

Prevalence of Overweight among Military Personnel of a Selected Bangladesh Army Unit

Rahman I¹, Rustom ATMA², Zafreen F³, Wahab MA⁴DOI: <https://doi.org/10.3329/jafmc.v14i2.45908>**Abstract**

Introduction: Overweight are associated with high rates of morbidity and mortality, but prevalence data on these conditions are not readily available among military personnel in Bangladesh. The aim of this study is to determine the prevalence of overweight and its association with sociodemographic characteristics among military personnel in a unit of Bangladesh Army.

Objectives: The aim of the present study was therefore to determine the prevalence of overweight/obesity among military personnel in a military unit of Jalalabad cantonment and also to investigate their association with selected sociodemographic characteristics.

Materials and Methods: A cross-sectional descriptive study was conducted among 385 military personnel. Height weight, BMI were assessed using standardized procedures.

Results: Prevalence of overweight was 54(14%) and none of the participants were obese or underweight. Overweight status was significantly ($p < 0.05$) higher among 30-45 years of age group and JCOs. No significant association was found with other socio-demographic characteristics.

Conclusion: Though overall prevalence of overweight was low among military personnel because of their physical hardship and training. But it is significantly higher among the JCOs and younger age groups. Life style modification and education on appropriate diet and physical exercise during formal and informal sessions may be advised.

Key-words: Overweight, Obesity, Military personnel.

Introduction

The incidence of cardiovascular disease is rapidly increasing at an alarming rate world-wide and is currently considered as the leading cause of death in both developing and developed countries¹. Report from population-based studies in developing countries, showed an increasing rate of all the cardiovascular risk factors including hypertension, diabetes mellitus, dyslipidemia and obesity^{2,3}. Obesity has been shown to be associated with increased mortality, aggravate common medical conditions such as cardiovascular disease and increase health costs^{4,8}. It refers to a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health, leading to reduced life expectancy and/or increased health problems^{8,9}. Since

obesity has reached epidemic proportions globally, its presence among the military personnel may have adverse consequences on their overall health and efficiency. Also the worsening prevalence of obesity in young civilian adults could hinder the recruitment and maintenance of military man power. Obesity is therefore a major health problem, with an increasing trend of overweight and obese individuals in developing countries. Being overweight or obese is known to contribute significantly to morbidity and mortality rates in various countries around the world^{4,6,10}.

Military service is inherently physically demanding therefore all military members must maintain prescribed levels of health and physical fitness. Weight in relation to height is a correlate of health and fitness hence; it is a criterion for recruitment to and continuation in military service in some countries¹¹. A report in 2002, estimated that 13-18% of men and 17-43% of women between 17 and 20 years old in the United State exceeded military weight standards¹¹. Furthermore, some studies reported a trend toward increasing cardiovascular risk factors among military personnel¹²⁻¹⁴. In Brazil, prevalence of overweight/obesity was estimated at 36% among young military personnel¹⁵. Another study in Sudan reported prevalence of overweight/obesity as 49.2%, among the police forces¹⁶. Prevalence of overweight/obesity has reached epidemic proportions globally with data from the developing countries like Bangladesh scarcely available. Presently, there are few or no empirical data on the prevalence of overweight/obesity among military personnel in Bangladesh.

Materials and Methods

This cross-sectional descriptive study was conducted among 385 apparently healthy military personnel both gender of 18 to 48 years of age from September to November 2018. All the subjects were selected from BANRDB-2 MONUSCO, C/O 38 E Bengal of Jalalabad cantonment of Bangladesh Army and data were collected in a pre-designed semi-structured questionnaire at⁵¹ Field Ambulance of same cantonment. All the participants had no previous history and diagnosis of chronic diseases. Participants' weight were measured by a weighing scale without shoes and with minimal clothing as possible and heights were measured with a stadiometer with barefooted. Height was measured to the nearest 0.1 cm and weight nearest 0.1 kg. Body mass index (BMI) was calculated by standard formula and was classified based on World Health Organization criteria¹³ as underweight if $< 18.5 \text{ kg/m}^2$, normal weight if $18.5-24.9 \text{ kg/m}^2$, overweight if $25-29.9 \text{ kg/m}^2$ and obese if $\geq 30 \text{ kg/m}^2$.

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Informed written consent was taken from the participants' before being allowed to participate in the study. Data were analyzed by SPSS 17.0 for Windows and categorical data was expressed as frequency and continuous data as mean±SD. Chi square test was used to find the association between participants' sociodemographic characteristics and overweight status and p-value less than 0.05 considered as significant.

Results

Out of 385 study subjects 359(93%) was male and majority 276(71.7%) were of age group 30-44 years. Majority of the participants 354(94.5%) were secondary or more level educated and most of them 348(90.4%) was married (Table-I). Association of participants' socio-demographic characteristics and overweight status was calculated by Chi square test and found significant ($p < 0.05$) with age group and rank status but nonsignificant with all others (Table-II). Out of 385 participants, 54(14%) was overweight and the rest was of normal weight and none of them was underweight or obese (Figure-1).

Table-I: Socio-demographic characteristics of the participants

	Characteristics	Frequency	Percentage
Age in years	18-29	99	25.7
	30-44	276	71.7
	≥45	10	2.6
	Range 23–48; Mean±SD = 32.46±5.15		
Gender	Male	359	93.0
	Female	26	7.0
Marital status	Single	37	9.6
	Married	348	90.4
Education level	Below secondary	21	5.5
	Secondary	156	40.5
	Above secondary	208	54.0
Rank Status	Officers	25	6.5
	JCOs	13	3.4
	ORs	347	90.1

Table-II: Association of overweight with different socio-demographic characteristics (n=385)

	Characteristics	Normal	overweight	Statistics
Gender	Male	216(60.2)	143(39.8)	$\chi^2=0.403$
	Female	14(53.8)	12(46.2)	df=1
	Total	331(86)	54 (14)	$p>0.05$
Age group	18-29	92(92.9)	7(7.1)	$\chi^2= 10.112$
	30-45	233(84.4)	43(15.6)	df=2
	≥45	6(60)	4(40)	$p < 0.01$
	Total	331(86)	54(14)	
Marital Status	Single	35(94.6)	2(5.4)	$\chi^2= 2.523$
	Married	296(85.1)	52(14.9)	df=1
	Total	331(86)	54(14)	$p>0.05$
Educational Level	Below secondary	16(76.2)	5(23.8)	$\chi^2= 1.856$
	Secondary	136(87.2)	20(12.8)	df=2
	Above secondary	179(86.1)	29(13.9)	$p>0.05$
	Total	331(86)	54(14)	
Rank status	Officers	20(80)	5(20)	$\chi^2=35.391$
	JCOs	4(30.8)	9(69.2)	df=2
	ORs	307(88.5)	40(11.5)	$p < 0.001$
	Total	331(86)	54(14)	
Regular physical exercise	No	9 (90)	1(10)	$\chi^2= 0.268$
	Mild	285(86.1)	46(13.9)	df=2
	Moderate to heavy	37(84.1)	7(15.9)	$p>0.05$
	Total	331(86)	54(14)	
Food habit	Healthy food	32(76.2)	10(23.8)	$\chi^2= 3.742$
	More fatty food	299(87.2)	44(12.8)	df=1
	Total	331(86)	54(14)	$p>0.05$

• Number in parenthesis is percentage

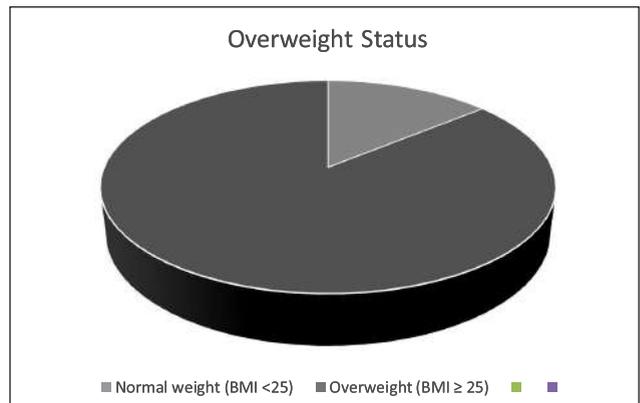


Figure-1: Overweight status according to BMI

Discussion

The study showed over all prevalence of overweight/obesity was 14.0% among the military personnel and it is much lower to other military population of different countries. For example prevalence of overweight is 40.4% among Nigerian military personnel¹⁷, 36% among Brazilian military¹⁵ and 53% among USA Navy population¹⁸. On the other hand, in a systematic review which included only four good-quality community widestudies in Nigeria, Chukwuonye et al¹⁰ found that the prevalence of overweight ranged from 20.3% to 35.1%, while the prevalence of obesity ranged from 8.1% to 22.2% which is nearer prevalence with the present study. Similarly in the Republic of Benin, Ghana and Tanzania prevalence of obesity is as high as 18%, 13.6% and 19.2% respectively¹⁹⁻²¹ which is almost similar to our study. Systematic reviews of the literature on overweight and obesity carried out in other parts of the world have also showed a high prevalence of overweight/obesity²² showing overweight/obesity as one of the leading global epidemic. Another study showed²³ In the US, the prevalence of obesity has risen from 22.9% in the late 1980s and early 1990s to 30.5% between 1999 and 2000. Overweight and obesity are correlates of poor health and physical fitness. The function of the military personnel to defend and protect the citizenry and the nation at large especially in security challenged region can never be over-emphasized.

In present study, the prevalence of overweight found significantly associated with age. This finding is not surprising because evidence indicates that increase in age is a predisposing factor to the development of obesity^{15,16,24}. Prevalence of overweight was not significantly associated with marital status in this study but significant association of prevalence of overweight/obesity and being married was reported by smith et al and Desalu et al^{24,25}. The higher prevalence and positive associations of overweight/obesity among married military personnel in this study could be attributed to the fact that married personnel tend to be older and perhaps more exposed to a combination of family/home and work stress, are less physically active and may engage in unhealthy eating habits.

Military personnel from the various countries including Bangladesh can be presumed to be exposed to varying levels of stress, pressures from work, family demands, life style and environmental differences which probably result in variations in the prevalence of overweight/obesity reported across countries. This study has some limitations even though the cross-sectional study design provides reliable and valid information, longitudinal studies should be carried out in other area of Bangladesh also. The study was carried out among a small sample of Bangladeshi military personnel in Sylhet; there is a need to target a larger sample of this occupational group in Bangladesh. Findings from the present study may be difficult to generalize to the general population because the study participants were a unique group. Therefore, results should be used with cautions on other sampled population. Despite the above limitations findings from this study has provided an insight into the prevalence of overweight/obesity among the young group and its association with different sociodemographic characteristics in some sampled military personnel in Bangladesh. Findings from this study have implication for interventional measures among this occupational group in Bangladesh.

Conclusion

Overall overweight status of a Bangladesh Army unit is low. But it is significantly higher among the JCOs and younger age groups. Life style modification and education on appropriate diet and physical exercise during formal and informal sessions may be advised. Transformational behavioral changes through military strategies should be addressed. Efforts to maintain healthy weight should be emphasized among military personnel as a practical and high yielding starting point to help keep the overweight under control.

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