International Journal of Pure & Applied Bioscience

OPEN ACCESS

Nutritional Status of Women Police of Hubballi-Dharwad

Muragod, P. P.[*] and Chimmad, B. V.

Department of Food Science and Nutrition, College of Rural Home Science,
University of Agricultural Sciences, Dharwad, Karnataka, India
*Corresponding Author E-mail: pakeerammapm91@gmail.com

ABSTRACT

Assessment of nutritional status of 90 women police working in different cadres of Hubballi-Dharwad revealed that, 3.33 per cent of police women were underweight and 31.11 per cent were normal remaining 66 per cent were obese. Specifically pre obese (23.33%), obese grade I (26.67%) and obese grade III (15.56%) category. According to waist circumference, highest proportion were categorised under substantially increased risk (38.89%), or at increased risk (30.00%), one third proportion of selected women police could be classified on no risk group (31.11%). Waist to hip ratio of women police revealed that, 51-56 per cent of women police exhibited risk of metabolic complications across the age groups. Further highest proportion of women among more than 54 years (66.67%) exhibited substantially increased risk of metabolic complications with WHR of more than or equal to 0.85. A strong positive association was recorded at 0.05 per cent level of significance for age and BMI of women police.

Key words: *Body Mass Index, Nutritional status, Waist to hip ratio, Women police.*

INTRODUCTION

Policing in India has traditionally been considered a male domain as this profession requires physical strength and endurance. Job in police department is relatively new field for women in India. Police women face greater challenges in striving for balance between work and family responsibilities[4]. The present study was, undertaken to assess nutritional status of women police of Hubbali - 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. Nutritional anthropometry was conducted as per the guidelines of Jelliffe[6].

Height was measured using an anthropometer nearest to 0.1 cm. A portable platform balance was used to measure weight in kilogram nearest to 0.5 kg. Subjects stood without support with casual clothing and without shoes while taking weight. Waist and hip circumference was measured using non stretchable measuring tape in centimetres. Based on Body Mass Index (BMI), the individuals were classified into different classes as defined by WHO for Asian adults[1].

Waist circumference and Waist to Hip Ratio (WHR) were computed and categorized according to WHO[2].

RESULTS AND DISCUSSION

In the present investigation it was observed that obesity among women police was distributed across the cadres in all age groups. Age wise categorization of police women clearly indicated this phenomenon (Table 1). However no significant association between BMI and years of work experience, cadre, income, and education and duty hours was recognized in the present investigation.

Classification of police personnel clearly indicated that less than one third of the police women were although normal, more than 65 per cent of the police women were obese either in pre obese state, obese grade I or grade II state (Table 2). The report[3] supports the present data that at entry the aspirants are fit physically but later there is no monitoring. The results were on par with the study of McArdl *et al.*[7], who mentioned that after the age of 30-40 yrs, there was a decrease in lean body weight but fat weight increased.

The risks of metabolic complications were substantially increased in 39.00 per cent of women police as indicated by waist circumference of more than 88.00 cm. When waist to hip ratio was considered, still higher percentage of women were at risk with 47.78 per cent women who were at substantially increased risk of metabolic complication with WHR of more than or equal to 0.85 (Table 3).

The prevalence of an elevated waist circumference for women and men in NHANES III 2014 was nearly 50 per cent and 30 per cent, respectively[8]. It was indicated that 30.60 per cent of New York police officers (both women and men combined) were obese as measured by waist circumference of 102 cm in men, more than or equal to 88 cm in women. Similar high BMI and larger waist circumference was reported by Gu *et al.*[5] among male police officers who worked the mid night shift, worked longer hours in US North east city. However a lesser percentage of women police officers (16.70%) were reported to be obese.

This observation of police women being overweight or obese could be due to sedentary life style and lack of physical activity of police women. Strong significant association was recorded between age and body mass index of women police (Table 4). In the present investigation police women were often given sedentary job charts such as patrolling, office works, record maintenances, computer operated traffic control works, etc. The sample although comprised of different cadres of police personnel, a majority were constables who were given physically less strenuous work and this could have reflected in the findings of the investigation.

The policing requires physical fitness, agility and endurance in the job. But the current state of affairs is discouraging for the job needs. The study indicated that the mean BMI and per cent ideal body weight of both urban and rural exceeded 100 per cent, indicating higher body weight among police personnel of both locations. However, there was a wide range in ideal body weight in both the locations. Similar trend was observed with respect to BMI reflecting that both the groups were obese. Thus malnutrition either obesity or under nutrition were common among women police of both location.

Table 1: Age wise distribution of nutritional status of women police

(N=90)

Age (years)	Height (cm)	Weight (kg)	Ideal body weight (kg)	Ideal body weight (%)	Body Mass Index	Waist circumference (cm)	Hip circumference (cm)	Waist to hip ratio
21-31 n=37	158.66±2.78 (152.3-161.70)	57.86±7.32 (44.70 - 78.30)	58.67±5.29 (52.30-61.70	99.00±14.87 (74.70-149.30)	23.03±3.27 (17.58-33.75)	77.80±8.47 (63.50-104.14)	91.80±10.85 (73.66-121.92)	0.85±0.07 (0.68-0.94)
32-42 n=32	157.53±3.98 (151.30-	67.00±8.74 (54.70-	57.53±8.25 (51.30-	116.69±14.87 (94.20-	27.00±3.38 (22.30-	87.09±11.09 (60.96-111.76)	105.82±12.40 (81.28-121.12)	0.82±0.02 (0.67-

	168.50)	84.30)	68.50)	141.82)	33.20)			0.92)
43-53 n=15	155.18±8.16 (147.70-162.70)	65.32±11.80 (51.30-85.50)	55.18±9.56 (47.70-62.70)	123.02±38.98 (82.54-240.74)	27.45±6.29 (19.50-40.30)	88.97±13.11 (60.96-104.14)	107.28±15.80 (76.20-132.08)	0.83±0.05 (0.75-0.93)
More than 54 n= 06	157.83±2.93 (153.70-161.30)	61.33±7.09 (55.50-71.50)	57.83±8.96 (53.70-61.30)	106.46±16.26 (91.67-130.19)	24.67±3.33 (21.48-29.97)	90.96±7.21 (81.28-99.06)	107.95±9.75 (93.98-121.92)	0.85±0.07 (0.52-0.94)
Mean ± SD	157.54±4.75	62.75±9.60	57.30±6.35	110.32±23.33	24.55±4.45	84.09±11.43	100.78±14.18	0.84±0.06

Values in parentheses indicate range of observations

Table 2: Classification of women police based on BMI

N=90

BMI classification	Presumptive diagnosis	Frequency (n)	Percentage
<18.50	Underweight	3	3.33
18.50-22.90	Normal	28	31.11
23.00-24.90	Pre obese	21	23.33
25.00-29.90	Obese grade I	24	26.67
>30	Obese grade II	14	15.56

Table 3: Risk of metabolic complications among women police

N=90

Age (years)	Total (%)	Waist circumference (cm)			Waist to hip ratio	
		<80	80.10 - 88.00	>88	<0.85	≥0.85
21-31	37 (41.11)	20 (54.05)	10 (27.03)	07 (18.92)	19 (51.35)	18 (48.65)
32-42	32 (35.55)	05 (15.63)	13 (40.63)	14 (43.75)	18 (56.25)	14 (43.75)
43-54	15 (16.67)	02 (13.33)	02 (13.33)	11 (73.33)	08 (53.33)	07 (46.67)
More than 54	06 (6.67)	01 (16.67)	02 (33.33)	03 (50.00)	02 (33.33)	04 (66.67)
Total	90	28 (31.11)	27 (30.00)	35 (38.89)	47 (52.22)	43 (47.78)
Risk of metabolic complications		Nil	Increased	Substantially increased	Nil	Substantially increased

Values in parentheses indicate percentages
Source: Anon[2]

Table 4: Association between age and BMI of women police

N=90

Age (years)	Body Mass Index					Total (%)	Modified χ^2
	Under Weight	Normal	Pre obese	Obese Grade I	Obese Grade II		
	< 18.50	18.50 – 22.90	23.00-24.90	25.00-29.90	> 30.00		
21-31	03 (8.11)	17 (45.95)	08 (21.62)	06 (16.22)	03 (8.11)	37 (41.11)	
32-42	-	04 (12.50)	09 (28.13)	13 (40.63)	06 (18.75)	32 (35.55)	
43-53	-	05 (33.33)	02 (13.33)	03 (20.00)	05 (33.33)	15 (16.67)	35.75*
More than 54	-	02 (33.34)	02 (33.33)	02 (33.34)	-	06 (6.67)	
Total	03 (3.33)	28 (31.11)	21 (23.33)	24 (26.67)	14 (15.56)	90 (100.00)	

Values in parentheses indicate percentages
*Significant at p≤0.05

CONCLUSION

Nutritional anthropometry indicated that more than 65 per cent of women police were obese. Risks of metabolic complications were high.

Age was associated with BMI, where as no significant association between BMI and years of work experience, cadre, income, and

education and duty hours was recognized in the present investigation.

REFERENCES

1. Anonymous, Report of WHO. The Asia pacific prospective: Redefining obesity and its treatment. Health communication Australia Pvt. Ltd (2000).
2. Anonymous, Waist circumference and Waist-Hip Ratio. Report of a WHO expert consultation, Geneva, 8-11, December (2008).
3. Anonymous, Vijayakarnataka, p. 3 (2015).
4. Ghosh, S. K., Women in policing. New Delhi, India: Light and Life Publishers (1981).
5. Gu, J. K., Charles, L. K., Cecil, M., Burchfiel, C. M., Fekedulegn, D., Sarkisian, K., Andrew, M. E., Ma, C. and Violanti, M. J., Long work hours and adiposity among police officers in a US Northeast City. *J. Occupational Environ. Med.,* **54(11):** 1374-1381 (2012).
6. Jelliffe, D. B., The assessment of nutritional status of community, *WHO Monography Series*. **53:** WHO, Geneva (1966).
7. McArdle, W. D., Katch, F. I. and Katch, V. L., Excercise physiology: Excercise, Ntrition and Human performance, Lea and Febiger: Balthiontrre 4 edi (1991).
8. Violanti, J. M., Burchfiel, C. M., Hartley, T. A., Mnatsakanova, A., Fekedulegn, D., Andrew, M. E., Charles, L. E. and Vila, B. J., A typical work hours and metabolic syndrome among police officers. *Arch. Environ. Occupational Health*, **64(3):** 194-201 (2014).