

Primary prevention of cardiovascular diseases in the elderly population

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ABSTRACT

The epidemic of chronic cardiovascular diseases must be managed and prevented. We examine if a sample of 65-75-year-olds knows and practices the right lifestyles to prevent chronic cardiovascular diseases, their habits and risk levels, and whether the paradigm of cardiovascular prevention needs to change. We recruited 153 men (50.2%) and 152 women (49.8%), aged 65-70 for 55% and 71-75 for 45%. Most were overweight (38.2%), obese (28.2%), and normal (33.6%). 67.1% trusted to eat right, and only 20.6% always ate low-salt. 54.4% of our population considers their exercise sufficient, but 83% do not practice it, and 72.3% know the importance of daily exercise. 54.3% consider themselves healthy, but 51% have chronic diseases, including arterial hypertension (37.2%), diabetes (23.1%), heart failure (20.5%), and chronic obstructive bronchopathy (21.8%). Understanding the disease, its effects, and complications, and taking care of one's health can help people live longer and prevent cardiovascular events.

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Introduction

The current Italian system of primary care is ineffective in cardiovascular disease prevention. Because it helps patients affected by acute and chronic diseases through the same care pathway, prevention and the habit of planning treatments and entrusting them to medical professionals receive little attention in clinical management when it comes to patient empowerment. We know that there is a real epidemic of chronic cardiovascular diseases, which needs to be managed but above all prevented, while they are almost neglected, despite growing awareness of the health impact they cause.¹ The prevention of these diseases, however, can be very effective and relatively low-cost, and the lack of valid results is mainly linked to political rather than medical problems. The traditional model of healthcare, biomedical, wait-based, and focused on acute care is less effective in meeting the health needs of today's users and will be even more in the next years.² Waiting care is based on the centrality of the disease, on the specialized activities to be provided on demand, focused on individuals, symptoms, and therapy; on the opposite, initiative healthcare is based on primary care, on the needs of the community, it is proactive and focused on prevention, taking in account the single individual and the entire population.³ The initiative health care is more suitable for the management of chronic diseases, as it refers to the needs of the community and considers all the determinants of health, including socioeconomic ones, also in terms of use and quality of services, in chronic disease carriers.^{4,5} Individuals and communities must become active actors in the pursuit of a state of good health, therefore, health promotion is not the exclusive responsibility of the health sector. An indirect indicator of the health of a population is longevity, which contributes to 50% of lifestyles, 20% of environmental conditions, genetic inheritance for another 20%, and health services for 10%.^{6,7} The first step for effec-

tive prevention is to know the characteristics of the population to which prevention is aimed, so we focused on the Apulian population aged between 65 and 75 years, a range of elderly people according to the World Health Organization (WHO) guidelines, not yet according to a propose of the Italian Society of Gerontology and Geriatrics to delay the beginning of elderly at 75 years, as affirmed during their National Congress in Rome, and reported by Italian news agency ANSA. Our goal was to detect if a sample of this population knew and put into practice the correct lifestyles to prevent chronic cardiovascular diseases, investigating their habits and their levels of risk and assessing if there was a need to change the paradigm of cardiovascular prevention in our population.

Materials and Methods

The survey was provided to a population of 305 consecutive subjects aged 65 to 75 years, living in the Apulia region, and enrolled in recreational clubs for the elderly. It was a standardized questionnaire entitled: “Does the community know and put into practice the correct lifestyles to prevent chronic diseases?”. It consisted of 39 questions aimed at understanding the lifestyles adopted by the population. We can divide the questionnaire into large macro-areas: movement and physical activity, eating styles, alcohol consumption, tobacco consumption, psychotropic substances, and state of health. The adherence was 100%. The data collection started on 1st July 2023 and ended on 31st October 2023. The survey was provided in front of the researcher to clarify any doubts. All subjects gave informed consent to the use of their data, in an anonymous way and for scientific reasons. The data were name and surname, age, sex, educational qualification, profession, weight, and height. The first group of questions concerned movement and physical activity, the length of walking trips, exercise and what kind, how many days a week, for how long, and personal opinion about the importance and adequacy of the activity. The second group of questions was about eating styles, asking how many meals daily, what they eat for breakfast, if they pay attention to the amount of salt and/or the consumption of salty food, if they consume per day fruits and vegetables, which fats they use most frequently, and, finally, if they consider their diet to be correct. The third group of questions asked about beverage consumption: how many drinks are consumed throughout

the day, how much wine, beer, and spirits with meals or between meals, and overall, in a week, and, finally, if they consider the consumption of beverages to be appropriate. The fourth group of questions regarded tobacco consumption, investigating current smoke status, an average of cigarettes when applicable, and trying to quit smoking. The fifth group of questions was about the use of psychotropic substances, investigating the use of psychiatric drugs, which one, and how many times. Finally, the last group of questions was on the feelings about health at the moment of the interview, whether they’re suffering from chronic diseases or long-term health problems, and, if so, which chronic disease and if they’re getting advice from an expert.

Results

We recruited 153 men (50.2%) and 152 women (49.8%), their age was 65-70 years for 55% of them, and 71-75 for 45%, the complete distribution for age classes is in Figure 1. Most of them were overweight (38.2%), 28.2% were obese and only 33.6% had a normal weight, nevertheless, 67.1% trusted to practice a correct diet (Figure 2). Only 20.6% feed on a low-salt diet constantly, while 32.6% don’t pay attention to this. All of them use olive oil for dressing and cooking, 88.8% never used butter, and 96% never used lard. The WHO has defined the recommended levels of physical activity for three age groups: young people, adults, and the elderly,⁸ emphasizing that the latter must perform at least 150 minutes per week of moderate activity or 75 minutes of vigorous activity with the warning to also perform balance-oriented exercises to prevent falls. Those who are unable to fully follow the recommendations should do physical activity at least three times a week, preferring walking (31.9%) or running (31.9%) depending on their health conditions. 44.6% of our population walk habitually less than 30 minutes a day, however, 54.4% of them consider this exercise sufficient. 83% do not practice physical activity and 67% of respondents have a disperseption of their physical activity. 72.3% of the population considers physical activity important, despite not practicing it, while it is performed mostly by subjects aged 65-70 years; 19.2% are free from cardiovascular disease and feel healthy exercise more than once. Regarding physical activity, 54.4% are convinced not to have a sedentary lifestyle, 44.6% walk for less than 30 minutes every day, but only 5.5% practice physical activity

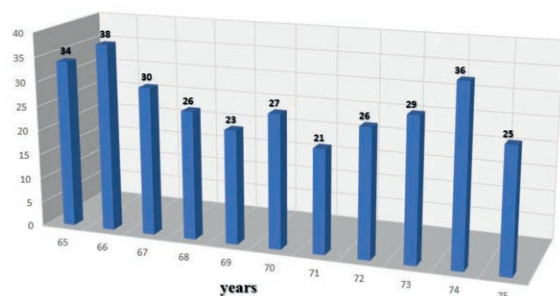


Figure 1. Distribution of our population for age classes.

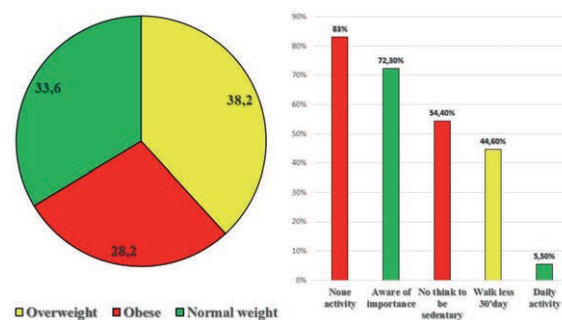


Figure 2. Distribution of our population for body mass index (on the left) and physical activity (on the right).

regularly, while 83% admit not practicing any physical activity, however, 72.3% affirm to be aware of the importance to practice it daily (Figure 2). 61.3% of the population has a total of four meals during the day, and on breakfast, 43.3% take caffeine in combination with carbohydrates such as croissants and biscuits. Regarding the daily consumption of drinks, 86.6% presume that their consumption is correct, but only 44.9% drink more than one and a half liters of still water, 33.4% have more than one liter of carbonated drinks, and 40.9% have more than one liter of sugary drinks (Figure 3). Regarding smoking, 62.3% never smoked and 16.4% stopped it, but among 21.3% of the smokers, 37.3% consume more than 10 cigarettes a day. Regarding alcohol consumption, 82% drink less than 20 grams/day, which is the cardiotoxicity threshold, 63.3% drink only during meals, and 86.6% are aware of the dangers of alcohol abuse. Regarding the state of health, 54.3% think to be healthy, nevertheless, 51% suffer from chronic diseases, lasting for at least six months, overall arterial hypertension (37.2%), but also diabetes (23.1%), heart failure (20.5%), and chronic obstructive bronchopathy (21.8%) (Figure 4).

Discussion

The results of the study allow us to formulate interesting considerations concerning the population studied. Being overweight is considered an important but preventable risk factor for cardiovascular disease, due to a diet with too much fat and too much sugar, the accumulation of excess adipose tissue worsens the overall inflammatory structure of the body, making it more fragile and prone to disease. Living with excess pounds for years or decades can make a negative difference to the health of arteries and coronary arteries in adulthood,⁹ which is why the subjects included in the study are between the ages of 65 and 75. The amount of salt used during the preparation of meals is a main factor for the onset of chronic diseases;^{10,11} only a few have always paid attention, and the remaining part uses or used an excessive amount, with an increased chance of developing arterial hypertension. Most of the population affected by cardiovascular chronic disease have a poor diet, a lack of physical activity, and are overweight, even patients with a previous episode of heart failure are overweight and do not follow a correct diet. A sedentary lifestyle is dangerous;^{12,13} it can be modified without pharmacological treatment but only with

willpower, and regular physical aerobic activity increases the body's demand for oxygen, and increases the workload of the heart and lungs, making the heart and circulation more efficient, so a trained heart pumps more blood without spending additional energy. The WHO has defined the recommended levels of physical activity but quite half of our population walk habitually less than 30 minutes a day but consider this exercise sufficient. 83% do not practice physical activity, but it is impressive that 72.3% of the population considers important physical activity so 2/3 of respondents have a misperception about it. Our population is not adequately educated and informed about the utility of the activity and the role it plays in preventing cardiovascular diseases. Cigarette smoking is a recognized and relevant risk factor for cardiovascular disease,¹⁴⁻¹⁶ as well as the only one that could be completely deleted, 62.3% of our population never smoked, 16.4% are ex-smokers, and 21.3% currently smoke. Our study confirms that smoking is the main cause of non-fatal myocardial infarction.¹⁷ Its incidence is closely associated with the number of cigarettes smoked; among 16.4% of ex-smokers, 50.9% stopped smoking more than five years ago and only 8.8% less than a year ago, and the smoking habit was often stopped because of the onset of pulmonary or cardiovascular diseases. Alcohol abuse, prolonged over time, weakens and thins the heart muscle, impairing its pump function;¹⁸ in Europe, alcohol is in third place as a cardiovascular risk factor after smoking and hypertension,¹⁹ light alcohol consumption of red wine may reduce coronary risk, but more than 20 g of alcohol per day increases cardiovascular risk; however,²⁰ 82% of our population consumes less than 20 g of alcohol per day, and 63.3% don't drink alcohol out of meals, so our population lifestyle, concerning alcohol is almost correct; after all, 86.8% is aware of the correct consumption of drinks; the few subjects who have incorrect habit are mostly males. Regarding the current health state, 88.5% of our population felt: fairly well, well, or very well despite most of them (51%) being affected by chronic diseases, for more than six months. The most frequent pathological condition in our population is arterial hypertension, which affects most subjects not paying attention to salt intake. The second condition developed is diabetes (23.1%), followed by obesity (22.4%). Other chronic diseases observed are heart failure at 20.5%, pulmonary diseases at 21.7%, and oncological diseases at 13.5%. The wide discrepancy between the rate of chronic diseases observed and the rate of good health state presumption is due to a lack

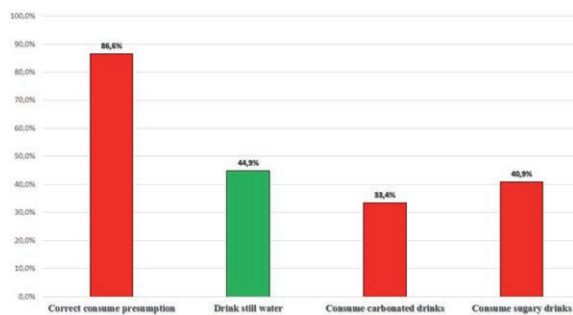


Figure 3. Distribution of our population for daily consumption of drinks.

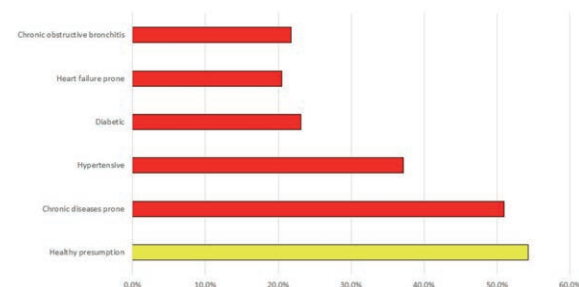


Figure 4. Distribution of our population for healthy status.

of knowledge and a wrong perception of good health, this highlights how important is to teach the population not to underestimate cardiovascular risks,^{21,22} avoiding compromising own health status. We need a multidisciplinary team, that implements education and training interventions to spread the correct management of the determinants of health, and ensures that the teachings are received and put into practice.²³⁻²⁵ Living healthily by leading a non-sedentary lifestyle, maintaining an adequate weight, abstaining from smoking, and reducing alcohol consumption greatly decreases cardiovascular risk. There are therefore different levels of responsibility: individual responsibility for behavior and lifestyles;²⁶ family or group responsibility concerns affective and social relationships, local community and national government deals with social and labor policies.²⁷ All these levels are closely related and interact with each other in determining the different fate of a population regarding cardiovascular morbidity and mortality. The multidisciplinary team educates the patient on the correct lifestyle and attention to risk factors that would harm his health. The relationship that is established between the patient and the team is necessary to make real changes in the patient's lifestyle. It takes a technical, counseling, and psychological support role, resulting in very effective, identifying the patient's level of risk, identifying the priority of intervention in preventive and educational terms, and thus, setting reasonable, assessable, and measurable objectives. The first step concerns the assessment of tobacco use, physical activity level, and diet, which can provide important information about the initial health status, subsequently, cognitive and behavioral counseling will reduce cardiovascular risk factors, through motivational interviews in which the team assesses the patient's will to change and tries to establish a helping relationship to him, precisely, focusing on the ability to individual decision-making. On the other side, the criticality of the management of chronic diseases with waiting care is that the system is only really mobilized when the chronic patient worsens, decompensates, and becomes an acute patient; moreover, by renouncing prevention, removal of risk factors, and adequate treatment of the underlying chronic disease.²⁸ Currently, waiting is the classic model of our healthcare, on which the national health system is based, and is the most common in the context of district healthcare. The waiting paradigm, typical of acute illnesses, involves waiting for an event in which to intervene. The effective method of intervention in our population is the initiative medicine, which makes prevention using information systems with the construction of databases, planned activities, and proactive interventions such as the construction of pathology registries, and risk stratification with a scheduled recall of patients; the involvement and motivation of the users, the individual and group counseling activity is fundamental. This care model provides for the "proactive" care of patients and a new organizational approach that presumes the need for health before the onset of the disease, or before it manifests itself or worsens, providing and organizing appropriate care responses.^{29,30} Therefore, health must be understood as a dynamic set of biological and behavioral elements determined by different factors, a fundamental role is played by the individual's choices among the different alternatives available; choices that lead to the solidification of habits and the adoption of specific lifestyles. This model requires a precise picture of the "burden" of cardiovascular risk in the

population in which intervenes, the greatest risk of chronic diseases is in the elderly, however, there is a discrepancy between the WHO definition of the elderly, which considers the over-65s as such, and the proposal of the Italian Society of Geriatrics, which proposes to move the age at which elderly subjects are defined to 75 years. Therefore, the results of our study are relevant in a population aged between 65 and 75 years, where the control or the elimination of risk factors is essential to avoid the onset of chronic diseases that worsen the individual's state of health and the quality of life itself, the risk is continuous and increases with age. However, it is possible to reduce the risk or keep it low through a healthy lifestyle.

Conclusions

Over time, the health system has developed an effective method to combat chronic degenerative diseases, among which cardiovascular diseases are the most impactful. Nowadays, it is very often possible to prevent cardiovascular events thanks to dedicated prevention strategies so that the population can consciously lead a healthy lifestyle and live longer. This is because, in a society that is now industrialized but with incorrect lifestyles, the most appropriate strategy is educating the population, educating individuals on how to prevent the disease, preventing it from manifesting itself or in some cases recurring; the best way to make this happen is to first understand the nature of the disease, describing its effects and complications, and then teach how to take care of one's state of health, up to optimal and conscious management of a balanced and healthy lifestyle.

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