ABSTRACT. Objectives: To determine the relationship between lifestyles and the presence of metabolic syndrome in technicians and non-commissioned officers of a unit Peruvian Air Force. Methods: Study of quantitative approach, non-experimental design, cross-sectional, correlational level. The population consisted of 150 service members, with a sample of 108 military personnel from a Peruvian Air Force unit served in medical offices in the first quarter of 2017. A questionnaire and checklist was used, both valid and reliable. Results: 25.93% of respondents have good lifestyles, 43.52% have regular level and 30.56% bad level. In turn, 37.04% have high-risk metabolic syndrome, 45.37% have medium-risk metabolic syndrome and 17.59% low-risk metabolic syndrome. Conclusions: Lifestyles are related to the magnitude of metabolic syndrome, according to Spearman's correlation (pv<0.01).

Keywords: Life style, Metabolic Syndrome, diabetes mellitus, hypertension, Military Facilities, Hospitals, Military.

RESUMEN. Objetivo: determinar la relación entre los estilos de vida y presencia de síndrome metabólico en técnicos y suboficiales de una unidad de la Fuerza Aérea del Perú. Métodos: Estudio de enfoque cuantitativo, diseño no experimental, de corte transversal, nivel correlacional. La población estuvo conformada por 150 militares, con una muestra de 108 militares de una unidad de la Fuerza Aérea del Perú atendidos en los consultorios médicos en el primer trimestre del año 2017. Se utilizó un cuestionario y lista de cotejo, ambos válidos y confiables. Resultados: 25.93% de los encuestados presentan buenos estilos de vida, 43.52% presenta nivel regular y 30.56% nivel malo. A su vez, 37.04% presenta síndrome metabólico de alto riesgo, 45.37% presenta síndrome metabólico de riesgo medio y 17.59% síndrome metabólico de riesgo bajo. Conclusiones: Los estilos de vida están relacionados con la magnitud de síndrome metabólico, según la correlación de Spearman (pv<0.01).

Palabras clave: Estilo de vida, síndrome metabólico, diabetes mellitus, hipertensión, instalaciones militares, hospitales militares.
INTRODUCTION

People's health and well-being is due to optimal human development in health with healthy lifestyles. Nevertheless, in 2008, 63% of deaths in Peru were due to non-communicable diseases such as cancer, diabetes, cardiovascular diseases and chronic respiratory diseases. At the same time, in Latin America and the Caribbean, the numbers rose from 13.3 million to 33 million people with diabetes.1 By 2015, in Peru, more than 35.5% of the population was overweight.2

Lifestyle-related diseases lead to the so-called metabolic syndrome, with factors that increase their risks: obesity, dyslipidemia, hypertension and hyperglycemia, increasing the likelihood of coronary artery disease, stroke, and death.3

Various studies carried out in Spain, Cuba and Ecuador show evidence of this problem, reporting that 57.2% of men and 53.9% of women are at risk of suffering these diseases, presenting overweight approximately 52.5% of the populations studied, 32.1% presented cardiovascular diseases and 70% hypertension. While they found an average of 50% of people who only exercise occasionally, 45% eat fat, 11.6% drink alcohol, and 30% smoke. These data led them to conclude that sedentary lifestyle and poor nutritional habits negatively affect the lipid profile, blood pressure and body mass index of individuals.

Similar studies were conducted in Peru, both in Huanuco and Lima found average cardiovascular risk in 78% of women and 21% of men, identifying stress, obesity, fat consumption and excessive salt as associated factors. At the same time that almost 81.1% of the studied population suffered from metabolic syndrome, 54.2% presented hypertriglyceridemia, 53.3% hypercholesterolemia, 38.8% diabetes, 25.4% obesity and 55% elevated LDL.

For the World Health Organization (WHO), lifestyles include habitual reactions and behavioral patterns developed during socialization processes, learned from parents, peers, and friends. Individual lifestyle guidelines are sedentary eating, physical activity, and work activity. On the other hand, there are macro social factors that influence lifestyle, including media, customs, beliefs, alcohol consumption, drug addiction, and health care behaviors.13-18

Although some researchers consider metabolic syndrome to be a genetic disease, it has been agreed that metabolic syndrome is a group of risk factors that occur together and increase the likelihood of coronary artery disease, stroke, and type 2 diabetes. These factors are: high blood pressure, high blood glucose, high blood triglyceride levels, low blood levels of HDL (good cholesterol), excess fat around the waist.3,19

Therefore, it is established that a periodic medical control is necessary and it must control weight, height, body mass index, blood pressure, and blood tests to rule out dyslipidemia, hypercholesterolemia, and blood glucose control.20-24

Although military personnel are supposed to have healthy lifestyles, it was observed that the military of a unit of the Peruvian Air Force had unhealthy eating, deficit of activity and physical exercise, bad use of leisure, stressful work activity, risky health behaviors; at the same time that in their medical check-ups, they reported arterial hypertension, hypertriglyceridemia, hypercholesterolemia, and hyperglycemia.

There were no studies or reports of the variables mentioned in military personnel in Lima; therefore, scientific support was required to justify the implementation of preventive programs in order to improve the health of military personnel and, therefore, to lead a quality life and work with less risk of suffering a stroke, heart attack, type II diabetes mellitus; complications that condemn such personnel to a life with disability, to be an economic burden for the institution and its family. Consequently, the study was carried out with the objective of determining the relationship between lifestyles and the presence of metabolic syndrome in technicians and non-commissioned officers of a unit of the Peruvian Air Force.

MATERIALS AND METHOD

The study was of quantitative approach, correlational and cross-sectional design, descriptive level. The population consisted of 150 military technicians and non-commissioned officers from the air base unit of a national hospital during the period of 2017. There was a sample of 108 patients who went to the aeronautical medicine department and the probability sampling was used in a simple random way, since all the military had the same option to be chosen. The technique used to collect data for the first variable was the survey where the 24-item questionnaire was used; the Baremation method was used to give value to the levels. For the second variable, we used as a technique the observation with a guide of 18 items where the Baremation method was also used. In order to determine reliability according to Cronbach’s alpha analysis, 0.870 and 0.895 metabolic syndrome were obtained as a result of lifestyles.

The analysis of results was performed with the statistical package SPSS version 23, where the results obtained were presented through frequencies and percentages in tables, also using bar charts. The nonparametric statistical test of Spearman’s Rho was used for the hypothesis test.
RESULTS

Information was collected on the military lifestyle in 3 dimensions. Individual particularities included fruit consumption, walking habits, leisure, rest, and sleep. Macro-social factors included cell phone use, napping, fatty feeding and consumption of noxious substances. The particularities of the environment included basic services, exposure to noise and working conditions such as stress, ventilation, lighting and ergonomics. As a result, it was found that there is a greater deficiency of lifestyles in individual particularities (37%), in addition to the fact that regular lifestyles predominate in macro-social and environmental factors. In summary, the majority of the military presents a regular lifestyle (43.5%).

![Figure 1. Lifestyles, according to dimensions, in military air base attended in a hospital.](image)

In evaluating the metabolic syndrome, information was collected regarding indicators of obesity (BMI, body context, difficulty walking), high blood pressure, cholesterol, triglycerides, treatment for these entities and abdominal perimeter; while as indicators of hyperglycemia, basal glucose, treatment and signs of diabetes were considered. Average levels of metabolic syndrome were obtained in the majority of military personnel (45.4%); nevertheless, the high level is present in 37% of them, predominantly obesity (36.1%) followed by hyperglycemia (34.2%).

![Figure 2. Level of metabolic syndrome according to dimensions, in military air base attended in a hospital.](image)
DISCUSSION

According to Arpa⁶, in the research on “Hábitos y estilos de vida asociados al síndrome metabólico” (Habits and lifestyles associated with the metabolic syndrome), the objective was to determine the possible relationship between habits, lifestyles and metabolic syndrome, obtained as a result that all variables, which constitute the metabolic syndrome deteriorated to the extent that they showed worse lifestyles; presenting similarity with the results obtained in the present study where the lifestyle variable is directly and positively related to the appearance of the metabolic syndrome variable.

Likewise, Arandojo⁵, in the research on “Influencia de la actividad física y los hábitos nutricionales sobre el riesgo de síndrome metabólico” (Influence of physical activity and nutritional habits on the risk of metabolic syndrome), concluded that sedentarism and bad nutritional habits act negatively on the lipid profile, blood pressure and body mass index of individuals, making them more likely to suffer metabolic syndrome and; therefore, cardiovascular disease, showing similarity with the results obtained.

Furthermore, Maguiña¹¹, in the research on “Factores de riesgo que predisponen a hipertensión arterial en adultos” (Risk Factors Predisposing to High Blood Pressure in Adults) came to the conclusion that the population studied as a whole present modifiable risk factors such as consumption of fat, excessive consumption of salt, presence of stress, finding similarity with the results obtained in the present research work.

In conclusion, when it is known that inadequate lifestyles, especially of a personal nature, are related to the presence of metabolic syndrome, where obesity predominates, it is suggested to deepen studies that apply interventions aimed at modeling such styles, verifying their impact on indicators of metabolic syndrome.

Conflicts of interests: The authors state that there are no conflicts of interests.

In evaluating the relationship between lifestyles and metabolic syndrome by applying the Spearman's Rho statistic, a direct relationship is found with a statistical significance of p=0.001 (< 0.01). Therefore, it is established that there is a significant relationship between both variables.

** Correlation is significant at level 0.01 (bilateral).

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<thead>
<tr>
<th>Spearman's Rho</th>
<th>Lifestyle</th>
<th>Onset of metabolic syndrome</th>
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<tbody>
<tr>
<td>Correlation coefficient</td>
<td>1,000</td>
<td>-.633**</td>
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<td>Sig. (Bilateral)</td>
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Table 1. Correlation test according to Spearman between lifestyles and metabolic syndrome
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