

Men's Health, Metabolic Syndrome and Quality of Life: An Observational Study with Soldiers of the Military Police of Bahia State, Brazil

Romário Teixeira Braga Filho^{1*}, Argemiro D'Oliveira Júnior²

¹Associate Professor, PhD (Post-Graduate in Medicine and Health), Federal University of Bahia.

²Full Professor, Post-doctoral, Thesis Supervisor Department of Internal Medicine and Diagnostic Support, Faculty of Medicine, Federal. University of Bahia.

***Corresponding Author:** Romário Teixeira Braga Filho, Associate Professor, PhD (Post-Graduate in Medicine and Health), Federal University of Bahia.

Received Date: January 12 2022; **Accepted Date:** January 19, 2022; **Published Date:** January 24, 2022

Citation: Romário Teixeira Braga Filho, Argemiro D'Oliveira Júnior. (2022). Men's Health, Metabolic Syndrome and Quality of Life: An Observational Study with Soldiers of the Military Police of Bahia State, Brazil. *J. Diabetes and Islet Biology*, 5(2); DOI:10.31579/2641-8975/033

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Abstract

Men generally have a lower life expectancy and higher mortality than women in nearly all age groups. The military police profession, which main activity is the maintenance of public order and the prevention of crimes and transgressions of law, with high occupational stress and professional victimization, is mainly made up of men. Therefore, the study of the living conditions and health of police officers may be representative of the general male population. Addressing the risk factors for disease and death from cardiovascular causes is a high priority for health organizations, and most of these conditions are related to living environments and the quality of life. The participants of this observational design study were 452 military policemen of Bahia, Brazil who were candidates for a corporals training course. Quality of life was assessed by the World Health Organization Quality of Life Assessment Instrument (WHOQOL-BREF). The results of specific domains of this instrument are discussed, including the perception of quality of life and satisfaction with personal health. It is proposed to adopt a comprehensive and continuous care for the integral health of the military police, both in their professional activities and in their personal lives.

Keywords: men's health; metabolic syndrome; quality of life; military police

Introduction:

Men are subject to societal determinants that contribute to illness and mortality, and they also have a life expectancy of nearly eight years less than women. Men also have a higher mortality from all causes not related to gender, in almost all age groups [1]. Cardiovascular diseases have been a central cause of concern in health organizations; WHO predicts that by the year 2040, coexisting with the worldwide epidemic prevalence of cardiovascular diseases, Brazil will reach the worrying condition of champion of the world with an incredible increase of 250% in the prevalence of illness and death from cardiovascular diseases. Hence, there is a great need to adopt preventive measures related to cardiovascular disease risk factors [2].

Life expectancy in high-income countries is considered to have increased, with women generally surviving longer than men; this finding has several explanations, such as biological factors, sociodemographic conditions, healthy behaviors, health status, but it is questioned that little relevance has been given to the role that public health policies can play on these factors. A study was carried out in the United Kingdom with the objective

of verifying the contribution of preventable causes of death, as a way of measuring the existence of public health policies and their impact on the quality of health status and on the gender gap related to life expectancy. It was noted in their results that preventable causes of death – with an emphasis on ischemic heart disease and injury – had greater contributions to the gender gap than non-preventable causes [3].

As a clinical condition that implies multiple risk factors to cardiovascular disease, Metabolic Syndrome (MS) has a high level of importance in the clinical setting, for it is frequently associated to living conditions – including daily lifestyles habits and the level of quality of life [4]. According to National Cholesterol Education Program – Adult Panel III (NCEP – ATP III) criteria, at least three of the following conditions should be present to establish the diagnosis of MS in men: 1. a systolic blood pressure of ≥ 130 mmHg and/or a diastolic blood pressure of ≥ 85 mmHg; 2. triglycerides ≥ 150 mg/dL; 3. fasting glucose ≥ 100 mg/dL; 4. HDL-cholesterol < 40 mg/dL; 5. waist circumference > 102 cm [5].

Around the world, the military police profession is generally considered a risky occupation with high level of stress and professional victimization [6]. In Brazil, Military Police Corps are State Forces that, along with other

agencies – as Federal Police, Federal Highway Police, Federal Railway Police, States' Civilian Polices, and States' Military Fire Brigades - constitute Organizations designed to provide public safety, as it is stated by the Constitution of Federative Republic of Brazil, promulgated on October 5, 1988. States' Military Polices and the Military Fire Brigades are subject to the Governors of the states, of the Federal District and of the Territories; they are ancillary forces and reserve of the Army. Military Polices are specially designed to maintain public order, and to prevent occurrences of transgression to law and public order; their main instrument of work is the presence of the policemen around the public space, where they act as uniformed and ostensive police patrolling. In order to achieve the daily maintenance of public order and the prevention of occurrences of violence and crimes against the physical integrity of citizens and public and private properties, military policemen usually face situations of violence. Military policemen usually work within military forces characterized by rigid structures of hierarchy and discipline; in such a situation they frequently experience high levels of psychological distress, besides physical illness and professional victimization that are harmful occurrences related to the risky professional activities [7, 8]. Like other segments of the services sector, public security was excluded from the agenda of economic studies for a long time. In the time of the dictatorship – when Military Police Corps were frequently the first (or even the only) barriers between popular protests and representatives of Governments - the opinions of the general public and intellectuals were directed against the Military Police; it was not until after the 1990s that public safety was seen as a part of the social construction within a democratic perspective. As a more recent phenomenon, the public security professionals—albeit in an understated way—begin to rely on the interest of scholars and scientists dedicated to the subject of health conditions related to work[9]. Understanding the lack of efficient mechanisms of attention to men's health in general, and more, including the historical reasons reported above, the importance of developing a health care program for the military police justifies a study to understand the living conditions of military policemen and learn how they perceive their quality of life and health. This one is part of a larger study[10,11].whose theme was focused on the health of men; the main objective was to increase the knowledge and understanding of the living conditions and risks of illness and death from cardiovascular causes experienced by military policemen of Bahia. In this study, the quality of life of this specific population is reported and evaluated, as well as the hypothesis of how it was related to the presence or absence of the MS clinical picture is analyzed.

Materials and Methods:

This study is an observational design of an intrinsic qualitative nature for it intends to broaden the understanding of how the participants experience the spectrum of the conditions of well-being, health and disease, as well as how quality of life is related to the MS occurrence in the subjects studied; the main instrument of assessment of quality of life in this research – the WHOQOL-BREF - utilizes the subjective perception of the subjects; the relevance of the fact that the main verb of the qualitative analysis is to understand is also pointed out; therefore, there is a continuous act that follows understanding, that is to interpret[12]; even though the results and discussion are presented also with quantitative components of socio-demographic, anthropometric, blood pressure, clinical, and laboratory data, and the statistically processed results of the questionnaire on quality of life; thus, the qualitative and quantitative aspects of this research are interlaced. Assessment of the components of MS used NCEP – ATP III criteria [13]. The population studied were military police soldiers of the State of Bahia; a convenience sample was composed of two groups of soldiers (256 and 196, for a total of 452 soldiers) convened in January and March 2012 for selection, including medical evaluation and a physical fitness test, for the Training Course for Military Police Corporals; the course is a prerequisite for promotion to a

rank above that of the soldiers; so a corporal is in a rank designed to command a small military unit composed of some soldiers. The only criterion for the formation of groups was the date of enlistment in the Corps and the vacancies were rigorously filled by the older. The soldiers came before the medical board with the results of the medical examinations, which included the level of fasting glucose, total cholesterol and fractions, and triglycerides. When examined, anthropometric data (weight, height, body mass index, waist circumference) and blood pressure were recorded, as well as information about the presence of previous diagnosed diseases and their treatment. The individual assessment of quality of life used the World Health Organization Quality of Life - Brief Version (WHOQOL-BREF), a shorter form of the original questionnaire – World Health Organization Quality of Life – 100 (WHOQOL 100) - that contains 100 questions[14,16]. The WHOQOL-BREF consists of 26 questions; the initial two are general questions about quality of life and self-perceived health status, while the remaining issues are about the four domains: physical, psychological, environmental, and social; while in WHOQOL-100 each one of the 24 facets is assessed by 4 questions, in WHOQOL-BREF every facet is assessed by only one question. As described above, there are four domains, and each one include specific facets, as follows:

1. Physical domain (facets: pain and discomfort; energy and fatigue; sleep and rest; mobility; activities of daily living; dependence on medication or treatments; ability to work);
2. Psychological domain (facets: positive feelings; thinking, learning, memory and concentration; self-esteem; body image and appearance; negative feelings; spirituality, religion, personal beliefs);
3. Social domain (facets: personal relationships; social support; sexual activity);
4. Environmental domain (facets: physical security and protection; home environment; financial resources; health and social care – availability and quality; opportunities for acquiring new information and skills; participation in and opportunities for recreation / leisure; physical environment: pollution / noise / traffic / climate; transport)[14,15]. The questionnaire is self-administered; each question admits five types of responses in a Likert scale ranging from 1 to 5 points; the higher the score, the higher the quality of life. The completed questionnaires were processed by specific syntax (directions that are originally attached to the instrument) using SPSS version 17. The same software was used for compiling the descriptive statistics, including socio-demographic, anthropometric, clinical, and laboratory data.

Results:

There were 452 participants in this study with a mean age of 45.8 years. Two groups were formed based on the mean age: group 1 consisted of those aged <45 years (the younger group) and group 2 consisted of those aged ≥45 years (the older group). Socio-demographic information revealed that 68.61% were married, and the majority had a high school diploma (86.41%).

The physical and laboratory data that are related to the risk factors for cardiovascular diseases are presented in Table 1.

All officers included in the study were men; the mean age was 45.8 years (ranging from 42 to 57 years); the mean Body Mass Index was equal to 27.84 kg/m² (ranging from 19.10 to 39.21 kg/m²); waist circumference had an average of 97.12cm (ranging between 65 and 129cm); the mean Systolic Blood Pressure was 129.73mmHg (ranging from 90 to 200mmHg); the mean Diastolic Blood Pressure was 84.36mmHg (minimum 70 and maximum 120mmHg); the mean fasting glucose was 99.70mg/dl (ranging from 68 to 346mg/dl); total cholesterol had an average of 205.17mg/dl (ranging between 109 and 396mg/dl); HDL Cholesterol had an average of 45.02mg/dl (varying between 22 and 94mg/dl); the mean triglyceride dosage was 187.14mg/dl (ranging between 37 and 1227mg/dl)

The findings of the physical examination and laboratory tests are summarized as follows: adapted from [11].

Table 1: Descriptive analysis of physical and laboratory data

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Age	451	15	42	57	45.80	2.19
BMI* (kg/m ²)	425	20.11	19.10	39.21	27.84	3.87
Waist circumference (cm)	425	64	65	129	97.12	10.15
Systolic BP(mmHg)	425	110	90	200	129.73	14.92
Diastolic BP (mmHg)	425	50	70	120	84.36	7.87
Fasting Glucose (mg/dL)	416	278	68	346	99.70	33.69
Total Cholesterol (mg/dL)	417	287	109	396	205.17	39.86
HDL Cholesterol (mg/dL)	417	72	22	94	45.02	10.14
LDL Cholesterol (mg/dL)	396	278	10	288	125.54	36.96
VLDL Cholesterol (mg/dL)	331	147	7	154	32.96	17.93
Triglycerides (mg/dL)	412	1225	37	1227	187.14	152.94

*Body Mass Index

Adapted: (Braga Filho & D'Oliveira Júnior, 2013)

Table 2 shows the participants' answers to the WHOQOL-BREF that refer to the different domains of quality of life they experience, their perception of the quality of life, and satisfaction with their own health.

Table 2: Means of research subjects' responses to the WHOQOL-BREF questionnaire, in descending order.

	N	Minimum	Maximum	Mean	Std. Deviation
To what extent do you think your life makes sense?	443	1	5	4.29	.748
How satisfied are you with your sex life?	450	1	5	4.07	.798
How satisfied are you with your personal relationships (friends, relatives, acquaintances, colleagues)?	450	1	5	4.02	.767
How satisfied are you with yourself?	450	1	5	4.00	.834
Are you comfortable with your body?	449	1	5	3.95	1.031
How well are you able to get around?	450	0	5	3.72	.938
How satisfied are you with the support you receive from your friends?	447	1	5	3.68	.744
How satisfied are you with your ability to work?	449	1	5	3.63	.816
Do you have enough energy for your day-to-day activities?	448	1	5	3.60	.840
How would you rate your quality of life?	452	1	5	3.60	.761
How satisfied are you with your ability to perform day-to-day activities?	447	1	5	3.56	.810
How satisfied are you with your access to health services?	449	1	5	3.51	.899
How satisfied are you with the conditions of the place you live?	449	1	5	3.40	1.043
How well do you concentrate?	445	1	5	3.38	.764
How much do you enjoy life?	448	1	5	3.37	.801

How secure do you feel in your daily life?	441	1	5	3.25	.903
How satisfied are you with your sleep?	450	1	5	3.19	.995
How satisfied are you with your mode of transportation?	450	1	5	3.08	1.169
How healthy is your physical environment (climate, noise, pollution, appearance)?	449	1	5	3.07	.853
How satisfied are you with your access to health services?	450	1	5	2.97	1.024
How available to you is the information you need in your day-to-day activities?	449	1	5	2.84	.853
How much time do you spend on leisure activities?	451	1	5	2.68	.812
How much medical treatment do you need to accomplish your day-to-day activities?	445	1	5	2.45	1.089
Do you have enough money to meet your needs?	449	1	5	2.31	.737
To what extent do you think your physical pain prevents you from doing what you want or need to do?	444	1	5	2.24	1.009
How often do you have negative feelings such as bad mood, despair, anxiety, or depression?	449	1	5	2.01	.844
Valid N (listwise) (missing data are excluded)	373				

Table 3. Evaluation of quality of life by domain, perception of quality of life and satisfaction with personal health.

	N	Minimum	Maximum	Mean	Std. Deviation
Physical domain	452	21.43	92.86	55.00	10.26
Psychological domain	450	5.00	87.50	62.47	11.58
Social domain	452	8.33	100.00	73.05	14.96
Ambient domain	452	12.50	84.38	48.64	13.25
Perception of quality of life	452	.00	25.00	16.21	4.75
Satisfaction with personal health	449	.00	25.00	15.67	5.61

Table 4: Quality of life by domain, perception of quality of life, and satisfaction with personal health, by age group.

	Physical domain	Psychological domain	Social domain	Ambiental domain	Perception of quality of life	Satisfaction with own health
	Mean	Mean	Mean	Mean	Mean	Mean
Younger group	55.68	63.33	73.50	48.68	16.24	15.79
Older group	54.24	61.46	72.45	48.55	16.22	15.57
Whole group	55.00	62.48	73.06	48.65	16.22	15.67

Table 5: Assessment of Quality of Life and self-perceived health status in groups with and without MS, and in the whole group

	Without MS	With MS	Whole Group
	Mean	Mean	Mean
Physical domain	55,70	54,19	55.00
Psychological domain	63,50	61,19	62.47
Social domain	73,25	73,52	73.05
Ambient domain	49,51	48,10	48.64
Perception of quality of life	16,49	15,74	16.21
Satisfaction with personal health	16,48	14,52	15.67

Discussion:

The mean BMI - indicative of being overweight - and the increased mean abdominal circumference – are both conditions considered risk factors for cardiovascular diseases according to the WHO standards [17]. The fasting glucose mean found is close to the cutoff point adopted by the International Diabetes Federation (IDF) as a criterion of impaired fasting glucose (≥ 100 mg/dl), and the mean level of triglycerides is above the cutoff point for consideration as a component factor of MS by NCEP – ATP III criteria (≥ 150 mg/dl) [13]. A high alcohol intake, a question not specifically addressed in this study, is associated with elevated levels of serum triglycerides, but also with cardiovascular diseases, fatty liver disease, and alcoholic etiology of acute pancreatitis [18]; this should be a remaining point to be cleared in further studies. A population-based study conducted in a city in southern Brazil showed that being overweight (BMI

>25 kg/m²) and having an increased waist circumference (> 102 cm) increased the chance of having hypertension by 1.66 and 1.48 times, respectively, more than those considered normal [19]. A population-based study conducted in a city in southeastern Brazil involving men enrolled in the Family Health Program found overweight/obesity in 43.3% of the participants [20]. In the present study, the prevalence of overweight/obesity was 72.64%; with this finding, we should consider the population studied in increased risk for developing hypertension, one of the most prevalent cardiovascular diseases.

About the assessment of quality of life, the responses to the questionnaire are subjective. An informal review of the questionnaire data showed a relatively low mean (with a score range of 0 to 100) that was observed in the physical and environmental domains, specifically about satisfaction with personal body appearance, living conditions, access to health services, and the availability of the necessary information for everyday

activities. Participants also noted that there were few opportunities for leisure activities and some negative feelings were reported. These may be explained, at least partly, by the limitations associated with aging and occupational stress, which can affect physical well-being, leading to lower average scores in the physical domain. The lowest rating in the environmental domain, the ambient quality of life, may reflect the inadequate conditions that citizens (including military policemen) experience in daily life, struggling to adjust to an urban environment with excessive noise, visual and air pollution, inadequate urban cleanliness, and the poor condition of public roads; a set of conditions that are widely discussed throughout the populations. The reduction in skills due to aging may explain the overall lower means in the older group compared to the younger group. Satisfaction with personal health was lower in the older compared to the younger group, and only assessment of quality of life was equivalent in the former to the mean of the entire group.

Data from the Ministério da Saúde – DATASUS – Departamento de Informática do Sistema Único de Saúde do Brasil (Ministry of Health - Information Technology Department of the Unified Health System in Brazil) showed a male/female prevalence ratio of 1,188 in fetal deaths between 2000 and 2009, which suggests an innate male vulnerability [21]. The difference in the rates of illness and mortality might be explained by genetic and hormonal factors or lifestyle and habits (alcohol, smoking, working conditions), but the rates may also be a consequence of how the masculine identity is formed and the roles of men and women in society. Men adopt a role that society recognizes as masculine; associated behaviors subjectively, but ostensibly, distance and distinguish them from those other behaviors considered by society as typical of children, homosexuals, or women. To achieve this identity, there is a denial of sensitive and tender behavior, which includes the denial of pain; this affirms the male roles of providers and leaders while sacrifices self-preservation[22]. The PNAISH - Programa Nacional de Atenção Integral à Saúde do Homem (National Policy for Integral Attention to Men's Health) was established by Ordinance No. 1.944/GM, of the Ministry of Health of Brazil, on August 27, 2009, with the primary objective of reducing morbidity and mortality rates by addressing risk factors for disease, facilitating access to services, and encouraging preventative health behaviors. The different meanings that managers and health professionals attach to PNAISH were collected in a study of six narratives and 21 semi-structured interviews; the perceptions of the policy included: a need to meet the health demands of men in primary care, considering the human being as a whole; an attempt to reduce urological problems; as a vague directive, without strategies for attracting men to health services and appropriate care actions; and the inability to capture the attention of men [23]. PNAISH, unlike other political directives, such as those related to the status of women and blacks, did not arise out of a social movement, but was a government decision. The policy seeks to change the conditions that produce inequalities in care between men and women [23,24]. The medicalization of health care by the primary care sector focuses attention on the care of women, thus producing gender inequalities in the operation of health services and professional performance. Women receive more organized and complete care while men receive insufficient care and little attention to their specific needs [25].

In addition to the documented evidence that being male is a risk factor for disease and death, the level of education seems to be associated with a better quality of life, more access to health services, and better health. A study with a sample of 449 men in a city in the southern region of Brazil showed that men with less education were more likely to have alcohol dependency, a sedentary lifestyle, unhealthy habits, a higher prevalence of self-rated health as poor or very poor, and at least one chronic disease, such as hypertension. Access to health services—except dental services—were not associated with the level of education [1].

Other conditions related to socioeconomic factors and quality of life often influence the occurrence of physical and psychological distress amongst policemen [6,8,26].

Police officers are mostly men, which allows the study of the health status of police officers and their quality of life (even when special issues that apply to the police are considered) to be, at least in part, generalized for the assessment of health and quality of life of most men. A study involving 1,110 military policemen in the city of Rio de Janeiro revealed that the majority of the police force were men (96.3%), between 31 to 40 years (43.1%), 48.2 % of mixed race, and 75.4% were married. Using the Self-Report Questionnaire (SRQ-20) to detect psychological distress and minor psychiatric disorders, 35.7% (95% CI: 32.9% to 38.6%) of the respondents had symptoms of psychological distress. The authors of the study concluded that the need to react quickly in the face of difficult situations - which is a frequent occurrence in the exercise of police activities - and dissatisfaction with life as a whole explained psychological distress better than socio-demographic characteristics [6]

Conclusions:

This study evaluated quality of life in a convenience sample of the military police of Bahia and health status as assessed by physical and laboratory data. A high prevalence of hypertension, overweight/obesity, and dyslipidemia were found. The participants reported low satisfaction with quality of life, especially in the physical and environmental domains, indicative of the decline of physical well-being and the poor environmental conditions in which their daily activities are carried out. The main limitation of this study is the convenience sample, which obtained data may not be generalizable to the general population or even the whole of the Military Police Corps. The sample was selected by the human resources administration sector based exclusively on length of service (94.8% had between 20 and 25 years of service); therefore, these individuals are a mirror for the entirety of military police soldiers that are nearing 30 years of service providing public safety. This profession is fraught with stress and risks; thus, military police soldiers deserve special care and continued attention to full health specificities and needs, as well as attention to the conditions in which they spend their professional and personal lives.

Acknowledgement and Credits:

We thank SAGE JOURNALS – in special **The American Journal of Men's Health** – for publishing two previous articles - that are together the first part of the first author's Doctoral Thesis; the presente article is the third one that along with the fourth one - also presented to publish at this moment - are completing the cited **Doctoral Thesis**. Presenting this article in another Journal to publish complies with SAGE Journals copyright rules, for it has no economic purpose, and is part of the process of publishing the remaining articles, completing the **Doctoral Thesis** of the first Author.

For this purpose, part of the content of the previously published articles can be used to maintain coherence and a better understanding of the third and fourth articles, which complement the Doctoral Thesis.

The previous published articles are as follows:

Metabolic Syndrome and Military Policemen's Quality of Life: An Interdisciplinary Comprehensive Approach

Romário Teixeira Braga Filho, MD, PhD, Argemiro D'Oliveira Júnior, PhD

First published in november, 26, 2013

<https://doi.org/10.1177/1557988313510928>

The Prevalence of Metabolic Syndrome among Soldiers of the Military Police of Bahia State, Brazil

Romário Teixeira Braga Filho, MD, MMedSc, Argemiro D'Oliveira, Jr., PhD

First Published in March, 12, 2014

<https://doi.org/10.1177/1557988314526750>

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Ethical considerations: The study was approved by the Ethics Committee of Complexo Universitário Professor Edgard Santos, Federal University of Bahia, and was conducted in accordance with the principles of Ethics in Research with Humans and the Declaration of Helsinki.

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