratio (FAR) was calculated. The data was compiled, analysed and presented in proportions and percentages. Statistical analysis of data was done through the SPSS 24 version (IBM, 2016). It was observed that respondents have consumed more sugar, fat and carbohydrates and less fruits and green leafy vegetables. Protein foods were also not consumed in adequate amounts.

**Keywords:** Occupational stress, food intake, nurses

### INTRODUCTION

Job stress is an enforced experience for an individual in the era of a highly globalized world (European agency for safety and health at work, 2002). Occupational or job stress has a direct effect on nurses, may be of long, short or immediate period or once off experience (Reisner, 2004). Olofsson *et al.* (2003) also supported the fact that nursing is a hazardous occupation with regard to stress-borne illnesses. Stress may adversely affect the human health by instigating unhealthy lifestyles and behaviours like eating & sleeping less or excess than needed, procrastinating or neglecting responsibilities, nail-biting or pacing (Adler & Mathews, 1994), increased calorie intake, reduced physical activity, excess smoking and alcohol intake (American Institute of stress, 2008; Ng & Jeffery, 2003) worsens the cardiovascular health (McEwen, 1998; Everly, 2002; Berkman, 2005). Job stress is associated with higher BMI in human beings which moulds food choices and shifts them towards energy-rich foods that contain saturated fat and sugar while stressed (Wardle *et al.*, 2000), and causes obesity (Torres & Newson, 2007). Individual perception is an important determinant of occupational stress in the nursing profession. Lack of coping abilities, staff support and satisfaction ultimately give birth to stress (Sveinsdottir, 2006) which may develop mental disturbances like anxiety, depression, insomnia and feelings of inadequacy (Wong *et al.*, 2001). Healthcare centres vary in sizes and nature, divergent work tasks, long working hours, night shifts, work conditions, inadequate staff and turmoil causing situations like suffering and death of patients are the common stressors peculiar to nurses (Cooper 1998; Health and Safety Executive, 2000). In Indian context, patients to nurse ratio is low (2250:1), this makes nurses over-burdened with varied responsibilities like treatment, well-being of acute and chronic diseases and injuries in patients, safety and health maintenance is another issue, handling of life-endangering emergencies; medical and nursing research all pose heavy stress on nurses. Nurses are not

only caregivers but are administrators and supervisors of patients too (Habibollah, 2006). These multiple job roles cause greater amounts of stress amongst nurses (Taylor *et al.*, 1999). Cox *et al.* (2000a) viewed that nearly sixty per cent of nurses reported larger interferences that come across between their work and family lives. Biggest stressor was irregular work hours. This interference disturbed family routines and events, child upbringing and household responsibilities which was mood-wavering and conflicting in personal and social life.

A well-balanced diet enriches the stress management process by restoring the depleted vitamins and minerals under stress, hence, produces desirable resistance to an individual's system in a fight against the negativity of stress (Brewer, 1995) along with some exercise that not only reduces all-cause mortality and morbidity (Paffenbarger, 1994); but, also enhances the quality of life (Weyerer& Kupfer, 1994).

**METHODOLOGY:**

**Locale of study:** The present study was carried out on nurses from district Rohtak, Haryana, India. PBDS University of Health and Medical Sciences and various private hospitals are located in its lap. This provided a wide range of samples for the study.

**Sample Selection:** Snowball sampling technique was adopted for the selection of the subjects. Fifty nurses, moderately stressed, belonging to the age groups of 30-60 years were selected for the study from various private hospitals and PGIMS, Rohtak. Occupational Stress Index by Dr. A. K. Srivastva&Dr. A. P. Singh (for the year 2002-2003) was used to assess the occupational stress level among nurses.

**Occupational Stress Index**

Score	Levels
46 - 122	Low Occupational Stress
123 - 155	Moderate Occupational Stress
156 - 230	High Occupational Stress

\*Occupational Stress Inventory (for the year 2002-2003)

Food intake was recorded using standardized spoons, glasses, bowls and cups for measurements of food stuff which were shown to subjects in order to help them in recognizing the amounts of different foods consumed by them. Cooked foods consumed were converted into their raw equivalents. Mean daily food intake was calculated by taking the mean of three days intake and compared with Recommended Dietary Intake or Allowances (RDI/ RDA) (ICMR, 2010). Food adequacy ratio (FAR) was calculated using the formula:

$$FAR\% = \frac{\text{Intake of food stuff}}{RDI} \times 100$$

**Statistical Analysis:** Data was compiled, analysed and presented in proportions and percentages. Statistical analysis of data was done through the SPSS 24 version (IBM, 2016).

**RESULT AND DISCUSSIONS:**

**Table: Mean per cent food intake of respondents**

<b>Food Groups</b>	<b>Recommended Dietary Allowances (gm/ml)</b>	<b>Mean Food Intake (gm/ml)</b>	<b>Food Adequacy Ratio (in percent)</b>
<b>Cereals (gm)</b>	270	320.11	118.55
<b>Pulses (gm)</b>	60	27.25	45.41
<b>Milk (ml)</b>	300	165.77	55.25
<b>Roots &amp; Tubers (gm)</b>	200	301.68	150.84
<b>Green Leafy Vegetables (gm)</b>	100	30.79	30.79
<b>Other Vegetables (gm)</b>	200	95.89	47.94
<b>Fruits (gm)</b>	100	40.01	40.01
<b>Sugar (gm)</b>	20	55.19	275.95
<b>Fat (gm)</b>	20	49.75	248.75

Source: ICMR (2010)

Data regarding mean percent food intake in terms of food adequacy among subjects has been compiled in the above table which includes the intake of various food items i.e., cereals & cereal products, pulses, milk & milk products, roots & tubers, green leafy vegetables & other vegetables, fruits, sugar and fat. Mean daily food intake was calculated by taking the mean of three consecutive days' intake and compared with Recommended Dietary Intake or Allowances (RDI/ RDA) (ICMR, 2010). Food adequacy ratio (FAR) was calculated by given method.

Daily consumption of cereals and cereal products has been recommended to be 375 g/d and 270 g/d, respectively for sedentary adult men and women. In nurses, the average consumption of cereal and cereal products is 320.11 g/d which is higher than the recommended values and accounts for 118.55 per cent to that of daily allowances. Many epidemiological studies suggested that a desirable change in the form of whole food plant-based diet devoid of refined carbohydrate products (such as white refined sugar, white flour, white pasta and white rice) can be beneficial in preventing or may be reversing of cardiovascular causes of mortality and morbidity and even in few cancers in western countries (Campbell and Campbell, 2006).

According to RDA, pulse intake for adult sedentary workers is 75 g/d for man and 60 g/d for woman. The mean value of pulse intake among the respondents is 27.25 g/day that accounts for only 45.41 per cent of RDA among nurses. Insel, Turner & Ross, (2004) supported that protein provides foundation to the body. They referred German scientist Gerardus Mulder who discovered the importance of protein in 1838 confirmed that it is protein which serves as the base of all living tissue.

Daily requirement of milk and milk products for everyone, male or female (sedentary occupation), is 300 ml/d. Intake of milk and milk products by the subjects is found much lower in comparison to recommended dietary allowances which is 165.77 ml/d. This consumption accounts for nearly half (55.25%) the daily requirements. Research

on animal studies revealed that diets rich in tryptophan content in ratio to other amino acids, supply higher levels of tryptophan to the brain and due to which serotonin production peaked (Fernstrom and Wurtman, 1971, 1972).

In our daily diet, roots and tubers are a good source of starch, a complex carbohydrate. Recommended dietary intake of this food group is 200 g/d for adult man and woman sedentary worker. Mean dietary intake of roots and tubers is bithigher than recommended amounts among respondents(301.68 g/d), the mean value makes 150.84per cent to that of the RDA.

Green leafy vegetables commonly known as GLVs in short. Adequacy of GLVs (100 g/d) in diet is a must as these are the potential source of vitamins and minerals. Average GLVs intake of respondents is less than one third(30.79 g/d) of the RDA, nearly thirty-one per cent. A major change in dietary habits was desired to incorporate more green leafy vegetables. Some of dark green leafy vegetables like arugula, broccoli, spinach, kale and cabbage; dandelion greens, swiss chard and watercress etc., provide a variety of nutrients like vitamin A and B complex, Vitamin E, major minerals (calcium and phosphorous) and trace minerals (manganese & potassium) etc. roots vegetables like beets are rich in Vitamin B complex, Vitamin C, manganese, magnesium, iron, copper and phosphorus. Vegetables are an amazing source of antioxidants (Kiefer *et al.*, 2004; Odukoya *et al.*, 2007 Thompson *et al.*, 2010) and vitamins ( $\beta$ -carotene, Vitamins C and E) (Esfahani *et al.*, 2011; Mahima *et al.*, 2011).

Vegetables other than 'roots & tubers' and 'green leafy vegetables' are included in 'other vegetable' food group and 200 grams of other vegetables per day should be consumed daily and inclusion of this food group among all subjects is observed below one-half of the daily dietary needs. Mean intake of this food group is 95.89 g/d and its food adequacy ratios only 47.94 per cent.

Fruits provide ample amounts of nutrients, predominantly vitamins and minerals. In our diet, we require 100 g of fruits daily for everyone. But the fruit intake is a far cry from RDA among all respondents. Daily consumption of fruits is quite low which amounts to only 40.01 gm per day. In terms of per cent intake, this value is 40.01 to that of recommended values. Folic acid and other compounds in fruits and vegetables may contribute to low occurrence of cancer. Vitamin C acts as an antioxidative shield against reactive oxygen species (free radicals); hence, against various cancer and life-threatening illnesses (McGuire and Beerman, 2007). Carret *al.* (1999) elucidated that higher intake of vitamin C is responsible for lowering the risk of chronic diseases such as cancer, cardiovascular disease, and cataract, possibly because of their antioxidative mechanisms.

Sugar or simple carbohydrates give quick but blank energy (4 Kcal/g of sugar). Mean sugar intake is undesirably high among nurses (55.19 g/d). The excess mean intake of sugar is two hundred seventy five percent to that of RDA (20 g/d). It is highly recommended to reduce the blank energy gain from simple sugars. Pan *et al.* (2011) suggested that if SSBs (sugar-sweetened beverages) or fruit juices are being replaced with plain drinking water, a person would tend to have lesser weight gain in the long term.

Though, fat and oils provide none of the nutrients except energy, yet this food group provides all the essential fatty acids. This is another food group taken in exceptionally higher quantities along with sugars, respective to RDA (25g for sedentary adult man and 20g for sedentary adult women). Mean intake of fats & oil is very high(49.75 g/d) in respondents and become nearly two hundred and fifty percent to that of RDA. Consumption of fat should be reduced somewhat in desirable direction. Fat and

oils are the impeccable source of energy. Fats get stored into adipose tissues when excessively available in body (Montouriet *al.*, 2012).

### CONCLUSION:

It is concluded that subjects who were moderately stressed were not consuming balanced diets. Intake of different types of food were either low or high to that of daily recommended dietary allowances i.e., consumption of carbohydrates (cereals & cereal products, roots & tubers) was towards higher side while protein (pulses, milk & milk products) on lower side to their respective daily needs. Additionally, consumption of green leafy vegetables and fruits was minimally included into daily diet and to worse, intakes of sugar and fat & oils were more than double the recommended allowances. In a nutshell, it was observed that respondents consumed more sugar, fat and carbohydrates and less fruits and green leafy vegetables. Protein foods were also not consumed in adequate amounts.

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