

# Nutritional Assessment Among Police Officers in Chennai

Divyadarshini V<sup>S1</sup>, Lally Hanna Luke<sup>2</sup>, Deepa C. Philip<sup>3</sup>

<sup>1</sup>PostGraduateStudent, Department of Clinical Nutrition, MMM College of Health Sciences, Mogappair, Chennai, India

<sup>2</sup>AssociateProfessor, Department of Clinical Nutrition, MMM College of Health Sciences, Mogappair, Chennai, India.  
Corresponding Author Email: [lallyluke3\[at\]gmail.com](mailto:lallyluke3[at]gmail.com)

<sup>3</sup>Principal, MMM College of Health Sciences, Mogappair, Chennai, India

**Abstract:** *The police are the primary law enforcement agency experience greater amounts of anxiety and stress than people in other occupations most of the time. The current study aims at assessing the nutritional status among the police officers. The study includes 50 samples of age ranging between 35 - 60 years both the male and female officers were included. The data was collected using a questionnaire, which includes information on demographic data, anthropometric measurements (height, weight, BMI, MUAC, WHR), biochemical parameters (Hb, random blood glucose level, serum cholesterol), nutritional knowledge, physical activity, Standards of life, dietary habits, food frequency and 24 hr dietary recall. The present study suggests that weight, WHR and Hb levels and 24 - hr dietary intake of most of the officers were significant to nutritional risk. The possible reasons include inadequate physical activity and lifestyle behaviors, poor dietary awareness and poor dietary practices. Thus, the study suggests that initiative should be taken to improve the nutritional status in order to reduce or prevent the occurrence of nutritional problems. Periodic nutritional assessment and nutritional educational program (includes monthly group discussion on the concepts of proper nutritional behavior & physical activity), fitness evaluation and at least weekly one - hour physical activity program by a trained instructors being an effective measure to improve the nutritional health status, alleviate stress and increase the work productivity.*

**Keywords:** Police; Nutritional status; Nutritional assessment; Nutritional education; Nutritional health and work productivity

## 1. Introduction

Policing serves as an integral component of both local and national governance across the world. They are responsible to protect security, public order, law enforcement, and service to the community. Police officers indulge in physical challenges frequently. A police officers should be with good health both physically & spiritually in order to carry out their responsibilities properly.

Fitness is a crucial and vital determinant for a police officer's job. Poor diet, lack of physical activity, and stress are significant factors that make police officers more vulnerable. A police officer's role is highly physical and socially demanding; an inadequate diet can affect their performance and intellectual capacity [1, 2]. Police officers are essential to preserving social order and maintaining legal equilibrium. Stress is increasingly recognized as a global issue, which should be a serious concern among police employees [10].

Malnutrition can be occurred by two main reasons such as too low energy intake, which leads to decrease in both muscle and bone density and that may affect negative psychological performance and too high energy intake that may result in excess peristerite gain or obesity and ultimately leads to difficulty in fulfilling tasks. Malnutrition can also occur due to other factors such as wrong selection of food, inappropriate quantity intake, improper usage in the body and due to social and psychological factors [3].

According to WHO (2009) showed that 2.8 million adults encounter death because of over nutrition [2]. In adult's males it has increased from 13.9% and 78% in year 2007 and 2010 respectively to 19.7% in 2013, whereas in adult

female it has increased from 13.9% and 15.5% in 2007 and 2010 to 32.9% in 2013 [2]. The primary cause of dominant malnutrition is a lack of awareness about the nutritional content of various foods. As a public service, a dietary education program should be developed [8]. Education about nutrition is widely used as a medium to communicate healthy food and nutrition information to a variety of population groups [9].

Assessing nutritional knowledge plays a key role in understanding the need for nutritional advice and awareness in target groups, and it should also be correlated with their dietary practices [4]. The aim of this research is to assess the nutritional status of police officers. The objectives are to evaluate their nutritional knowledge and dietary practices, and to provide nutritional education.

## 2. Materials and Methods

The present study chosen to follow was 'Quantitative Research Methods' empirical investigation. Overall, 50 samples ranging in age between 35 and 60 years were selected for the study. The research took place at Greater Chennai Police, Commissioner Office Building, Vepery, Chennai - 600007. Inclusion criteria consist of people aged between 35 and 60 years, both male and female, police personnel, and willing to participate in the research. Exclusion criteria consist of people aged below 35 and above 60 years, people apart from policing jobs and not willing to participate. The duration of data collection was 1 month, and the overall study was conducted for 3 months.

The primary data was directly collected from the subject at their workplace through the interview schedule method. The

questionnaire contains a list of questions in a chain of order for all the participants to acquire statistically valuable data.

The data were collected using a questionnaire that incorporates a series of questions, including demographic data (age, gender, marital status, educational level, number of family members), anthropometric measurement (height, weight, BMI, WHR, MUAC), biochemical data (hemoglobin, random blood glucose, serum cholesterol level). It is an important element for estimating the nutritional status. The biochemical parameters included in the research are hemoglobin (Hb), serum cholesterol, and random blood glucose level, which are used for indicating anemia, hypercholesterolemia, and hyper/hypoglycemia.

Medical data (medical complications, family medical history, medication details), nutritional knowledge play a major role in understanding the need for nutritional education. The questions related to general nutritional habits were formulated to understand their knowledge on nutrition.

Dietary pattern, physical activity, and standards of living all define healthy food choices and eating habits, as well as the

capability to perform daily tasks as well as to maintain a healthy lifestyle. Food frequency is the participants self-report on how often they eat and how often they eat over the course of a particular period of time (daily, weekly, every month, and rarely or never) on a self-administrated dietary frequency questionnaire.

24-hour dietary recall was used to evaluate the observer's habitual food consumption. The daily diet remembering approach was implemented to measure the dietary consumption of the chosen samples. Each sample was questioned about the kind of meals they had taken as well as the amount that they consumed over the previous 24-hours. The nutritional contents such as energy, carbohydrate, fat and protein were evaluated using Nutritive Value of Indian foods by NIN (2012) [5] and compared with RDA 2020 of Indians [7]. The quantitative data which were collected from the questionnaires was coded and analyzed using independent t-test and one sample t-test by SPSS program.

### 3. Results and Discussion

**Table 1:** Description of anthropometric, biochemical parameters and nutritional knowledge and its comparison

Characteristics	Sex	N	Mean	SD	t Value	DF	P - Value
Weight (kg)	Male	28	83.70	13.58	4.76	48	0.000
	Female	22	68.29	7.53			
BMI (kgm <sup>2</sup> )	Male	28	27.58	4.44	1.10	48	0.273
	Female	22	26.33	3.20			
Waist Hip Ratio	Male	28	0.91	0.04	7.33	48	0.000
	Female	22	0.81	0.41			
MUAC (cm)	Male	28	33.82	3.40	2.78	48	0.008
	Female	22	31.45	2.32			
Hemoglobin (g/dl)	Male	28	13.38	1.23	7.44	48	0.000
	Female	22	10.76	1.24			
Random blood glucose level (mg/dl)	Male	28	129.29	85.71	1.39	48	0.169
	Female	22	101.82	38.22			
Serum Cholesterol Level (mg/dl)	Male	28	176.43	35.027	0.95	48	0.343
	Female	22	167.45	29.89			
Nutritional knowledge	Male	28	6.96	1.97	0.47	48	0.636
	Female	22	6.68	2.21			

P value<0.05; Statistically significant  
The statistical test used for testing hypothesis was independent test

The Table 1 shows the mean distribution of anthropometric, biochemical parameters and nutritional knowledge of the selected participants and its comparison. The mean weight for male participants was shown to be 83.70 kg, whereas for female 68.29 kg. The P value was shown to be '0.000', so there was a statistical significance. The mean BMI of male participants were 27.58 kgm<sup>2</sup>, whereas for female 26.33kgm<sup>2</sup>. The mean WHR of the male participants was 0.91 cm, whereas for female 0.81 cm. The P value was shown to be '0.000', so there was a statistical significance. The mean MUAC of the male participants were 33.82 cm, whereas for female was 31.45 cm. The P value was shown to be '0.008', so there was a statistical significance. The mean hemoglobin of the male participants was 13.38g/dl, whereas for female 10.76 g/dL. The P value was shown to be '0.000', so there was a statistical significance. The mean random blood glucose level of the male subject was 129.29 mg/dl,

whereas for female was 101.82mg/dl. The mean serum cholesterol level of the male participants was 176.43 mg/dl, whereas for female participants 167.45mg/dl. The mean nutritional knowledge of the male participants was 6.96, whereas for female participants 6.68.

A study conducted by Laras Sitoayu et al. (2020) [2] found that, in 2017, the average nutritional status of police officers at the West Jakarta Metropolitan Resort was classified as overweight (25.85 kg/m<sup>2</sup>). This finding aligns with the results of the present study.

Similarly, Abdullah S. et al. (2017) [6] reported a high prevalence of overweight (42.5%) and obesity (24.4%) among Saudi police officers in Riyadh. These findings are also consistent with the present study.

**Table 2:** Description of 24 – Hour dietary recall of the selected police personnel

Nutrient	Sex	N	Mean	SD	T Value	P Value	RDA
Energy	Male	28	2475.73	2673.21	0.724	0.475	2110
	Female	22	1666.49	307.23	0.099	0.922	1660
Protein	Male	28	57.167	13.99	1.197	0.242	54
	Female	22	47.78	10.68	0.913	0.372	45.7
Carbohydrate	Male	28	323.75	104.33	9.827	0.000	130
	Female	22	272.63	50.95	13.130	0.000	130
Fat	Male	28	45.21	17.58	6.082	0.000	25
	Female	22	43.600	13.33	8.303	0.000	20

The above Table 2 shows the summary of 24 - hour dietary recall of the 50 selected police officers. According to the RDA (2020), the energy requirement for sedentary males is 2110 kcal/day and for females, 1660 kcal/day. The mean energy intake of the male subjects was 2475.73 kcal, while that of the female subjects was 1666.49 kcal.

For protein, the RDA (2020) recommends 54 g/day for males and 45.7 g/day for females. The mean protein intake for male subjects was 57.17 g, and for female subjects, it was 47.78 g.

The RDA (2020) recommends a minimum carbohydrate intake of 130 g/day for both males and females. The mean carbohydrate intake was 323.75 g for male subjects and 272.63 g for female subjects. The p - value was 0.000, indicating statistical significance.

Regarding fat intake, the RDA (2020) recommends a minimum of 25 g/day for sedentary males and 20 g/day for females. The mean fat intake was 45.21 g for male subjects and 43.60 g for female subjects. The p - value was 0.000, indicating statistical significance.

#### 4. Conclusion

The job of police personnel is highly demanding, requiring physical fitness, which is crucial for both maintaining an active lifestyle and being productive at work. Proper nutrition and a healthy lifestyle are of utmost importance for police officers due to the high - stress nature of their profession. This study aimed to assess police officers' knowledge of nutrition, eating habits, and overall nutritional health. The results showed that 60% of the officers were classified as overweight, as indicated by BMI and other markers such as Waist - to - Hip Ratio (WHR), Mid Upper Arm Circumference (MUAC), and excessive consumption of carbohydrates and fats, based on a 24 - hour dietary recall compared to the RDA (2020). Additionally, the mean hemoglobin levels indicated the presence of anemia in both male and female officers.

The poor nutritional health observed may be attributed to several factors, including high stress levels, lack of sleep, rotating work shifts, overtime, and unhealthy lifestyle choices, such as poor diet.

Improving and maintaining the nutritional status of police officers can be achieved through regular nutritional assessments and fitness evaluations, which help identify health risks and the need for targeted health education. Worksite wellness programs aimed at improving the nutritional, physical, and mental well - being of police

personnel are essential tools for reducing health issues. Recommendations for such programs include monthly group discussions on proper nutrition, healthy lifestyle modifications, stress management, and incorporating at least one hour of physical activity per week led by trained instructors. These interventions can promote a healthier lifestyle and enhance work productivity.

#### 5. Compliance with Ethical Standards

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##### Disclosure of conflict of interest

No conflict to interest was declared by the authors.

##### Statement of ethical approval

Compliance with ethical standards

##### Statement of informed consent

Informed consent was obtained from individual participants included in the study.

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