THE SECRETS OF HEALTHY AGING IN MEN: A MULTIDISCIPLINARY APPROACH

Ahmet Akyol¹ https://orcid.org/0000-0002-8953-5196
Yuliya Fedorchenko² https://orcid.org/0000-0002-5042-1191
Burhan Fatih Kocyigit³ http://orcid.org/0000-0002-6065-8002

¹Physiotherapy and Rehabilitation Application and Research Center, Hasan Kalyoncu University, Gaziantep, Türkiye
²Department of Pathophysiology, Ivano-Frankivsk National Medical University, Ivano-Frankivs’k, Ukraine
³Department of Physical Medicine and Rehabilitation, University of Health Sciences, Adana City Research and Training Hospital, Adana, Türkiye

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Corresponding author: Burhan Fatih Kocyigit, E-mail: bfk2701@hotmail.com Twitter handle: @BurhanFatihKoy1

Abstract
This article explores the crucial and frequently disregarded domain of men’s health as they age, specifically focusing on the consistently increased rates of mortality among males worldwide. Although men display increased cardiovascular risk factors and higher rates of injury, there persists an inequity in the focus given to men’s health in comparison to women’s health. Given the projected increase in the global population of individuals aged 60 and beyond, it is essential to emphasize healthcare for elderly males. Initially grounded in andrology and urology, the World Health Organization has broadened the definition of men’s health to include overall well-being, encompassing physical, mental, and social aspects. Given the increasing life expectancy and the corresponding increase in age-related conditions, adopting a multidisciplinary approach involving a range of healthcare providers is crucial. The review examines critical elements of health in aging men, including genitourinary infections, cardiovascular diseases, malignancies, stress-coping strategies, and the distinct challenges associated with urological issues and sexual health in elderly males.

Keywords: men’s health; healthy aging; geriatrics; health services for the aged.


Key Messages for Research and Practice

- The aging male population faces unique health and social issues.
- In order to solve the health-care issues posed by the aging male population, a shift in perspective to a multidisciplinary approach is essential.
- A comprehensive approach to improving the well-being and quality of life of aging men is critical, encompassing not just physical but also mental and social aspects of health.
- There is a pressing desire to increase awareness, act early, and implement broad strategies to reduce healthcare disparities and stigmas linked with men’s health difficulties.
Introduction

Globally, male mortality rates are consistently higher than female mortality rates. In addition, men exhibit a greater prevalence of cardiovascular risk factors compared to women, and they also experience higher rates of suicide and injury. Conversely, there is a disparity in the level of attention given to men’s health compared to women’s health, despite recent efforts to prioritize it [1, 2]. Based on the updated version of the United Nations’ World Population Prospects 2017 report, the global population is projected to reach 8.6 billion by 2030, 9.8 billion by 2050, and 11.2 billion by 2100 [3]. The report predicts that the population’s age distribution will alter, and the population will experience aging due to declining birth rates and increasing life expectancy. According to the information provided, the population of those aged 60 and above is projected to increase by more than two-fold in 2050 and more than three-fold in 2100, compared to its size in 2017. The population of individuals aged 80 and up is expected to triple by 2050 and sevenfold by 2100. According to this forecast, the population aged 60 and over, which currently accounts for 13% of the global population, is predicted to rise to 25% or higher by 2050, excluding Africa [3]. The rise in the aged population, the growth in the retired population, and the decline in the working-to-retired population ratio will unavoidably impose social and economic costs on society [4]. Given the increasing number of elderly individuals and the elevated rates of mortality and coexisting medical conditions among males, public health must prioritize the healthcare needs of men [5].

When discussing men’s health in the past, the fields of andrology and urology were commonly associated. However, the World Health Organization (WHO) defined men’s health much earlier, in the 1940s. The organization described it as «a state of complete physical, mental, and social well-being, as experienced by men, and not simply the absence of disease or infirmity.» [6]. Due to the growing interest in recent years, health professionals in this field have expanded their areas of expertise. Endocrinologists, general practitioners, geriatric specialists, psychiatrists, and specialized nurses have been included alongside urologists and andrologists, who are the primary experts in this subject. With the rise in life expectancy, there will be a corresponding increase in age-related disorders, consequently heightening the interest of additional physicians and healthcare professionals [7]. A comprehensive approach to men’s health is necessary due to advanced age and numerous comorbidities.

It is a well-established fact that men have a lower propensity to access healthcare compared to women. Additionally, men tend to delay seeking medical assistance until the condition has progressed to an advanced state rather than seeking aid in the initial phases of the illness [6, 8]. Given this behavioral tendency, it is anticipated that they will seek a prompt resolution to the issue by consulting a solitary physician. Developing an expedient, pragmatic, and efficient methodology that spans several fields of study is essential to address this issue. By adopting a multidisciplinary approach, it is possible to develop new standards for screening, diagnosis, and treatment. Additionally, organizing awareness events for patients and healthcare professionals can help improve knowledge and understanding of men’s health.

Aim

A multidisciplinary investigation is required to fully understand the complex nature of men’s health, which involves studying several aspects such as epidemiology, genetics, hormonal impacts, and behavioral issues. The main objective of this extensive review is to clarify and examine essential aspects of men’s health as they age, specifically focusing on many viewpoints, including genitourinary infections, cardiovascular diseases (CVDs), malignancies, and stress-coping mechanisms. Furthermore, there is a particular emphasis on addressing urological issues and the sexual health of elderly males.

Genitourinary infections

Urinary Tract Infection (UTI), which can show a broad spectrum of symptoms ranging from asymptomatic bacteriuria to urosepsis, appears common among the elderly [9]. The predominant symptoms of UTIs comprise dysuria, heightened urine frequency, and urinary urgency; however, these symptoms may not manifest in older individuals. In contrast to other age groups, older individuals may exhibit symptoms such as confusion, delirium, or the sudden onset of incontinence [9]. The prevalence of positive urine cultures was greater in individuals aged 65 and above than those under 65. Research has revealed that the incidence of UTIs in males tends to rise as they age, in contrast to women [10]. The study conducted in the USA over six years found that the occurrence of UTIs in men aged 65-74 was 5 cases per 100 person-years. Similarly, an observational study in the UK determined that the incidence of UTIs in men aged 65-74, 75-84, and 85 years and older was 3, 6.1, and 10.5 cases per 100 person-years, respectively [9]. According to research in
Saudi Arabia, the number of UTI applications from older patients to the emergency department was 14.6% in 2018, up from 11% in 2001 [10].

*Escherichia coli*, *Klebsiella pneumoniae*, and *Proteus mirabilis* are UTIs’ most frequently identified pathogens. Antimicrobial treatment is advised for older men experiencing symptomatic UTIs. However, it is not recommended for those with asymptomatic bacteriuria [11]. A study conducted in the UK analyzed the data of over 20,000 individuals aged 65 and above. The study found that women with asymptomatic bacteriuria who underwent prophylactic medication experienced a decrease in clinical recurrence of UTIs, but there was no impact on UTI-related hospitalizations. Conversely, the study also found that prophylactic medication reduced both clinical recurrence and UTI-related hospitalizations in elderly men with asymptomatic bacteriuria [12]. Nitrofurantoin, phosphomycin, pivmecillinam, or Trimethoprim-sulfamethoxazole are the preferred initial therapy options for individuals experiencing symptomatic UTI. The recommended treatment length should be scheduled for 3 to 5 days [9, 11]. Antimicrobial agent resistance arising from the unwarranted, excessive, or erroneous utilization of antibiotics poses a significant challenge to public health. A study examining *E. coli* isolates in patients aged 65 and above found that the prevalence of nitrofurantoin resistance was three times greater in males compared to women. Fifty percent of patients aged 65 and over have been found to exhibit multi-drug resistance (MDR) in *E. coli*. Among other age cohorts, this percentage falls below 20%. Additionally, 8% of elderly patients exhibited the presence of *E. coli* that produced broad-spectrum beta-lactamase [13]. The emergence of drug resistance, particularly among elderly males, necessitates the prompt development of guidelines that provide new treatment recommendations for antimicrobial therapy.

**Cardiovascular diseases**

CVDs are a major global public health issue that affects both men and women. Nonetheless, the convergence of men’s health and CVDs is a distinctive and pivotal field of research. Males frequently encounter unique challenges and circumstances that can impact the emergence and advancement of CVDs. Gaining a comprehensive understanding of the complex link between men’s health and CVDs is crucial in order to develop targeted and successful preventative and intervention measures [14, 15].

On average, men have a greater tendency to develop CVDs than women. This gender discrepancy is evident among individuals of different ethnic backgrounds. Statistics reveal that males frequently encounter CVDs at a younger age compared to females. This discrepancy can be attributed to various causes, including hormonal disparities, genetic predispositions, and lifestyle choices. It is essential to thoroughly examine the intricate details of epidemiology to identify particular risk factors that significantly impact men and develop focused preventive strategies [16, 17].

A practical implementation of preventative interventions requires the adoption of a gender-sensitive perspective. Promoting cardiovascular wellness by implementing focused interventions customized to address the distinct requirements and difficulties males encounter is paramount. Public health initiatives should prioritize promoting consistent regular exercise, a well-rounded diet, quitting smoking, and effective stress management while targeting the factors that can be changed. Furthermore, regular health examinations that include evaluations of cardiovascular risks might assist in the timely identification and action [18, 19].

In addition to physiological variables, psychological aspects substantially influence men’s cardiovascular health. Societal norms around masculinity, which may inhibit the act of seeking help and promote standards that cause stress, can have an impact on cardiovascular health. To address these facets, it is necessary to promote open communication, diminish societal taboos surrounding men’s health problems, and incorporate psychological considerations into cardiovascular healthcare [20, 21].

**Cancer-malignancy**

Men’s health, especially regarding malignancy, is an intricate and diverse field that has important consequences for public health. The overall incidence of malignancies has a greater impact on males, thus requiring a thorough examination of the distinct elements of men’s health about malignancy. Gaining insight into the epidemiological, genetic, and lifestyle factors that impact cancer risk in males is crucial for developing successful preventative measures, diagnostic methods, and tailored interventions [22].

The epidemiological distribution of cancers in males exhibits discernible patterns marked by the predominance of specific cancer types and variations in incidences related to age.
Prostate cancer is prevalent among men, and its occurrence becomes notably higher with increasing age. Testicular cancer primarily affects younger age groups, although it is less prevalent. Moreover, men have a higher prevalence of lung, colorectal, and bladder malignancies. Comprehending these intricate epidemiological variations is crucial for customizing cancer prevention and screening programs to suit the distinct requirements of males [23, 24, 25].

Genetic predispositions and hormonal factors significantly influence the development of cancer in men. In the picture of prostate cancer, there is a significant occurrence of the disease among familial clustering, indicating a genetic factor. Moreover, the impact of androgens, such as testosterone, on the growth and advancement of specific cancers highlights the significance of hormonal factors in men’s health. Understanding the complex relationship between heredity, hormones, and cancer susceptibility is crucial for accurately assessing individual risk and implementing preventative strategies [26, 27].

The area of men’s health and malignancies is complex and necessitates a thorough and interdisciplinary approach. Comprehending the interaction of genetic, hormonal, behavioral, and psychosocial factors is crucial for developing successful strategies to prevent, screen, and manage. Healthcare professionals can enhance outcomes and quality of life for individuals affected by cancer by recognizing the distinct obstacles encountered by men in this domain. By customizing approaches that target biological susceptibilities and account for the psychological and social aspects of men’s health, professionals can optimize strategies to address these challenges.

Stress-coping in aging men

The research on stress coping in aging men is a complex field exploring the strategies individuals use to deal with the difficulties of getting older. As males go through the stages of life, they face a multitude of stress-inducing factors, such as medical issues, shifts in societal responsibilities, and contemplation of their existence. Gaining insight into the strategies employed by elderly men to manage stress is essential for fostering resilience, psychological health, and overall life satisfaction within this population [28].

Men frequently rely on various psychological coping methods to manage stressful situations as they age. Problem-solving strategies, cognitive reappraisal, and seeking social support are often used as adaptive processes. Participating in activities that offer a feeling of purpose and achievement, such as hobbies or volunteering, can contribute to favorable outcomes in managing stress. Additionally, the capacity to sustain an optimistic perspective and foster resilience when confronted with challenges is essential for the psychological well-being of elderly men [29, 30].

Social relationships are crucial in helping elderly men cope with stress. As individuals age, their social networks may change, and the need for solid ties becomes crucial. Robust familial bonds, close friendships, and active community involvement can act as mitigating factors against the adverse effects of stress. On the other hand, being socially isolated or having strained relationships can worsen levels of stress [31, 32].

Gerontological research should prioritize the development of customized therapies to aid stress coping in older men. Effective interventions encompass the integration of mental health services, the promotion of accessible social support structures, and the cultivation of health-promoting habits. Understanding the diversity of aging experiences and individual preferences is crucial for developing tactics that effectively engage various aging groups.

Testosterone replacement therapy

The level of sex hormone-binding globulin declines by 1.3% every year, while serum testosterone levels decrease by 1-1.6% per year in males over 40. Free testosterone levels also decline at a rate of roughly 2.8% per year [33]. A low serum testosterone level by itself does not imply testosterone insufficiency. In community-dwelling men aged 40-70, serum testosterone insufficiency was 17%, while clinical signs of serum testosterone deficiency were reported to be 2% [34]. Testosterone levels were shown to be lower in aging males with chronic disorders such as diabetes, hypertension, and obesity than in aging men without such chronic conditions [33]. Testosterone deficiency and hypogonadism adversely affect various aspects of one’s well-being, including poor quality of life, deteriorated muscle and bone mass, obesity, sarcopenia, depression, fatigue, sexual dysfunction, low libido, reduced frequency of morning erections, erectile dysfunction, metabolic syndrome, and anemia. Despite the long-standing recognition of the advantageous effects, there exist several concerns regarding testosterone therapy. Significantly, the occurrence of prostate cancer and cardiovascular events poses challenges for physicians and patients when it comes to commencing therapy in extended therapeutic regimens [35, 36]. Consequently, it is not advisable to administer testosterone therapy
to every elderly man experiencing testosterone insufficiency. It is important to examine the occurrence of clinical symptoms alongside testosterone deficiency and assess the negative impact of the current scenario on the patient. It is important to provide the patient with a clear explanation of the current condition and involve them in the decision-making process regarding their treatment. It may be concluded that the administration of testosterone should be tailored to each individual’s needs [37]. Excessive resistance to testosterone therapy can prevent patients from experiencing the potential benefits of this treatment. Long-term, randomized, placebo-controlled trials are necessary to assess the safety of testosterone therapy [38].

Sexual health

Sexual and reproductive health issues are vital public health concerns. It is linked to early morbidity and a high mortality rate in males [39]. Less than 25% of males requiring sexual and reproductive health treatments actually utilize them [40]. Men’s hesitancy in this matter originates from factors connected to the individual, the community, and the health service system. Individual causes for this issue include a lack of understanding, embarrassment, perpetuation of falsehoods, and expensive expenses. Social issues include threats to masculinity as well as cultural and religious reasons. Reasons for dissatisfaction with the health service include negative and judgmental attitudes of healthcare workers, lack of privacy and trust, low quality of services, inconvenient location of services, absence of same-sex health workers, and inadequate leadership and management [39]. As solutions are generated for these causes, it will facilitate men in accessing assistance and medical care for their sexual and reproductive health issues.

During 9-year observational research, it was shown that as individuals became older, there was a decline in sexual activity, sexual desire, sexual satisfaction, masturbation, and erectile function [41]. Low libido, reduced frequency of morning erections, and erectile dysfunction are notable sexual dysfunctions. In aging males, there is a decline in erection hardness, erectile function, and sexual pleasure when compared to young men. The prevalence of erectile dysfunction is around three times higher in men aged 40-69 compared to younger individuals [42]. The presence of comorbidities such as diabetes, hypertension, and obesity, which become more prevalent as individuals age, also amplifies the intensity and occurrence of erectile dysfunction. In addition, aging alone is a separate risk factor for erectile dysfunction, even in the absence of other concurrent medical disorders [43].

Due to the identical underlying molecular pathways of both, the coexistence of erectile dysfunction and CVDs is expected. Physical inactivity, inflammation, oxidative stress, obesity, and insulin resistance have all been identified as potential underlying causes of erectile dysfunction. Nitric oxide facilitates the expansion of blood vessels in the penis, leading to a notable augmentation in blood circulation, relaxing of the smooth muscles, and engorgement of the penile sinusoids. The decline in nitric oxide levels is caused by less physical activity, inflammation, oxidative stress, obesity, and insulin resistance [44]. Exercise promotes the growth of lean muscle mass and reduces insulin resistance and oxidative stress, leading to an increase in nitric oxide synthesis. Exercise is a non-pharmacological treatment strategy that is advised for managing erectile dysfunction [45]. Comparable results were achieved in a trial that compared the effects of pelvic floor muscle workouts and sildenafil therapy on patients with similar levels of erectile dysfunction [46]. The frequency of sexual intercourse declines in males as they age. A study found that those who engage in sexual intercourse less frequently than once a week have a twofold increase in the occurrence of erectile dysfunction. Therefore, it is advisable and promoted to urge patients to engage in sexual activity [47]. The antioxidant supplement enhances nitric oxide generation, diminishes nitrogen oxide breakdown, and mitigates insulin resistance. Antioxidants are advised for the treatment of erectile dysfunction [48]. Testosterone, by enhancing the synthesis of nitric oxide, boosting sexual desire, reducing insulin resistance, and improving the response to PDE-5 inhibitors, might be employed as a therapeutic option for erectile dysfunction, taking into account its advantages and potential risks. PDE-5 inhibitors, such as sildenafil and tadalafil, elevate cGMP levels, diminish oxidative stress, and enhance the frequency of sexual intercourse. They have been used in the medical management of erectile dysfunction [44, 49] (Figure 1).

Conclusion

The anticipated worldwide changes in population distribution, characterized by a significant increase in older individuals, require a proactive approach to reevaluating healthcare priorities. Given men’s tendency to avoid seeking healthcare and delay medical aid, it is crucial to use a multidisciplinary strategy. This article proposes a paradigm shift in healthcare strategies to address the challenges an aging population poses. It emphasizes the importance of raising awareness, intervening early, and adopting a multidisciplinary approach. To improve the well-being and quality of life for aging men, it is important to address their health holistically, considering not only their physical but also their mental and social aspects.
It is essential to narrow the disparity in healthcare accessibility, diminish the stigmas associated with men's health issues, and foster transparent communication. The comprehensive strategy promotes resilience, mental well-being, and overall contentment among older men, thus contributing to a better and fairer future.

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