

Abstract

The present study was designed with the objective of determining the prevalence and correlates of overweight/obesity and related diseases among the Sri Lanka Air Force (SLAF). It also aims at developing behaviour change communication messages for promoting optimal physical activity and a healthy diet. In order to achieve these objectives, a cross-sectional study was carried out in the SLAF bases/units.

A total of 1760 study participants were selected from the SLAF camps using a random cluster sampling technique, where the clusters were selected using the probability proportional to the size of the population technique. Respondents were selected randomly to ensure that all Air Force personnel had equal chance to be selected despite age, sex or rank.

Information on correlates of overweight/obesity was collected from all participants using a self-administered questionnaire to obtain their demographic and socio-economic characteristics, tobacco and alcohol use, food habits and physical activity level using International Physical Activity Questionnaire –long form. Weight, height, waist and hip circumferences, biochemical assessment of serum lipid levels and plasma glucose and a blood pressure measurement were carried out in the participants. A quantitative dietary assessment was carried out among the study participants who obtained all their main meals from catering sections within the camps using the modified visual estimation method and for all other food using a 24 hour dietary recall.

Results showed that, of the 1760 participants 94% were males. Age range of the participants was 20-48 years with mean age of 29.4 years (SD=6.1). About half of the study sample (43%) had an education level more than G.C.E (O/L). About 58% of the participants were married. There were 5% (n=87) commissioned officers and 95% (n=1673) other rankers. Among them, 31% were current smokers with no females among them. From the current smokers, 64% (n=352) smoked daily and 13% (n=72) smoking five or more cigarettes per day. Exposure to passive smoking was reported as 17% at home and 65% at work place. Proportion of current drinkers was 89%, of whom 40% were identified as hazardous or harmful drinkers, while 60% of them were found to be binge drinkers.

The study revealed that the prevalence of overweight and generalized obesity were 37.4% (95% CI: 33.7-41.1) and 5.3% (95%CI: 5.1-5.6), respectively. Prevalence of regional obesity by waist circumference was 10% (95%CI: 8.5-11.3) and by WHR was 51% (95%CI: 47.1- 51.7). Age-specific prevalence was higher among females in all types of obesity. 29% had both types of obesity while 35% had neither.

Of the many correlates of overweight/obesity, the age group, marital status, level of education, income and service period were found as significant determinants ($p < 0.001$). Overweight/ generalized obesity and regional obesity increased with seniority of the service and it was statistically significant ($p < 0.001$). The current smoking status and exposure to passive smoking were significant determinants of overweight/obesity. Further the pattern of alcohol consumption and binge drinking were significantly associated with overweight/obesity.

During the assessment of nutritional quality of diet the present study reported that nearly half of the study participants obtained breakfast (43%), lunch (46%) and dinner (43%) from the Air Force mess. There were 85% who were getting less than five servings of fruits and/or vegetables per day. The average amount of energy obtained from the Air Force catering section meals per day was 3208 K/cal, while there was difference in weekday/week end day meals of 130K/cal per day. Their diet was characterized by high fat (84.5 g per day) but poor in fibre (4.9g per day) and with less snacking in between. Nearly 43% obtained a 'high fat' meal of >35% of the recommended, but none of these diets were associated with overweight or generalized or regional obesity.

The median total physical activity level was 94 MET hour/ week, which is equivalent to two and a half hours of vigorous physical activity, five days a week. Domain specific median physical activity levels for work, transport, domestic/garden and leisure time were 40, 11, 12 and 4 MET/ hours per week respectively. Males were found to have a high median for occupation work domain while females recorded high values for the rest of the domains. Moderate and high levels of physical activity was reported by 84% of the participants, but there was no significant association between overweight/obesity and the level of physical activity ($p > 0.05$).

Of all correlates, female sex, being married, being non-Buddhist, average monthly income > Rs. 20,000, higher rank above corporal and airmen, binge drinking, non-smokers compared to ex-smokers and >5 servings of fruits and vegetables per day were

independently associated with overweight/generalized obesity after adjusting for confounders in the logistic regression model.

The prevalence of overweight/obesity related disease - hypertension, diabetes and dyslipidaemia - were 5%, 2% and 25% respectively. Twenty eight percent were found to have either one of the above diseases. Pre hypertension status was reported by systolic blood pressure 33.5% and by diastolic blood pressure 28%. There were 11.5% who were having impaired fasting glucose levels. High total cholesterol, triglyceride and LDL cholesterol levels were seen among 8%, 3% and 21% of the study population while less than one percent reported low HDL levels. None of these were shown to be results of overweight/obesity ($p > 0.05$).

In the backdrop of a demographic and epidemiological transition taking place in Sri Lanka, some risk factors and risk behaviour were found to be clustering among the SLAF population although the prevalence level of overweight/obesity and related diseases were relatively low. But military forces are not immune from the overweight/obesity epidemic sweeping the country. Behaviour change is important to prevent this upsurge. Therefore non communicable disease status and behaviour change communication materials were developed from the present study for that purpose.