

Promote health to prevent obesity and to ensure sustainable care in middle-aged women

Promocionar salud para prevenir la obesidad y un cuidado sostenible en mujeres de mediana edad

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ABSTRACT

Background: Health promotion and adapted physical activity in primary care are a necessity to prevent obesity, therefore a timely diagnosis prevents the onset of chronic non-communicable diseases in middle-aged women.

Objective: To diagnose the body composition of middle-aged women with obesity who perform sedentary work in Santa Clara, Villa Clara, Cuba.

Methods: Observational, descriptive, cross-sectional study carried out at the Arnaldo Milián Castro Clinical-Surgical Provincial Hospital in Santa Clara, from September 2024 to May 2025. Theoretical methods were used: analytical-synthetic, inductive-deductive, and historical-logical; empirical methods: document analysis, questionnaire, anthropometric measurements; and descriptive statistics: body mass index and waist-to-hip ratio.

Results: The documents did not specify the dosage of exercises by age, nor did they declare the evaluation methods regarding tests and abilities to be measured. 37.5% presented overweight, 37.5% type I obesity, and 25% type II obesity, with a predominance of android distribution of body fat (50%). 25% had circulatory disorders due to their sedentary profession and age-related functional changes. Limitations in knowledge about menopause management and adapted physical activity were evidenced.

Conclusions: There is a high prevalence of central obesity in women with sedentary occupations in Santa Clara, which, together with the presence of chronic diseases, reinforces the need for specific physical activity and health promotion programs adapted to this population.

MeSH: health promotion; women's health; menopause; obesity; obesity, abdominal; weight reduction programs; education, medical

RESUMEN

Introducción: la promoción de salud y la actividad física adaptada en la atención primaria constituyen una necesidad para prevenir la obesidad, por lo que un diagnóstico oportuno previene el padecimiento de enfermedades crónicas no transmisibles en la adultez media femenina.

Objetivo: diagnosticar la composición corporal de mujeres en adultez media con obesidad que realizan un trabajo sedentario en Santa Clara, Villa Clara, Cuba.

Métodos: estudio observacional, descriptivo y de corte transversal, en el Hospital Provincial Clínico-Quirúrgico Arnaldo Milián Castro de Santa Clara, durante septiembre 2024-mayo 2025. Se emplearon métodos teóricos: analítico-sintético, inductivo-deductivo e histórico-

lógico, empíricos: análisis documental, cuestionario, mediciones antropométricas y de la estadística descriptiva el índice de masa corporal y el índice cintura-cadera.

Resultados: en los documentos no se precisa la dosificación de los ejercicios por edades y no aparecen declaradas las formas de evaluación en cuanto a pruebas y capacidades a medir. El 37,5 % de las muestreadas presentó sobrepeso, el 37,5 % obesidad tipo I, y el 25 % obesidad tipo II, con predominio de distribución androide de la grasa corporal (50 %). El 25 % presentaba trastornos circulatorios por su profesión sedentaria y los cambios funcionales de la edad. Se evidenciaron limitaciones en el conocimiento sobre el manejo del climaterio y la actividad física adaptada.

Conclusiones: existe una elevada prevalencia de obesidad central en mujeres con ocupaciones sedentarias en Santa Clara, lo cual, unido a la presencia de enfermedades crónicas, refuerza la necesidad de programas específicos de actividad física y promoción de la salud adaptados a esta población.

DeCS: promoción de la salud; salud de la mujer; menopausia; obesidad; obesidad abdominal; programas de reducción de peso; educación médica

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INTRODUCTION

Family medicine is a medical specialty that focuses on comprehensive health care for individuals and families at all stages of life. It considers biological, psychological, and sociocultural factors; it also emphasizes the ongoing relationship between the physician and the patient by creating an environment of trust and communication that facilitates long-term health management and includes the promotion of healthy lifestyles and education on disease prevention. In the Cuban National Health System, it functions as the first level of

care, and today it is adapting to the new health needs of the population and facing significant challenges due to economic limitations and demographic changes.⁽¹⁾

Among the potentialities of family medicine, health promotion is mentioned as a dynamic and multifaceted process that seeks to improve the population's quality of life through a focus on prevention, education, and community care, with a strong emphasis on equity and universal access; and among its challenges: increasing efficiency and effectiveness based on science and innovation according to the community's health problems, as well as strengthening health promotion actions.⁽²⁾

Middle adulthood, considered in Cuba to be between 40 and 64 years of age, is a key stage in women's lives marked by the menopausal transition that entails cardiovascular, metabolic, and musculoskeletal alterations. They face multiple roles which, together with biological changes, can negatively impact their health. During this period, there is an increase in body fat, a decrease in muscle mass, and a loss of bone density.

According to the World Health Organization (WHO), obesity is a chronic disease with a likelihood of relapse, derived from complex interactions between genetics, neurobiology, eating behaviors, access to healthy food, market forces, and the broader environment, caused by increased food security, greater socioeconomic development, and changes in diet, physical activity, and social and individual behaviors driven by globalization and industrialized food systems.⁽³⁾

The diagnosis of overweight and obesity is made by measuring people's weight and height and calculating the Body Mass Index (BMI): weight (kg)/height (m²).⁽³⁾ Other measurements, such as waist circumference, can help diagnose obesity. In adults, a person is considered overweight if their BMI is 25 or higher; and obese if their BMI is 30 or higher.

Inactivity causes severe repercussions on population well-being and public health; sedentary behavior is a risk factor in the development of chronic diseases. Interest in sedentary behavior is justified by the growing evidence pointing to a relationship between this behavior

and the increased prevalence of obesity, type 2 diabetes mellitus, high blood pressure, metabolic syndrome, cardiovascular and cerebrovascular diseases, cancer, and mortality.⁽⁴⁾

There is a close relationship between osteoporosis, musculoskeletal problems, mental or emotional disorders, and a sedentary lifestyle. Lack of movement can alter some of the neurotransmitters produced in the nervous system, increasing anxiety, depression, and stress. Despite this, scientific evidence in the Cuban context on body composition and fat distribution patterns in middle-aged adult women with sedentary work environments is limited.⁽⁴⁾

There are risk groups for sedentary behavior, including people over 40 years of age, physically disabled individuals, those with chronic diseases or musculoskeletal conditions, obese individuals, housewives, and sedentary occupations (e.g., administrative personnel, intellectuals, etc.) and people living in urban areas.⁽⁵⁾

In Villa Clara, this problem is especially relevant, with overweight and obesity rates exceeding national averages; a situation aggravated by high rates of sedentary behavior in female workers over 40 years of age.⁽⁶⁾

The aim of the study is to diagnose the body composition of middle-aged adult women with obesity who perform sedentary work in Santa Clara.

METHODS

An observational, descriptive, cross-sectional study was carried out at the Arnaldo Milián Castro University Clinical- Surgical Provincial Hospital in Santa Clara, from September 2024 to May 2025. The sample consisted of eight women (n=8) in middle adulthood, selected by intentional convenience sampling from the total number of female workers in the Human Resources Department of the institution (n=12).

Inclusion criteria: being between 40 and 64 years old, working in the Human Resources Department, and giving informed consent to participate in the research.

Theoretical methods:

- Analytical-synthetic and inductive-deductive: used to obtain, process and analyze the information on the variables used, interpret the results obtained, write the report and draw the study conclusions; in all cases moving from the abstract to the concrete.
- Historical-logical: used to understand the bibliographic background, compare it with the reviewed articles, and to write the logical foundations of the theoretical framework in order to identify the relationship between knowledge.

Empirical methods:

- Document analysis: The INDER methodological guidelines for Community Physical Activity for the period 2023-2024 and the programs related to health groups, particularly the obesity program, were reviewed.
- Questionnaire: Applied to the women to verify their level of knowledge regarding climacteric and menopause, the chronic conditions associated with this stage, and their health consequences.
- Anthropometric measurements: Performed following the protocol of the International Society for the Advancement of Kinanthropometry (ISAK).⁽⁷⁾ The following were determined:
 - o Weight and height: using a calibrated scale with stadiometer
 - o Body Mass Index (BMI): calculated using the Quetelet formula
$$IMC = \text{peso (kg)} / \text{talla (m)}^2$$
 - o Waist circumference (WC): measured at the midpoint between the last rib and the iliac crest
 - o Hip circumference (HC): measured at the maximum gluteal protrusion

- o Waist-to-hip ratio (WHR): calculated as WC/HC and evaluated according to established cut-off points: android (≥ 0.85), intermediate (0.80-0.84), and gynecoid (< 0.80)

Methodological triangulation: to contrast the information obtained and increase the validity of the results.

Statistical method: Descriptive statistics were applied for data processing, using empirical frequency distribution tables.

Ethical considerations: The research was conducted according to the principles of the Declaration of Helsinki for medical research involving human subjects.⁽⁸⁾ All participants signed informed consent; data confidentiality and anonymity were guaranteed.

RESULTS AND DISCUSSION

Document analysis

The INDER regulatory documents for the period 2023-2024 for Community Physical Activity and the related programs were reviewed. It was found that they prioritize care for women to encourage active and healthy aging as a response to the accelerated aging process in Cuba. However, although they show some aspects indirectly related to the problem under study, the dosage of exercises by age is not specified, nor are the evaluation methods regarding tests and abilities to be measured declared.

Characterization of the sample

The distribution of women according to the stage of climacteric showed that 62.5% were in perimenopause and 37.5% in postmenopause.

Figure 1 presents the most frequent health problems reported by the participants: circulatory disorders (25%) related to their sedentary occupation and age-related functional

changes; allergies (12.5%), bronchial asthma (12.5%), and type II diabetes mellitus (12.5%).

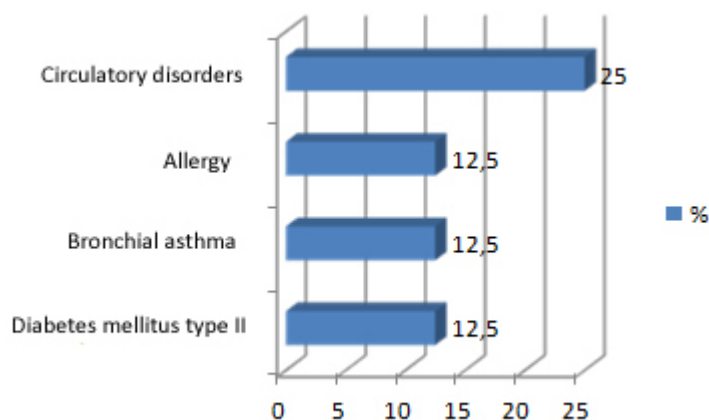


Fig. 1. Health problems associated with the middle adulthood stage. Arnaldo Milián Castro
University Clinical-Surgical Provincial Hospital. Villa Clara. September 2024 – May 2025
Source: questionnaire.

The main climacteric symptoms reported by the respondents, in Figure 2, were: sweating (87.5%), muscle/joint pain (62.5%), sleep disorders (50%), anxiety/depression (37.5%), circulatory disorders (25%), and vaginal dryness (12.5%).

Middle-aged women constitute a population that requires attention from health systems and policies, as expressed by Godoy Izquierdo *et al.*⁽⁹⁾ These authors recommend synergistic alliances between female medicine and health psychology to promote an active lifestyle through exercise programs designed according to international standards, combining aerobic cardiorespiratory fitness, muscular endurance, and other physical functions such as flexibility, coordination, and balance.

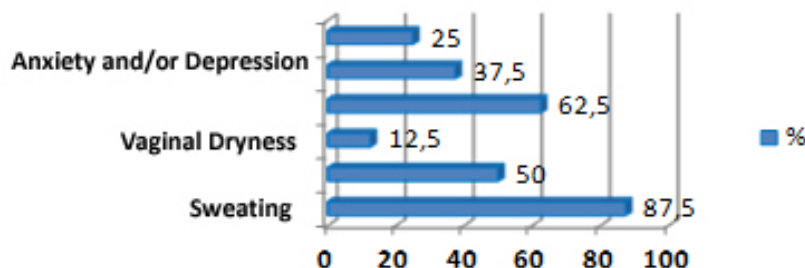


Fig. 2. Climacteric symptoms reported by the participants. Arnaldo Milián Castro University Clinical-Surgical Provincial Hospital. Villa Clara. September 2024 – May 2025
Source: questionnaire.

The sampled women recognized the benefits of physical exercise to prevent and treat obesity, but they did not identify which one is most effective for their life stage nor the best adapted to their workday. In this regard, the authors believe that the role of the family doctor and nurse and other community actors –including the physical culture graduate– should positively influence through educational actions and adapted physical activity, promoting how to avoid the risks of a chronic non-communicable disease acquired through obesity in this age group.

In general, Cuban women today have a high cultural level, which implies carrying out leadership actions that compromise their availability of time; they perform various jobs in the country, and although climacteric is not conceptualized as a disease, it does show harmful symptoms that greatly affect their quality of life.⁽¹⁰⁾

The results of the Body Mass Index of each participant are shown in Table 1.

Table 1. Body Mass Index (BMI) of the participants. Arnaldo Milián Castro University
 Clinical-Surgical Provincial Hospital. Villa Clara. September 2024 – May 2025

Subjects	Weight (kg)	Height (m)	BMI	Evaluation
1	70	1.63	26.3	Overweight
2	78.2	1.62	29.8	Overweight
3	90	1.65	33	Obesity type I
4	88.4	1.52	38.3	Obesity type II
5	80.6	1.6	31.5	Obesity type I
6	90	1.6	35.2	Obesity type II
7	82	1.59	32.4	Obesity type I
8	83	1.69	29.1	Overweight

Source: body mass index

The BMI analysis showed that 37.5% of the participants were overweight, 37.5% had type I obesity, and 25% had type II obesity. These results are consistent with those reported in sedentary Cuban women and are above the national averages.^(6,10)

Table 2 shows the results of the measurements to determine the Waist- to- Hip Ratio.

Table 2. Anthropometric measurements to determine the Waist- to- Hip Ratio (WHR).
 Arnaldo Milián Castro University Clinical- Surgical Provincial Hospital. Villa Clara. September
 2024 – May 2025

Subjects	Waist circumference (cm)	Hip circumference (cm)	WHR	Evaluation
1	87	95	0.91	Android
2	89	110	0.80	Intermediate
3	86	112	0.76	Gynoid
4	87	102	0.85	Android
5	96	106	0.9	Android
6	75	99	0.75	Gynoid
7	85	102	0.83	Intermediate
8	89	101	0.88	Android

Source: anthropometric measurements.

The percentage analysis of WHR determined that 50% of the sampled population presented an android type distribution of body fat (≥ 0.85), with predominant accumulation in the abdominal and visceral region. 25% exhibited moderate metabolic risk with an intermediate distribution (0.80-0.84) and the other 25% a gynoid distribution (< 0.80).

The predominance of the android pattern is consistent with the observed waist circumference levels. They acknowledged having little self-care activity, unhealthy lifestyles, and little time for recreational activities. Added to this is that, according to a study conducted in Argentina, after menopause, women suffer from energy dysregulation at the expense of decreased caloric expenditure due to reduced muscle mass, even when maintaining the same caloric intake. Furthermore, they have lower fat oxidation and lower energy expenditure during exercise and sleep compared to premenopausal women. Obesity and hypertension were the most frequent conditions among these women.⁽¹¹⁾

These results, although from a small sample, reveal a high prevalence of obesity in middle-aged women with sedentary jobs in Santa Clara; an increase in the android pattern of body fat distribution stands out in half of the sample. These figures are consistent with other reports that place obesity as a growing problem in this population group.^(10,11)

Regarding the android pattern and cardiometabolic risk, the most relevant finding is the high frequency of android obesity (50%). This phenotype, characterized by visceral fat accumulation, is associated with a higher risk of insulin resistance, type 2 diabetes mellitus, and high blood pressure. The results coincide with studies documenting that postmenopausal women tend to have a more centralized fat distribution than premenopausal women.

The drop in estrogen not only affects fat distribution but has also been linked to alterations in the intestinal microbiota, creating a vicious circle that exacerbates metabolic dysfunction.^(11,12,13,14) This connection is especially relevant in the studied sample, where the predominance of the android pattern could be associated with intestinal dysbiosis that contributes to low-grade inflammation and the observed cardiometabolic risk.

In the case of physical inactivity and its consequences, the relationship between occupational sedentary behavior and this adverse body composition is the central axis of this study. All participants performed office work with long hours in a seated position, reflecting a high percentage of sedentary behavior in women over 40 years of age in administrative jobs.

Recent research⁽¹²⁾ confirms that reduced physical activity in women over 50 is associated with significant elevations in visceral fat and a metabolic age higher than chronological age. Aging, which entails a decrease in lean mass and basal metabolic rate, is aggravated by this inactivity, perpetuating weight gain.

The manifestation of psychosocial and behavioral factors shows that the high prevalence of sleep disorders (50%) and anxiety-depressive symptoms (37.5%) in this sample becomes relevant in light of current evidence. Sleep disturbance, common in menopause, contributes to weight gain by increasing daytime fatigue and reducing physical activity.^(9,10) Furthermore,

emotional eating or "eating due to stress" acts as a key mechanism connecting psychological distress with weight gain, an effect potentiated in postmenopause. This implies that intervention programs for these women must include emotional regulation and stress management strategies. The complexity of the presence of these factors leads to confirming that a multidisciplinary intervention would be most effective.^(11,15)

Regarding the impact on health and exercise interventions, visceral fat accumulation is a predictor of accelerated cardiovascular aging, which underscores the urgency of intervening in this sample, where 25% report circulatory disorders. The 25% with a gynoid pattern have a lower immediate cardiovascular risk, but it is crucial to prevent its possible evolution toward the android pattern. Regarding bone health, interventions should focus on preserving lean muscle mass, beyond weight loss.^(9,14,15)

Given the identified time and motivation barriers, innovative interventions, such as home-based physical-cognitive exercise programs through digital platforms, could be especially effective. The high frequency of sweating (87.5%) reinforces the urgency of implementing exercise programs that improve body composition and alleviate climacteric symptomatology.⁽⁹⁾

The contextualization with the Cuban reality is manifested in the high prevalence of central obesity (50%), which corresponds to national figures indicating that more than 60% of Cuban women present abdominal obesity.⁽¹²⁾ This underlines the urgency of implementing intervention strategies from the primary care level with physical activity adapted to the occupational setting, as a public health priority.

Current evidence supports both strength training and aerobic training to improve body composition in postmenopausal women with obesity, as well as moderate-intensity interval training.

Internationally, Smith *et al.*⁽¹⁶⁾ report that there is currently a predominance and recognition of the use of sport only among some disciplines such as physiotherapy, psychology, and medicine, which can limit the participation of other professions that, from their disciplinary

work, can also use sport as a means of intervention; another study⁽¹⁷⁾ highlights the contributions that occupational therapy can make to adapted physical activity as well as the relevance of having occupational therapists in interdisciplinary teams.

The authors acknowledge the main limitation of this study related to the small sample size (n=8). However, the findings are consistent with trends observed in studies with larger samples, which gives them contextual validity. Future research should expand the sample and include biochemical variables and intestinal microbiota analysis for a more rigorous assessment.

Scientific contribution

The diagnosis expresses the need to establish specificity in current Cuban health promotion and community physical activity programs in community and workplace settings where sedentary behavior and female presence predominate, with interventions adapted to this age group: middle-aged women.

CONCLUSIONS

In the middle-aged women with sedentary work studied in Santa Clara, a high prevalence of overweight and obesity was found, with a predominance of the android fat distribution pattern in half of the sample, which increases their cardiometabolic risk. Current community physical activity programs have little specificity for this age group and clinical condition, together with the women's knowledge deficiencies about climacteric and adapted physical activity, which demands the need for educational interventions from family medicine and physical exercise contextualized to the work and community environment.

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Declaration of interests

The authors declare no conflict of interest.

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