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Empowering Women's Health: A Comprehensive Review of Reproductive, Maternal and Preventive Care Strategies

Melna Mathew[1], Saima Arshad[2], Jameela Ezzi[3], Saja Abazeed[4], Dyuti Banerjee[5], Abeer Alatawi[6] and Sarath Vayolipoyil[7]*

[1]Department of Internal Medicine, York and Scarborough Teaching Hospitals NHS Foundation, UK

[2]Department of Public Health, The Islamia University of Bahawalpur, Bahawalpur, Pakistan

[3]Department of Physiotherapy, Dubai homeopathy health center, Jumeirah, United Arab Emirates

[4]Department of Physiotherapy, Aqaba University of Technology, Aqaba, Jordan

[5]Department of Artificial Intelligence and Data Science Department, KL University, Vijayawada, India

[6]Department of Pediatrics, University of Tabuk, Tabuk, Saudi Arabia

[7]Department of Internal Medicine, Government Medical College Manjeri, kerala, India

ABSTRACT

Women's health includes biological, social, and gender-based factors, as well as clinical medicine. The complicated interrelationships of biological, social, and gender-based factors and clinical medicine have an effect on reproductive rights, prevention care, and access to care. Even as progress continues with maternal health care, contraceptive technologies, and disease prevention, there are still disparities, especially in low-income areas of the world where access to essential reproductive health care is limited, and where maternal mortality still does not reach the levels of minimal. Global health priorities shift as non-communicable diseases (NCDs), including breast cancer and cardiovascular diseases (CVD), have climbed to the forefront of global public health. Prevention care using early interventions, vaccinations, and periodic screening can help burden reduction. However, there are barriers to women's access to health care and prevention care such as institutional injustices, cultural barriers, and resource burdens, in particular for racial and ethnic minorities. Even as these benefits are unshared equitably, advancing technology in digital health, telemedicine, and assisted reproductive technologies (ART) provide opportunities to help bridge gaps. This review presents the successes, issues, and direction of maternal, reproductive and preventive healthcare programs. The analysis of the interaction between access to healthcare, gender inequalities, and policy responses highlights the need for interdisciplinary approaches to implement equitable, gender-responsive healthcare interventions worldwide.

***Corresponding author**

Sarath vayolipoyil, Department of Internal Medicine, Government Medical College Manjeri, kerala, India.

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Background

Women's health is a complex field that transcends the medical and surgical domains to incorporate a vast array of biological, social, psychological, and gender factors. Clinical specialties like obstetrics and gynecology have an important part to play, but the overall context of women's health also includes genetics, epidemiology, molecular biology, and health services [1]. In addition, social factors, gender roles, and economic status greatly determine women's access to and experience within healthcare systems. To improve the healthcare of women and the quality of life overall, policymakers and healthcare providers must consider these myriad factors in their practice of healthcare management [2].

One of the most important elements of enhancing women's health is gender mainstreaming, which incorporates gender considerations into policy-making to provide equal access to healthcare services. Women have traditionally been the driving force behind gender equality legislation, and as a result, there has been considerable advancement in most areas [3]. Nonetheless, disparities persist, and even though gender equality has positively impacted health status in the majority of the world, nations like the UK and Norway have experienced different trends based on dissimilar sociopolitical dynamics [4]. Empowering women not only enhances their health but also increases their economic productivity and societal contributions.

There should also be a clear distinction between gender and sex, as the latter two terms although frequently used interchangeably refer to different ideas. Sex is biological categorization based on

physical distinctions between males and females, whereas gender includes socially constructed roles, behaviors, and expectations [5]. Both contribute towards differences in health outcomes. For example, physiological differences based on sex affect the manifestation of diseases like cardiovascular diseases (CVD), while gender affects health behaviors, risk factors, and healthcare service access. Resolution of biological and social determinants is necessary in narrowing such healthcare gaps [6].

Despite considerable advances in women's health in the last few decades, there are still plenty of challenges to overcome. Life expectancy has risen by over a decade, and birth rates have dropped in both the developing and developed world, decreasing the incidence of childbirth and childbearing [7]. Maternal mortality, though, is still rampant—99% of pregnancy-associated deaths happen in the developing world, with more than half a million deaths each year due to preventable factors. Furthermore, the HIV/AIDS pandemic has a disproportionate impact on women, with adolescent women between 15–24 years forming a large proportion of worldwide cases. These inequalities highlight the urgent need for enhanced reproductive healthcare, education, and policy measures [8].

Demographic transitions further influence the future of women's healthcare. As per UN estimates, there were 985 million women over the age of 50 years in 2020, and this is estimated to increase to 1.65 billion by 2050 [9]. With increasing life expectancy worldwide, the incidence of non-communicable diseases (NCDs) among women, including CVD, diabetes, and cancer, has also increased, and global health priorities have been shifted. The shift from maternal health issues and infectious diseases to the management of chronic diseases demands a holistic, preventive strategy specific to women's health needs [10].

In addition, health disparities still disproportionately impact racial and ethnic minority women, especially in the United States. There are reports of persistent racial and ethnic health disparities in maternal morbidity and mortality, reproductive cancers, preterm birth, Human Papillomavirus (HPV) vaccination, and access to contraception [11]. Maternal and child health programs have historically conceptualized women's health mainly within the framework of reproductive function, as opposed to women's health as a separate priority. To develop a fairer healthcare system, there is an urgent need for gender-inclusive policies, focused interventions, and research that is gender-sensitive [12].

A complex combination of medical, social, economic, and political variables influences the state of women's health today. These challenges need to be addressed through a multidisciplinary strategy that integrates preventive care, equal access to healthcare, policy-based interventions, and gender-sensitive research. The present review attempts to discuss important features of women's health, such as reproductive, maternal, and preventive care, and discuss the current challenges, developments, and directions needed to empower women's health worldwide.

Review

Reproductive Health and Family Planning (FP)

Reproductive health is critical to enable proper human development and overall well-being. It acts as a key educational element, especially for adolescents, and provides a basis for both men and women to continue their health into adulthood and later in life beyond reproductive age [13]. Reproduction is not confined to the onset of puberty or the end of menopause for women, nor is it limited to a man's ability to father children. Instead, it encompasses an individual's entire life cycle, which remains crucial at the different stages of growth and maturation [14]. Appropriate general health is contingent on a safe reproductive system, procedures, and functions. Nonetheless, an individual's capacity to preserve reproductive health may be threatened by various internal and environmental factors [15]. Reproductive health status can be determined by events and exposure from the time of prenatal development to the last stages of life. A person's reproductive health is directly influenced by numerous factors [16].

The World Health Organization (WHO) conceptualizes reproductive health as encompassing complete physical, mental, and social well-being in relation to the reproductive system—beyond just the absence of illness or disability. It encompasses the proper functioning of reproductive systems, processes, and functions throughout the entire life span. According to this theory, people can imitate, have fulfilling and safe sexual lives, and choose when and how often to have sex [17]. Despite their critical importance, women of reproductive age have limited access to reproductive and sexual health care services [18]. FP is one of these services, and one of the main causes of maternal death is unintended pregnancy, which is caused by either not utilizing FP at all or not using it frequently or correctly [19]. Unwanted pregnancy is a major public health concern worldwide that affects nearly every aspect of life. Infertility, induced abortion, parental stress, adverse physical, mental, social, and economic outcomes, and mother and infant death are all associated with infertility [20,21].

Evidence now available indicates that short birth spacing increases the risk of morbidity and mortality in mothers, newborns, and previous children [22]. According to data from 17 developing nations, postpartum women have the highest unmet requirements for contemporary contraceptive methods in any group of women, and in some Sub Saharan Africa (SSA) countries, the unmet demand for PPFP has reached 75% [23,24]. This is probably related to the national FP programs' disregard for PPFP demands and the absence of FP counselling during the prenatal and postnatal phases [25,26]. In 2012, 222 million women in underdeveloped nations were projected to lack access to FP [27]. Modelling suggests that satisfying unmet contraceptive demand in developing regions could avert tens of millions of unintended pregnancies—roughly 52 million globally—and prevent 14 million unsafe abortions and 150,000 maternal deaths annually. Access to family planning could also reduce neonatal mortality by up to 44% and prevent one-third of pregnancy-related deaths [28].

As a vital part of healthcare, contraception enhances well-being, guards against several harmful illnesses, avoids unintended pregnancies, enables women to realize their full potential, and benefits families, communities, and society (Figure 1). The use of contraceptives has made a significant contribution to the advancement of women in society by allowing an increasing number to enroll in college, work for advanced professional degrees, and enter paid jobs [29]. The Affordable Care Act's (ACA) requirement for contraception was made possible by the 2011 recommendation of contraception as a critical preventive health service by the National Academy of Medicine (previously the Institute of Medicine). The latter mandated that insurance companies should provide cost-free coverage for FDA-approved contraceptives [30].

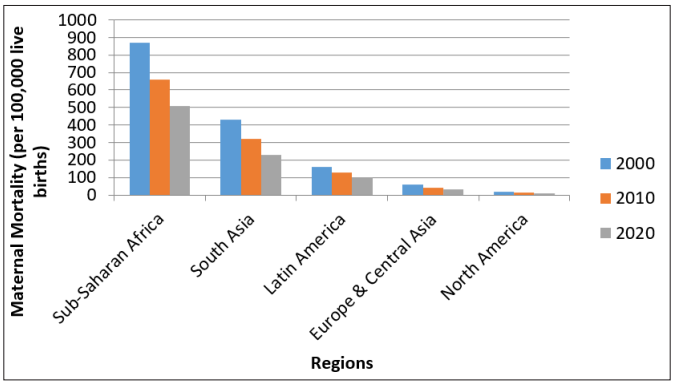

Figure 1: Trends in Contraceptive Use Across Regions (2000-2020)

Another important element of reproductive services is infertility. According to estimates, 7.4% of American women and their spouses are infertile and up to 15% of people worldwide may be infertile, especially in developed countries [31,32]. Many health groups have made reducing the number of infertile individuals a primary objective. Lifestyle factors are ultimately within an individual's control and can be changed to improve their overall well-being. They can have a positive or negative impact on fertility and are essential for defining reproductive health [33]. The term " Assisted Reproductive Technology (ART)" refers to a sequence of carefully designed in vitro procedures called "ART cycles," which comprise laboratory sperm fertilization, ovarian stimulation, surgical egg removal from the ovary, and ultimately returning the embryo or embryos into the female reproductive system [34]. These include the use of donor oocytes or sperm, as well as gestational surrogacy when indicated. Depending on clinical circumstances, embryos may be transferred either in the same cycle (fresh transfer) or after cryopreservation in a later cycle (frozen transfer), with each approach offering distinct benefits based on patient profiles and treatment protocols [35,36].

Regarding maternal/neonatal outcomes, ART has an impact on the health of the mother as well as the fetus/newborn. ART raises the risk of placental issues such as abruption and third-trimester hemorrhage, pregnancy-related hypertensive disorders, premature birth, and the requirement for cesarean surgery from the perspective of the mother [37,38]. In cases of singleton pregnancies, there is a rise in perinatal mortality, low birth weight, being small for gestational age, premature birth, and stillbirth [39]. As previously noted, it is essential to recognize that other factors, such as pre-existing infertility and various biological issues, ovarian stimulation with excessive levels of estradiol, and ART procedures, may also elevate this risk [40].

Significant strides in ART have markedly improved in vitro fertilization (IVF) outcomes over the past few decades. Enhancements in ovarian stimulation—particularly the adoption of recombinant gonadotropins and the use of GnRH agonists and antagonists—have enabled more precise control of ovulation and follicle development, thereby increasing oocyte yield and reducing cycle cancellations [41]. Meanwhile, micromanipulation innovations within embryology laboratories have facilitated the integration of preimplantation genetic diagnosis, allowing the selection of embryos free from specific genetic abnormalities and improving implantation success. Concurrently, advancements in culture methods supporting embryo growth to the blastocyst stage have further enhanced implantation rates and allowed the benefits of elective single embryo transfers, lowering the risk of multiple pregnancies [20]. The overall success rates of IVF and the rates of multiple pregnancies may be further affected in the future by blastocyst transfer. Since the first successful IVF pregnancy, ART have advanced significantly. As efforts to assist couples in conceiving healthy children continue, future advances are anticipated to be significant [20]. Recent and other breakthroughs in the rapidly evolving area of ART have brought optimism to individuals aiming to conceive but facing the risk of monogenic disorders, as well as to those experiencing the medical, emotional, and financial challenges of infertility [42]. By 2020, ART had contributed to the birth of approximately 8 million children [43]. In summary, the outcomes of the carefully planned short- and long-term outcome studies that have been completed thus far indicate that ART is a reasonably safe therapy that provides many parents who want a healthy child.

Maternal Health and Safe Motherhood

Between 2000 and 2023, global maternal mortality decreased by approximately 40%, dropping from around 328 deaths per 100,000 live births to an estimated 197 per 100,000 [44]. In 2023, approximately 260,000 women—equivalent to over 700 deaths per day—lost their lives due to pregnancy-related causes. In that same year, approximately 70% of maternal deaths occurred in SSA, while 94% were concentrated in low resource settings (Figure 2) [44]. These figures highlight considerable improvements since 2000, yet they also signal an urgent need for targeted investments and health system enhancement—especially in regions bearing the highest burden. In addition to being a worldwide tragedy, the avoidable deaths of nearly 3 million women between 2010 and 2020 also serve as a stark reminder of the severe health disparities that exist both within and across nations and as a blatant violation of human rights [45].

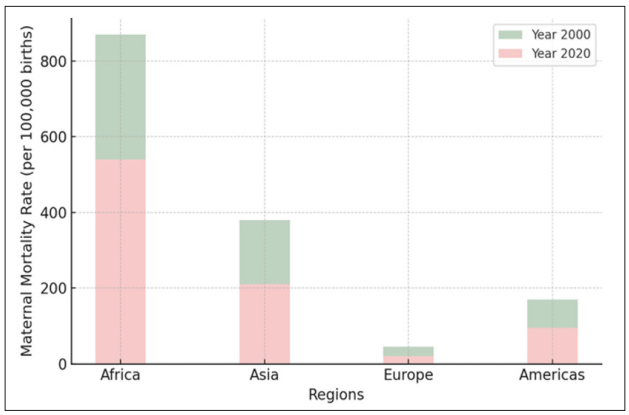

Figure 2: Comparison of Maternal Mortality Ratio in Year 2000 and 2020

Over the past decade, global efforts to enhance human resources within National Maternal and Neonatal Child Health (MNCH) programs have intensified, primarily by increasing the numbers of healthcare providers and elevating service quality [46]. Despite these efforts, in 53 of the 68 global priority countries, the density of skilled providers remains below the indicative minimum of roughly 23 per 10,000 population — a threshold commonly associated with effective MNCH care delivery [47,48]. Interventions known to enhance the health of mothers and newborns vary greatly in quality and scope. For example, only 30% of babies receive a postnatal (PNC) visit, but 90% of women have at least one prenatal visit [49]. The most frequent obstacle to providing high-quality emergency obstetric care is the lack of staff [50].

Antenatal care (ANC) is the care that pregnant women receive to ensure a safe pregnancy and a healthy unborn child [51]. Because it is possible to identify risk factors and diagnose pregnancy difficulties such as preterm delivery early and treat them appropriately, the provision of ANC services has a positive effect on pregnancy [52]. Screening for pregnancy complications, assessing risks during pregnancy, managing prenatal complications, prescribing medications to improve pregnancy outcomes, counselling the pregnant woman, and preparing physically and mentally for giving birth and parenting may be beneficial [53]. Significant regional and national disparities in the use of ANC services have been discovered in a global ANC study, particularly in Asia and Africa [54]. To enhance the health of mothers and newborns, the WHO published revised guidelines for regular ANC in the continuum of care in 2016 [55]. It emphasizes the importance of having a trained birth attendant equipped with the necessary tools and support during labor and delivery. During pregnancy, a minimum of eight antenatal checkups is recommended to monitor maternal and fetal health, identify complications early, and provide timely interventions. Following delivery, women should receive structured PNC—ideally within the first six weeks and across multiple follow-up visits—to address both physical and emotional recovery [56,57]. In addition, moderate physical activity (MPA) is encouraged throughout pregnancy, provided there are no contraindications, with daily movement helping to support overall health and reduce common pregnancy-related discomforts [58]. In 2008, the inaugural physical activity guidelines for Americans advised 150 minutes of MPA per week (spread across the week) during pregnancy, including recommendations for healthy pregnant women [59]. MPA during pregnancy including general aerobic activities such as walking, cycling, and swimming exercises, lumbar stabilization, stretching exercises, muscle strengthening or resistance training as well as pelvic floor exercises [60].

PNC plays a critical role in safeguarding the health of both mothers and their infants, forming a vital link in the continuum of reproductive and child health services [56]. However, many women and newborns do not receive timely or adequate care during this vulnerable phase. Alarmingly, a substantial proportion of maternal deaths and neonatal fatalities occur after childbirth, with newborn mortality remaining particularly high in the first 28 days of life [61]. In infants under five, neonatal fatalities can make up as much as 52 percent of all deaths [62]. Most maternal and newborn deaths can be prevented and treated with prompt identification and high-quality care [63]. PNC is a collection of medical services intended to improve the health of expectant mothers and their babies. It covers risk assessment, prevention, health promotion, management, and referral for difficulties. In addition to improving clinical treatment and mortality, PNC also has an impact on the satisfaction and experience of healthcare users. In the event of an uncomplicated birth, it is advised that women who give birth in a medical facility with a trained attendant stay there for at least 24 hours and receive PNC immediately [64]. It is crucial to support lifelong healthy habits by starting or continuing exercise after childbirth. When medically safe, exercise regimens can be progressively restarted following pregnancy. This depends on whether the baby was delivered vaginally or via cesarean section as well as whether there were any medical or surgical issues [60]. PNC exercise includes general aerobic activities such as walking, cycling, and swimming exercises, lumbar stabilization, stretching exercises, muscle strengthening or resistance training as well as pelvic floor exercises [65]. By knowing the needs and experiences of women and their families, PNC usage may be improved, and good experiences can be achieved (Figure 3) [66].

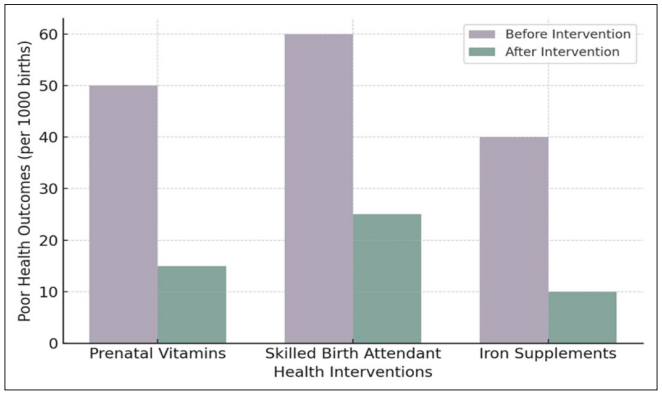

Figure 3: Effectiveness of Key Women's Health Interventions

Another component of maternal healthcare is preterm delivery. The identification of pregnant women at risk for spontaneous preterm delivery has progressed into two categories: those who are asymptomatic during prenatal visits and those who exhibit symptoms such as significant pain or bleeding. In line with NICE guideline NG25, women presenting with both a history of spontaneous preterm birth or late pregnancy loss and a short cervical length (≤ 25 mm at 16+0 to 24+0 weeks) should receive a choice of prophylactic vaginal progesterone or cervical cerclage, with the decision made through shared discussion of risks and benefits [67]. NICE further recommends considering vaginal progesterone for women who meet only one risk criterion—either a prior preterm birth or a cervical length < 25 mm [67]. Care and the colleagues proposed that the new gold-standard comparator is vaginal progesterone. Future trials should demonstrate that any alternative treatment or combination is more cost-effective and at least as safe as current options [68].

Gynecological Health and Preventive Care Strategy

Gynecology is the study of the female reproductive system, which includes the vagina, ovaries, fallopian tubes, and uterus. Menstruation, gynecological disorders, preventive treatment, and STIs are just a few of the many topics covered by this medical specialty [69]. Reproductive tract infections (RTIs) are a major public health concern worldwide, with particularly high prevalence in low-income and resource-limited settings [70,71]. Although poor menstrual hygiene management is hypothesized to contribute to this burden—especially through practices like prolonged use of absorbent materials, infrequent changing, inadequate washing, and drying under unclean conditions—it remains challenging to isolate its specific impact. This is because many RTIs also stem from endogenous causes (e.g., bacterial vaginosis, candidiasis), medical procedures (iatrogenic), or sexually transmitted infections [72]. Menstruation is a normal and healthy monthly occurrence in premenopausal adult women and healthy teenage girls. Owing to its importance in determining human reproduction and parenthood, it affects both men and women. While menarche varies by region, race, ethnicity, and other circumstances, it "normally" happens between the ages of 8 and 16 in low-income situations, with a median of roughly 13 [73,74]. The average age at which women typically experience menopause is around 50 years [75]. Menstruation and how it is managed have profound social and cultural impacts globally, influencing the lives of women and girls. In some societies, the beginning of menstruation signifies a girl's readiness for childbearing and makes her eligible for marriage [76,77]. The sexual and often negative connotations associated with menstruation render it a topic that girls find difficult to discuss, even with their mothers. Although it is becoming

increasingly popular among public health organizations, research on menstruation and hygiene behaviors has been overlooked [72].

Worldwide, women are affected by a wide spectrum of gynecological disorders, which include benign conditions such as polycystic ovary syndrome (PCOS), endometriosis, and uterine fibroids (UFs), as well as various types of gynecological cancers. These conditions are major causes of morbidity because they can result in painful heavy periods, crippling pelvic discomfort, prolonged anovulation, hyperandrogenism, infertility, and even mortality [78]. Despite their differences, these disorders have one thing in common: they do not have a cure that would allow the retention of healthy reproductive organs. Most drugs have unfavorable side effects, interfere with pregnancy, are only momentarily helpful, and increase the chance of disease return when stopped [79,80]. Understanding the pathophysiology of these conditions and identifying any associated risk factors is crucial to mitigating and, when possible, reversing their adverse health impacts [78].

PCOS is a complicated and prevalent hormonal disorder that can affect fertility in women of reproductive age. It is typified by small ovarian cysts in one or both ovaries, ovulatory failure, and recurrent anovulation [81]. This disorder affects about 6.5% of women aged 18 to 44, making it one of the most prevalent conditions among women of reproductive age. Evidence suggests that environmental variables such as dietary and lifestyle choices can help prevent and cure PCOS, even if the exact etiology of the condition is still unknown. Taking these aspects into account could suggest novel treatment approaches for PCOS patients [82]. Dietary interventions are among the most commonly used approaches to manage PCOS, aiming to improve insulin sensitivity and reproductive function. Given the link between PCOS, obesity, and insulin resistance, even a modest weight loss of approximately 5% to 10% can enhance reproductive outcomes. Losing weight, eating fewer high-glycemic and fatty acid-rich foods, and receiving adequate omega-3, vitamin D, and chromium could all help achieve this [83].

Another cause of gynecological morbidity in women of reproductive age is UFs, which are the most prevalent gynecological tumors [84]. In the United States, they are the primary cause of hysterectomies, accounting for over 170,000 procedures annually [85]. Despite being benign tumors, UFs can result in a wide range of symptoms and consequences such as infertility, irregular uterine bleeding, pelvic pain, and bladder dysfunction [86]. Although the exact pathophysiology of UFs remains unclear, several risk factors have been proposed in the literature, despite the considerable burden and cost associated with the condition [87]. These include elevated body mass index, early onset of menstruation, having no prior pregnancies (nulliparity), vitamin D deficiency, and African American ethnicity [88].

Pelvic pain and infertility are linked to endometriosis, a persistent condition characterized by the presence of endometrial-like tissue outside the uterus [89]. Because a clear diagnosis can only be made during laparoscopy, the prevalence statistics in the general population are unknown. However, according to estimates of the prevalence of symptoms in the population, endometriosis likely affects 10% of all women and 30%–50% of premenopausal women who have symptoms [90]. Globally, this number is approximately 176 million affected women [91]. One popular explanation for endometriosis is that "endometrial tissue refluxes into the pelvic cavity through the fallopian tubes" [92]. Endometriosis has a complicated and multidimensional etiology that includes hormonal, genetic, and immunologic mechanisms; smooth muscle contraction; inflammatory variables; and anatomical and environmental factors such as exercise and food [93]. Etiologically, these agents influence the extent of retrograde menstruation or an individual's ability to implant an endometriotic lesion. According to a scientific study, the risk of endometriosis may be increased by estrogen without progesterone [94]. Dietary habits have been shown to influence the risk and progression of endometriosis. Evidence suggests that high intake of red meat, trans fatty acids, and saturated fats like palmitic acid may contribute to the development of this condition. In contrast, a diet rich in plant-derived nutrients—such as dietary fiber, antioxidants, and vitamin D—has been linked to potential protective effects [95].

In countries with high socioeconomic development, gynecologic cancers constitute a leading cause of cancer-related mortality among women and are one of the most common neoplastic disorders in women. Endometrial carcinoma, cervical carcinoma, and ovarian carcinoma are the most common gynecological cancers. More than 600,000 new cases of cervical carcinoma and over 300,000 deaths have been reported worldwide, and over 300,000 new cases of ovarian carcinoma have been reported, with over 200,000 deaths [96]. A key component in lowering the risk of developing tumors in the female reproductive system is the prevention of gynecological malignancies. Given inadequate preventative measures for certain cancers, it is not always possible to stop the spread of malignant diseases [97].

It is reported that engaging in moderate physical activity and achieving a healthy body weight can help reduce the risk of developing endometrial cancer [98]. While obesity is recognized as a risk factor for various types of cancer, its association with endometrial cancer is particularly strong. MacKintosh and Crosbie observed a nonlinear, dose-dependent association between excess weight and the risk of endometrial cancer [99]. Although anti-obesity medications and lifestyle changes can reduce weight by 7–10% and 4–6% over two to four years, respectively, bariatric surgery is the only procedure that yields meaningful and, most importantly, long-lasting outcomes [100,101]. Women who undergo bariatric surgery have been demonstrated to have a lower risk of developing cancer, especially endometrial and postmenopausal breast malignancies [99].

Breast cancer is the most frequent cancer diagnosed worldwide, mainly in women, and it has surpassed lung cancer as the most common disease in 2021. Breast cancer screening is an efficient way to find the disease early and increase cancer patients' chances of survival [102]. Due to advancements in breast cancer screening, chemotherapy, and hormone therapy, the mortality rate of breast cancer has decreased by 43% since the 1990s [103]. Key guidelines advocate for shared decision-making for women aged 75 and above, particularly if their life expectancy is under 10 years, as it may take a decade for screening to affect survival rates. Some professional bodies recommend continuing screening for healthy women with a life expectancy exceeding 10 years, but they stress the importance of discussing the potential benefits and risks [104].

According to WHO estimates, cervical cancer contributed to 342,000 deaths globally in 2020, making it the fourth most frequent cancer in women. There are primary and secondary preventive strategies to prevent cervical cancer [105]. The HPV vaccine plays a key role in reducing the risk of cervical cancer by protecting against high-risk viral strains that can lead to precancerous changes.

Screening methods such as Pap smears and HPV DNA testing are widely used to identify cervical abnormalities before they progress [106]. In contrast, routine screening protocols for endometrial cancer are lacking. While lifestyle factors like a nutritious diet and regular physical activity may lower risk, diagnosis often depends on histological evaluation. Although research into molecular and serum biomarkers is ongoing, tissue analysis remains the most reliable method for confirming endometrial cancer. Similarly, ovarian cancer cannot be detected using screening tests. Despite recent advancements and emerging perspectives in this field, further investigation is needed to optimize the timing and duration of therapy, evaluate its cost-effectiveness, and uncover tumor-specific or host-related biological markers that could predict treatment response and associated adverse effects [107].

Future Directions

In the age of the digital revolution, the world is moving toward a more technologically advanced and linked style of living. The COVID-19 pandemic hastened this shift by forcing many companies to embrace digital technology and presenting new deployment and management issues for digital modalities [108]. The wide term "digital health," sometimes referred to as "electronic health" or "eHealth," encompasses a variety of information technology tools and practices used to manage patient health and advance well-being. The WHO defines digital health as the study and practice of developing and using digital technologies to improve health [109]. Women's involvement in clinical trials and more equitable access to care may be guaranteed through the use of digital devices and AI techniques [110]. Technology companies are beginning to see the value of integrating women, which has resulted in the creation of "femtech," or technology solutions tailored to women [111].

Telemedicine and telehealth (TM/TH) have become integral tools in modern gynecological care, offering a range of applications that span from remote imaging and virtual surgical assistance to routine preventive services. These include woman checkups, fertility consultations, family planning, preconception care, and even mental health support tailored to women's health needs [112]. The increasing reliability and reach of digital infrastructure have enabled TM/TH to bridge gaps in healthcare access, especially in underserved or remote areas, allowing clinicians to deliver timely, efficient, and personalized care without the constraints of physical distance [112]. Along with raising the standard of medical care, TM/TH aims to make it more convenient, effective, and less expensive. TM/TH can result in prompt and trustworthy decisions and is a cost-effective way to employ medical resources. TM/TH is no longer a medication for the future. Traditional in-person medicine inevitably incorporates contemporary medicine. Medical professionals have come to alter the way they treat their patients [113]. Undoubtedly, TM/TH is essential for well-woman care in gynecology. Despite the great potential of TM/TH, a few obstacles must be addressed. Before scaling up telemedicine in gynecology, key challenges must be addressed—such as limited physical interaction, risk of misdiagnosis, licensing restrictions, malpractice concerns, reimbursement issues, and data privacy [114]. Tackling these barriers is essential for safe and effective digital care delivery.

Conclusion

Women's health continues to be a complicated and dynamic issue influenced by social, economic, and healthcare inequalities, especially in the face of notable progress in maternal healthcare, reproductive rights, and preventative care. The necessity for ongoing efforts to eliminate current gaps is demonstrated by the continuance of high maternal death rates, obstacles to contraception, and restricted access to necessary screening. Furthermore, a move toward comprehensive, long-term healthcare solutions beyond reproductive years is required owing to the rising burden of mental health disorders and NCDs. ART, telemedicine, and digital health all present intriguing solutions, but their success hinges on their integration into healthcare systems and fair access. Eliminating gender-based inequities, investing in healthcare infrastructure, and implementing robust policy interventions are necessary to make significant progress. Societies may build a more sustainable and equitable healthcare system that empowers women and improves public health by prioritizing education, preventive care, and inclusive health policy.

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