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Food and Nutrition Behaviour of Women Police of Hubli Dharwad

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ABSTRACT

Nutrition is one of the key factors which help an individual to attain one's full potential as an adult and it depends to a great extent on the quantity and quality of food. An investigation was carried out during 2013-2014 at UAS Dharwad, Karnataka. To assess the food behaviour and diet quality of 90 women police working in technical cadres of police department of Hubbali-Dharwad. It was observed that nutrient adequacy of women police varied for energy (81 to 157%), protein (55.66- 96.54%), fat (109.85- 379.60%), thiamine (96.00 to 211.00%) and magnesium (31.20-298.49%) contents of diets rest of the nutrient contents were lower than the RDA. Police women consumed a diet that of fair quality (54.45%), followed by good (22.22%) and poor (18.89%) qualities. Only 4.44 per cent women police consumed a diet of very good quality.

Key words: *Nutrition behaviour, Diet quality, RDA, Nutrient adequacy.*

INTRODUCTION

Indian civilization is one of the most ancient civilizations of the world, and so are its diverse systems and sub systems. The Indian police has a long past and has reached its present state passing through various social, political and cultural changes. The industrial revolution and the processes of liberalization and globalization have changed the position of women in India. Policing is considered to be one of the most masculinized occupations of the world. It has been described as one of the most "gendered" professions. It is a demanding job, which involves long and uncertain hours of duty. However, over the past few decades, the police workforce has grown much more diverse with regard to gender and race[2,7,8]. An investigation was planned to evaluate the nutritional, food and nutrition behaviour, diet quality of women working in police department of Hubballi-Dharwad.

MATERIAL AND METHODS

A total of 90 police women from 22 rural and urban police stations (including a women police cell) formed the study group. The intake of food was assessed by 24 hour recall method using a set of pre standardized vessels.

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Information on the actual ingredients used for preparation and quantity of cooked food consumed by each subject were recorded with the help of standard vessels. The raw weight of ingredients used for each measure of each cooked food was ascertained by cooking the food in the laboratory.

The raw food equivalents were computed from the standardized cups. The nutrient composition of foods was computed using Annapurna VAR.3 software developed by M. R. Chandrashekar of Bengaluru. The adequacy (%) of nutrient for each subjects was computed using the formula.

$$\text{Nutrient adequacy (\%)} = \frac{\text{Nutrient intake}}{\text{RDA of the nutrient}} \times 100$$

Diet quality of respondents was determined with the help of pretested scoring pattern suggested by Jirlimath[4]. The total marks allotted for diet quality pattern questionnaire was 10 marks. Based on the scores of respondents, diet quality was determined and classified as poor, fair, good or very good diet. Frequency and percentages were computed to interpret the demographic profile of the subjects. Mean and standard deviations were calculated for dietary and nutritional adequacy of subjects. The results obtained were analyzed employing following statistical methods (SPSS statistical package, version 16.0).

RESULTS AND DISCUSSION

Diet quality of women police

Nutrition is one of the key factors which help an individual to attain one's full potential as an adult and it depends to a great extent on the quantity and quality of food. Proper nutrition is important in improving the community health in general and of the risk groups in particular.

Table 1: Mean food intake and adequacy in diets of women police in relation to suggested balanced diets N=90

Food (g)	Suggested balanced diet (g)	Mean intake	Adequacy (%)
Cereals	270	315.00 (193-410)	116.67 (71.48-151.85)
Pulses	60	43.34 (21.40-56.20)	72.23 (35.67-93.67)
Roots and tubers	200	45.26 (22.50-63.20)	22.63 (11.25-31.60)
Green leafy vegetables	100	42.77 (19.20-55.63)	42.77 (19.20-55.63)
Other vegetables	200	65.63 (37.82-76.50)	32.81 (18.91-38.25)
Fruits	100	49.09 (23.16-58.63)	49.09 (23.16-58.63)
Meat and meat products	60	37.34 (15.30-55.60)	62.23 (25.50-92.67)
Milk and milk products (ml)	300	180.92 (75.00-250.00)	40.07 (25.00-69.44)
Fats	20	34.18 (29.20-59.89)	170.90 (146.00-299.45)
Sugars	20	18.92 (15.60-25.89)	94.60 (78.00-129.45)

Values in parenthesis indicate ranges

Suggested balanced diet, NIN (2011) for sedentary women

Mean food intake and adequacy of diets of police women in relation to suggested balanced diets is presented in Table 1 (15). The results indicated a wide variation in consumption of different foods among the police women, thereby indicating a wide range of adequacies. Noticeable among the foods was the intake of fats which was exceptionally more than adequate (170.90) with a range of values between 146.00 to 299.45 per cent by the police women. The mean intake of fats was 34.18 (29.20 to 59.89 g) even the lower value were higher than the suggested balanced diet for women.

Next to fats, cereals were the next most adequate food (116.67% with a range of 71.48 to 151.85%) with mean consumption of 315 g (193 to 410 g), indicating inadequate consumption level by some women police.

The data indicated that consumption sugar was near to adequate amounts as suggested for sedentary women with mean intake of 18.92 g (15.60 to 25.89 g) and mean adequacy of 94.60 per cent (78.00 to 129.45%). Although the mean values indicated optimum consumption, it is noteworthy that some women consumed more than suggested.

Mean intake of pulses, meat and meat products and milk and milk products were less than the suggested balanced diet. The intake of protective foods such as roots and tubers green leafy vegetables and other vegetables was less than 50 per cent of suggested balanced diet for sedentary women. Lowest intake of 45.26 g (22.50 to 63.20) as compared to suggested intake of 200 g for women. The maximum adequacy was as low as 22.63 per cent, with a range of 11.25 to 31.60 per cent. Further mean consumption of green leafy vegetables and fruits were 42.77 and 49.09 g respectively revealing the mean adequacies of 42.77 and 49.09 per cent, respectively. The range of adequacies for the two foods were 19.20 to 55.63 and 23.16 to 58.63, respectively for green leafy vegetables and fruits. Similar levels of consumption for roots and tubers were observed in the dietary of police women. The mean intake was 45.26 g as against 200 g suggested balanced diets for women. The range of intake varied from as low as 22.50 g to 63.20 g, revealing adequacy levels ranging from 11.25 to 31.60 per cent, with a mean of 22.63 per cent, indicating lowest adequacy among the foods. Further, it was revealed that although the mean consumption of other vegetables was 65.63 g (37.82 to 76.50 g), it was lower than the suggested amount in balanced diet of 200 g. The mean adequacy was 32.81 per cent (18.91 to 38.25%). Thus, it was evident that the consumption of all protective foods was lower than the suggested amounts in the balanced diet for sedentary women.

Information on food consumed in daily diet helps to assess indirectly the nutritional status of individuals. Computation of nutrient composition and comparison with RDA revealed salient aspects of nutrition behaviour of women police. It was observed that the nutrient adequacy of women police varied widely. Energy, fat, thiamine and magnesium content of diets were more than the RDA. Mean niacin intake of adequate. Rest of all the nutrient contents were lower than the RDA for women.

Table 2: Nutrient adequacy of diet consumed by women police

Nutrients	Recommended dietary allowances	Mean ± SD	Adequacy (%)
Energy (kcal)	1900	2037 ± 570.30 (1537-2987.65)	107.21 (80.89-157.24)
Protein (g)	55.0	41.01 ± 13.11 (30.60-52.60)	74.56 (55.64-95.64)
Fat (g)	20	52.81 ± 16.83 (21.97-75.92)	264.05 (109.85-379.60)
Calcium (mg)	600	416.21 ± 142.90 (278.00-567.20)	69.36 (46.33-94.53)
Iron (mg)	21	17.12 ± 7.60	81.52

		(7.40-19.90)	(35.24-94.76)
β-carotene (µg)	4800	743.48 ± 557.90 (193.73-1081.08)	15.49 (4.03-22.52)
Thiamine (mg)	1.0	1.52 ± 0.42 (0.96-2.11)	152.00 (96.00-211.00)
Riboflavin (mg)	1.1	0.94 ± 0.62 (0.12-1.11)	94.00 (10.90-100.90)
Niacin (mg)	12	12.14 ± 3.63 (7.01-19.43)	101.16 (58.42-161.92)
Vitamin B_6 (mg)	2.0	0.23 ± 0.21 (0.05-0.27)	11.50 (2.50-13.50)
Vitamin C (mg)	40	24.00 ± 9.38 (14.91-41.58)	60.00 (37.28-103.95)
Folate (µg)	200	136.87 ± 55.81 (96.26-280.91)	68.43 (48.13-140.46)
Vitamin B_{12} (µg)	1.0	0.83 ± 0.39 (0.14-1.22)	83.00 (14.00-122.00)
Magnesium (mg)	310	410.00 ± 262.11 (96.75-925.32)	132.25 (31.20-298.49)
Zinc (mg)	10	7.26 ± 1.57 (4.00-12.60)	72.60 (40.00-126.00)

Values in parenthesis indicate ranges

Table 2 depicts nutrient adequacy of diet consumed by women police. It was observed that among women police, the mean energy (2037 kcal) intake was in the range of 1537-2987 kcal with adequacy of 107.23 per cent the adequacy ranging approximately between 81 to 157 per cent. Fat intake (52.81 g) was in the range of 21.97-75.92 g with an adequacy 264.05 per cent (109.85 to 379.60%), thiamine intake (1.52 mg) was in the range of 0.96-2.11 mg with an adequacy of 152.00 per cent (96.00 to 211.00%). Niacin intake (12.14 mg) was in the range of 7.01-19.3 mg with an adequacy of 101.16 per cent (58.42 to 161.92%). Although the mean intake of these nutrients was more than the recommended dietary allowances, it could be observed that the diets of some women police contained the same nutrients in lower proportion. The lower range of adequacy of these nutrients needs to be considered carefully for women police.

The data on nutrient composition of diets of women police revealed inadequacies with respect to several important nutrients such as protein, calcium, iron, β carotene, riboflavin, vitamins B_6, vitamin C, folate, vitamin B_{12} and zinc. Protein intake (41.01 g) was in the range of 30.60-52.60 g (74.56% adequate with a range of about 56 to 94%), calcium intake (416.21 mg) was in the range of 278-567 g (69.36% adequate ranging between 46 to 94%), iron intake (17.12 mg) was in the range of 7.40-19.90 mg (81.52% adequate ranging between about 35 to 95%), β-carotene intake (743.48 µg) was in the range of 193.73-1081.08 µg (only 15.49% adequate ranging between 4 to 22%), riboflavin intake (0.94 mg) was in the range of 0.60-1.11 mg (94% adequate ranging between 54 to 100%), vitamin B_6 intake (0.23 mg) was in the range of 0.05-0.27 mg (11.50% adequate ranging between 2 to 13%), vitamin C intake (24 mg) was in the range of 14.91-41.58 mg (60.00% adequate ranging between 37 to 103%), folate intake (136.87 µg) was in the range of 96.26-280.91 µg (68.43% adequate ranging between 48 to 140%), vitamin B_{12} intake (0.83 µg) was in the range of 0.42-1.22 µg (83.00% adequate ranging between 4 to 122%) magnesium intake (310.00 mg) was in the range of 96.75-925.32 mg (132.25% adequate ranging between 31 to 298%) and zinc intake (7.26 mg) was in the range of 4.00-12.60 mg (72.60% adequate ranging between 40 to 126%), and were less than the recommended dietary allowances. Further it is noteworthy that the mean values gave a buffered level of inadequacies, because the lower range of values for inadequacies were very low as in case of calcium (46%) and iron (35%). β carotene and vitamin B_6 of the diets of women police was very low even the upper range of

values were lower than 25 per cent adequate for women police. The results of the present investigation were on par with the results of Sharan and Purttaraj[6] who revealed that cereal consumption was high among canteen food consumers compared to home food consumers in a study on food consumption pattern of executives and non executives employees of Bharat Electronics Ltd., Bengaluru. Devadarsini *et al.*[4], also reported that adequacy of cereals and pulses ranged around 80 per cent among shift and day workers of Bhuvaneshawar, Orisssa. Working efficiency output are dependent on the health and physical fitness of individuals. Adequate diets are essential for optimum work output.

Table 3 : Categorization of diet quality of women police
N=90

Diet quality	Scores	Frequency (%)
Very good	8.6 and above	04 (4.44)
Good	7.1-8.5	20 (22.22)
Fair	5.6-7.00	49 (54.45)
Poor	5.5 below	17 (18.89)
Total		90

Values in parenthesis indicate percentage
Maximum possible score: 10

A perusal of Table 3 reveals that among 90 women police, about 50.00 per cent of women consumed a diet that could be categorized as fair, followed by those who consumed a diet of good (22.22%) and poor (18.89%) qualities. It is important to note that very few women police consumed a diet of very good (4.44%) quality.

CONCLUSION

Optimum nutrition is important for health and maintenance of function of the body. Discrepancies in food behaviour, nutrient intake lead to malnutrition among police women. Empowerment of women with appropriate nutritional knowledge would help police women to followed balanced diet for maintenance of good health

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