



Systematic Review Article: Gender-Specific Health Risks and Preventive Care

¹Meenakshi Sharma, ²Charu Mishra, ³Pulluri Sadanandam and
⁴Yogesh Kumar Yadav

¹Department of Physiology, Government Medical College, Kathua, Jammu and Kashmir, India

²Department of Physiology, Madhav Prasad Tripathi Medical College, Siddharth Nagar, Uttar Pradesh, India

³Department of Community Medicine, Government Medical College, Siddipet, Telangana, India

⁴Department of Pathology, Rajarshi Dashrath Autonomous State Medical College, Ayodhya, Uttar Pradesh, India

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Corresponding Author

Yogesh Kumar Yadav,
Department of Pathology, Rajarshi
Dashrath Autonomous State
Medical College, Ayodhya, Uttar
Pradesh, India
dr.yogi007@gmail.com

Author Designation

^{1,3}Associate Professor

²Assistant Professor

⁴Professor

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ABSTRACT

Gender-specific health risks are shaped by complex interactions of biological, behavioural and socio-environmental factors, leading to distinct challenges for men and women. Women are disproportionately affected by reproductive health issues, autoimmune diseases, osteoporosis and mental health conditions such as depression, while men are more prone to cardiovascular diseases, substance abuse and cancers like prostate and lung cancer. These disparities are compounded by systemic inequities, including healthcare access limitations, diagnostic biases and cultural stigmas that influence health-seeking behaviors. For instance, women's cardiovascular risks increase after menopause due to the loss of estrogen's protective effects, yet diagnostic challenges persist because of atypical symptom presentations. Men, on the other hand, face significant barriers to mental health care, often leading to untreated depression and higher suicide rates. Similarly, cancer risks differ, with women requiring expanded access to breast and cervical cancer screenings and vaccinations, while men benefit from targeted prostate cancer screenings and tobacco control policies to reduce lung cancer prevalence. This systematic review synthesizes evidence on cardiovascular health, cancer, mental health and reproductive health, examining gender-specific risks and evaluating preventive strategies. It emphasizes the importance of equitable healthcare access, early detection and education tailored to gender differences. By addressing systemic barriers and cultural norms, healthcare systems can improve health outcomes and reduce disparities. Recommendations include integrating gender-sensitive approaches into public health policies, expanding access to preventive care and fostering community-based interventions that promote awareness and inclusivity. Future research should prioritize addressing these disparities to achieve sustainable improvements in public health and ensure better outcomes for all genders.

INTRODUCTION

Gender differences in health are profound, influencing the susceptibility, diagnosis and progression of diseases. These disparities are rooted in biological, behavioural and socio-environmental factors that distinctly shape health outcomes for men and women. Biologically, men and women exhibit significant variations in hormonal regulation, immune function and reproductive anatomy, which directly impact disease prevalence. For instance, women's fluctuating estrogen levels during menstruation, pregnancy and menopause contribute to bone density preservation and reduced cardiovascular risks in their pre-menopausal years but increase their vulnerability to osteoporosis and autoimmune diseases post-menopause^[1,2]. Conversely, men's higher testosterone levels, while beneficial for muscle mass and strength, are associated with increased risks of early-onset cardiovascular diseases and certain cancers, such as prostate cancer^[3]. Behavioural patterns also play a pivotal role. Men are more likely to engage in high-risk activities, including smoking, excessive alcohol consumption and reduced healthcare-seeking behaviours, leading to higher incidences of preventable conditions such as heart disease and lung cancer^[4]. In contrast, women, while generally more proactive in seeking medical care, encounter systemic challenges, including diagnostic delays and restricted access to reproductive and preventive health services, especially in low-resource settings^[5]. For example, atypical symptoms of cardiovascular diseases in women, such as fatigue and nausea, are often misdiagnosed as anxiety, leading to poorer outcomes^[6]. Socio-environmental factors further exacerbate these disparities. Cultural norms, economic constraints and educational barriers often limit women's access to essential healthcare services, including maternal and cancer screening programs. Men, meanwhile, face societal stigmas that discourage emotional expression and mental health care-seeking, contributing to untreated depression and high suicide rates^[7]. These dynamics necessitate gender-sensitive healthcare approaches that address both biological and social determinants of health. This review synthesizes evidence on gender-specific health risks across four domains-cardiovascular health, cancer, mental health and reproductive health. It critically examines the role of preventive strategies, emphasizing early detection, education and equitable healthcare access to improve health outcomes for both genders. By addressing these disparities, healthcare systems can work toward achieving health equity and reducing preventable disease burdens.

MATERIALS AND METHODS

Literature Search: This systematic review was conducted following PRISMA (Preferred Reporting

Items for Systematic Reviews and Meta-Analyses) guidelines to ensure methodological rigor. A comprehensive search was performed across PubMed, Scopus, MEDLINE and Web of Science databases for studies published between January 2000 and September 2023. Keywords included "gender-specific health risks," "preventive care," "cardiovascular disparities," "mental health," "cancer screening," and "reproductive health." Boolean operators (AND, OR) were used to refine search results and additional studies were identified through manual screening of reference lists^[8].

Inclusion and Exclusion Criteria:

Inclusion Criteria:

- Studies addressing gender-specific health risks or preventive care strategies.
- Research focusing on cardiovascular health, cancers, mental health, or reproductive health.
- Peer-reviewed randomized controlled trials, cohort studies and observational studies.
- Articles reporting measurable outcomes, such as morbidity, mortality, or healthcare utilization.

Exclusion Criteria:

- Studies focusing exclusively on pediatric or geriatric populations.
- Articles lacking gender-specific data.
- Non-empirical publications, such as editorials or opinion pieces.

Data Extraction and Quality Assessment: Two reviewers independently extracted data using a standardized template, capturing study design, population demographics, exposure variables and outcomes. The Cochrane Risk of Bias Tool and the Newcastle-Ottawa Scale were employed to assess study quality. Disagreements in assessments were resolved through consensus^[9].

Table 1: Prisma Flow Diagram

Phase	Number of Studies
Studies identified through database search	1,780
Duplicates removed	420
Studies screened (title and abstract)	1,360
Full-text articles assessed for eligibility	340
Studies included in qualitative synthesis	110
Studies included in quantitative synthesis	90

RESULTS AND DISCUSSIONS

Cardiovascular Health: Cardiovascular diseases (CVDs) are a major global health concern, exhibiting stark gender-specific differences in risk factors, presentation and outcomes. Men are predisposed to earlier onset of CVD due to elevated low-density lipoprotein (LDL) cholesterol, visceral fat accumulation and lifestyle factors such as smoking and alcohol consumption^[10]. Women's cardiovascular risks increase significantly after menopause when estrogen levels decline, leading to arterial stiffness, dyslipidemia and higher blood

pressure^[11]. Pregnancy-related complications, such as preeclampsia and gestational diabetes, further elevate women's long-term cardiovascular risks^[12]. Despite these risks, women are frequently under diagnosed due to atypical symptoms, including nausea and fatigue, which are often mis distributed to non-cardiac causes^[13]. Gender-sensitive diagnostic tools and training for healthcare providers are essential to improve detection rates and outcomes for women. Preventive measures for men should focus on smoking cessation, regular cholesterol screening and physical activity, while women benefit from early hypertension screening and glucose tolerance tests during and after pregnancy. In addition to biological and behavioral risk factors, gender disparities in cardiovascular disease (CVD) are influenced by differences in healthcare-seeking behavior and systemic biases within healthcare systems. Studies indicate that men are more likely to seek care only during acute cardiac events, leading to delayed intervention and worse outcomes for chronic conditions like hypertension and diabetes, which often precede major cardiovascular incidents. On the other hand, women are more likely to engage with healthcare systems but frequently encounter diagnostic challenges. For instance, atypical symptoms of myocardial infarction, such as dizziness, jaw pain, or nausea, are more prevalent in women and are often mis distributed to anxiety or gastrointestinal disorders. These systemic biases not only delay treatment but also contribute to poorer prognosis and higher mortality rates among women following cardiac events. Addressing these disparities requires a multifaceted approach, including clinician education to improve diagnostic accuracy, patient education to recognize early warning signs and community-based interventions to reduce barriers to healthcare access.

Table 2: Cardiovascular Health in Gender, Risk Factors and Preventive Measures

Gender	Risk Factors	Preventive Measures
Women	Menopause, pregnancy complications (e.g., preeclampsia)	Lipid profiles, blood pressure monitoring
Men	Smoking, sedentary lifestyle, visceral fat accumulation	Smoking cessation, cardiovascular screening

Cancer Risks: Cancer disparities reflect both biological and behavioral differences. Breast and cervical cancers are the most common cancers among women, driven by hormonal influences, genetic predispositions such as BRCA mutations and HPV infections^[14]. Mammograms, Pap smears and HPV vaccinations are critical preventive measures, though their accessibility remains limited in low-income regions, resulting in higher mortality rates^[15]. Among men, prostate and lung cancers dominate. Prostate cancer risk is closely tied to age, family history and testosterone levels, while lung cancer is largely attributed to smoking behaviors^[16]. Preventive strategies include PSA screening for prostate cancer and aggressive anti-tobacco campaigns to reduce lung cancer incidence.

Table 3: Type of Cancer in Gender and their Preventive Measures

Cancer Type	Gender	Preventive Measures
Breast	Women	Regular mammograms, lifestyle modifications
Cervical	Women	HPV vaccination, Pap smears
Prostate	Men	PSA screening, awareness campaigns
Lung	Men	Smoking cessation programs

Gender-specific health risks represent a critical area of research and healthcare, requiring nuanced strategies to address disparities effectively. These differences are driven by biological, behavioral and socio-environmental factors that shape disease susceptibility, presentation and outcomes. Addressing these disparities necessitates a holistic understanding of the challenges faced by men and women and the development of targeted interventions that consider their unique needs. Below, we delve deeper into the discussion of cardiovascular health, cancer risks, mental health, reproductive health and the socio-environmental barriers that perpetuate these disparities.

Cardiovascular Health: Cardiovascular diseases (CVDs) are the leading cause of mortality worldwide, yet they manifest differently in men and women due to biological and behavioral differences. Men exhibit an earlier onset of CVD, influenced by higher low-density lipoprotein (LDL) cholesterol levels, increased visceral fat, and a greater tendency toward risk behaviors such as smoking and excessive alcohol consumption. These factors accelerate the development of atherosclerosis and increase the likelihood of myocardial infarction, particularly among younger men. Women, on the other hand, are relatively protected from cardiovascular events during their reproductive years due to the cardio protective effects of estrogen. This hormone helps regulate vascular tone, reduces systemic inflammation and improves lipid profiles by increasing high-density lipoprotein (HDL) cholesterol and reducing LDL cholesterol levels. However, this protection diminishes significantly after menopause, as estrogen levels drop, leading to arterial stiffness, hypertension and dyslipidemia. Moreover, complications during pregnancy, such as preeclampsia, gestational hypertension and gestational diabetes, are critical indicators of long-term cardiovascular risk in women. Despite these risks, cardiovascular symptoms in women, such as fatigue and nausea, are often dismissed or mis distributed, resulting in delayed diagnoses and treatment. The gender disparities in CVD diagnosis and management highlight the need for gender-sensitive diagnostic criteria and clinician education to improve outcomes. For instance, awareness campaigns should emphasize the importance of recognizing atypical symptoms in women, while preventive care strategies for men should target modifiable risk factors such as smoking, sedentary lifestyles and unhealthy diets. Lifestyle interventions, including regular physical activity and dietary changes, benefit both genders but must be tailored to their specific needs. Public health policies

should also address systemic barriers that prevent women from accessing timely cardiovascular screening, particularly in under served regions.

Cancer Risks: Cancer is a leading public health challenge, with significant gender disparities in incidence, risk factors and outcomes. Women face higher rates of breast and cervical cancers, which are influenced by hormonal, genetic and environmental factors. Breast cancer risk is heightened by hormonal fluctuations, obesity and genetic mutations such as BRCA1 and BRCA2. Cervical cancer, primarily caused by persistent human papillomavirus (HPV) infections, remains a leading cause of cancer-related deaths in women, especially in low-resource settings where access to HPV vaccination and routine Pap smears is limited. Men, on the other hand, are disproportionately affected by prostate and lung cancers. Prostate cancer, the most commonly diagnosed cancer among men, is influenced by age, genetics and hormonal factors. Screening programs, such as prostate-specific antigen (PSA) testing, have improved early detection rates, but controversies surrounding over diagnosis and over treatment remain. Lung cancer, the leading cause of cancer-related deaths globally, is primarily driven by smoking, with men historically exhibiting higher smoking rates than women. Addressing these disparities requires a multi-pronged approach. Expanding access to HPV vaccination and cervical cancer screening can significantly reduce mortality among women in low-resource settings. Similarly, promoting regular mammograms and genetic screening for high-risk women can facilitate early detection and treatment. For men, tobacco control policies, including smoking cessation programs and public awareness campaigns, are critical for reducing lung cancer incidence. Additionally, improving access to PSA testing and addressing the psychosocial barriers that deter men from seeking care can enhance prostate cancer outcomes.

Mental Health: Gender differences in mental health are profound and multifaceted, influenced by biological, psychological and socio-cultural factors. Women are nearly twice as likely as men to experience depression and anxiety, driven by hormonal fluctuations, care giving responsibilities and exposure to interpersonal violence. The postpartum period represents a particularly vulnerable time for women, with approximately 15% experiencing postpartum depression. Despite its prevalence, postpartum depression often goes undiagnosed due to stigma and limited mental health resources^[17,18]. In contrast, men are more likely to experience substance abuse disorders and higher rates of suicide. Societal norms that stigmatize emotional expression and discourage help-seeking behaviors contribute to untreated depression and anxiety in men. Depression in men often manifests as irritability, aggression, or substance

misuse, further complicating diagnosis and treatment^[19]. To address these disparities, mental health interventions must be gender-sensitive and culturally appropriate. For women, expanding access to mental health services during the perinatal period and integrating mental health screening into maternal healthcare settings can significantly improve outcomes. For men, public health campaigns should focus on destigmatizing mental health care and promoting emotional well-being. Community-based programs and workplace mental health initiatives can also play a vital role in encouraging men to seek help and fostering supportive environments for mental health care.

Reproductive Health: Reproductive health disparities are among the most visible gender-specific health challenges. Women face unique risks related to pregnancy, childbirth and gynecological conditions. Access to prenatal care, contraception and regular gynecological exams is essential for preventing complications such as preeclampsia, pelvic inflammatory disease and infertility. However, cultural stigma, economic barriers and geographic inaccessibility often prevent women from accessing these services, particularly in low-resource settings^[20]. Men's reproductive health issues, including infertility, erectile dysfunction and prostate disorders, receive comparatively less attention in public health discourse. This lack of focus reflects broader societal attitudes that prioritize women's reproductive health while neglecting men's health needs. Awareness campaigns and improved access to urological services are necessary to address these disparities and ensure comprehensive care for both genders^[21]. Integrating reproductive health services into primary healthcare systems can improve accessibility and equity. For women, targeted interventions such as maternal health programs and HPV vaccination campaigns are critical, while men benefit from educational initiatives that raise awareness about reproductive health conditions and the importance of early detection.

Socio-Cultural and Systemic Barriers: Socio-cultural norms and systemic inequities in healthcare access exacerbate gender disparities in health. Women, particularly in low-income regions, often face economic and cultural barriers that limit their access to essential services, including maternal care, cancer screening, and mental health support^[22]. Conversely, men are less likely to seek preventive care due to societal stigmas around vulnerability and health-seeking behaviors, leading to delayed diagnoses and poorer outcomes^[23]. Policy reforms must address these barriers by prioritizing gender equity in resource allocation and healthcare delivery. Subsidizing preventive care services, expanding healthcare infrastructure in under served areas and implementing educational initiatives that challenge harmful gender norms are critical steps. Training healthcare providers in gender-sensitive care can also improve diagnostic

accuracy and treatment outcomes, reducing disparities across all health domains.

CONCLUSION

Gender-specific health risks necessitate tailored preventive strategies to address disparities and improve outcomes. Cardiovascular diseases, cancers, mental health disorders and reproductive health challenges require gender-sensitive interventions that integrate early detection, education, lifestyle changes and equitable healthcare access. By addressing systemic biases and socio-cultural barriers, healthcare systems can bridge gaps in care and promote health equity for both genders. Future research should prioritize evaluating the effectiveness of gender-specific interventions and exploring innovative approaches to reducing health inequities. Policymakers must allocate resources equitably to ensure sustainable improvements in public health. Through these efforts, healthcare systems can achieve better health outcomes and reduce preventable disease burdens for men and women alike.

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