

## Revolutionizing Women's Health: Role of AI Ghorpade Snehal

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### Abstract:

Wellbeing and economic progress of human is significantly influenced by health. Women, due to their societal role as caregivers for children, the elderly, and individuals with disabilities they tend to utilize health services more frequently, which places additional stress on their own health. Specific sexual and reproductive health requirements, such as menstruation, pregnancy, childbirth, and menopause, are unique to women. In patriarchal societies characterized by gender inequity, women experience differential treatment compared to men, both in general society and within healthcare systems. The frequent exclusion of women from health and medical studies has resulted in substantial knowledge gaps regarding women's health issues. Artificial intelligence (AI) has the potential to revolutionize healthcare delivery by enhancing its efficiency, effectiveness, and personalization. Artificial intelligence has the potential to enhance cancer screening accuracy, streamline operations, and bolster clinical decision-making processes. As AI technology progresses, it will facilitate greater customization and accessibility, ensuring that a wider range of women can reap the benefits of these innovations. This is especially important in regions lacking specialist access, where AI-powered tools may assist in reducing interpretation discrepancies among general healthcare practitioners. This paper aims to study innovation brought by AI to improve women's health.

**Keywords:** Healthcare, Gender, Artificial Intelligence, Women

### Introduction:

Over the long time, women in India have been casualties of extraordinary social and formative adjustment. In the antiquated period, numerous ladies over different Indian states were compulsorily made to take after a few social conventions and confinements, in this manner victimizing them into a great extent patriarchal society such as female feticide, female child-murder and residential savagery, corrosive tossing and unthinkable on dowager remarriage were wild. These retrogressive hones have declined with time but are however to see a total root out. On a positive note, there have been episode where a few India ladies have appeared, broadly as well as universally. They have brought trees to the nation over areas such as sports, craftsmanship, culture and cinema, space and innovation, and legislative issues but still long way to go.

The United Nations classifies India as a middle-income nation. Research from the World Economic Forum suggests that India ranks among the most disadvantaged countries globally in terms of gender disparity. In the 2011 Human Development Report by the United Nations Development Programme, India was placed 132nd out of 187 countries regarding gender inequality. The Gender Inequality Index (GII), a multifaceted indicator, is calculated using various factors such as maternal mortality rate, adolescent fertility rate, educational attainment, and labor force participation rate. In India, gender inequality is evident in women's reduced chances of being literate, pursuing higher education, and joining the workforce. Gender is a crucial social determinant of health, encompassing social, economic, and political elements that significantly influence women's health outcomes and healthcare access in India. Consequently, the high degree of gender inequality in India adversely affects women's health. These gender disparities are directly linked to poor health outcomes for women. Multiple studies have revealed that hospital admission

rates vary significantly by gender, with men seeking hospital care more frequently than women. Unequal access to healthcare occurs because women typically receive a smaller portion of household resources, resulting in less utilization of healthcare services compared to men. Despite the government's implementation of major initiatives to enhance women's health through various programs, limited access to health facilities continues to hinder women's use of healthcare services. The lengthy, expensive, and time-consuming nature of the healthcare process discourages women from seeking treatment. As a result, there is less awareness and enthusiasm among women regarding healthcare. Given these challenges, artificial intelligence (AI) has the potential to revolutionize the health sector by assisting humans with its advanced capabilities.

**Methodology:**

This study is based on secondary resources, and various reports have been utilized.

What is Artificial Intelligence (AI):

- "The science and engineering of making intelligent machines, especially intelligent computer programs" (John McCarthy 1956).
- "Artificial intelligence (AI) is technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision making, creativity and autonomy" (I.B.M. 2024).
- "AI is used to describe the ability of computers or other machines to apply algorithms to reason and simulate human-like cognitive tasks, including reading, writing, interacting, problem solving, and decision making" (Z.Shang, 2021).

Use of Artificial Intelligence (AI):

1. Medical Management: Diagnosis, treatment planning, patient engagement, medical research.
2. Financial sector: Evaluating potential risks, identifying fraudulent activities, managing investment portfolios, and providing client support.
3. Pedagogy: Personalized learning, grading, virtual teaching assistants.
4. Manufacturing: Forecasting equipment maintenance needs, ensuring product quality, and enhancing supply chain efficiency.
5. Mobility: Self-driving car technology, enhancing travel routes, and regulating traffic flow.
6. Retail: Customer service, inventory management, recommendation systems.
7. Energy: Energy efficiency, renewable energy integration, grid management.
8. Agriculture: Crop monitoring, precision farming, yield prediction.
9. Marketing: Customer segmentation, targeting, personalization.
10. Sales: Lead generation, forecasting, sales automation.
11. Human Resources: Recruitment, talent management, employee engagement.
12. Image Recognition: Facial recognition, object detection.
13. Language Translation: Google Translate, Microsoft Translator.
14. Personalized Recommendations: Netflix, Amazon.

Use of Artificial Intelligence (AI) in Women's Health:

In the near future, AI is anticipated to play an increasingly prominent role in healthcare, with women's health standing to gain significantly from these advancements. This is partly due to the historical underrepresentation of women in medical studies. As AI technologies evolve, they will enable more tailored and inclusive approaches, ensuring a broader spectrum of women can

benefit from these innovations. Presently, initiatives are underway to leverage these technologies to reduce healthcare disparities.

**Accessibility in Remote Areas:** AI has the potential to bridge expertise gaps, which is especially important in regions with limited access to specialists. In such areas, AI tools can help reduce interpretation inconsistencies for general healthcare providers. Advancements in digitalization and remote reading suggest a future where medical facilities in distant or underserved locations can access high-quality imaging and diagnostic services without logistical barriers. Furthermore, for women who need to travel considerable distances for screenings, AI can assist in case prioritization. Previously, radiologists had to interrupt their work to promptly review results for patients traveling from afar, but AI tools can now instantly highlight areas of concern, allowing for the prioritization of complex cases. The latest solutions for breast and cervical cancer screenings enable patients with urgent needs to receive prompt diagnoses, thereby enhancing their overall care experience. (Howes, 2024)

**Personalized healthcare:** AI has the potential to enhance women's healthcare by offering more individualized approaches. The diverse health requirements of women, influenced by factors such as age, body mass, reproductive condition, and medical background, can be better addressed through AI's capacity to process vast amounts of data and generate tailored insights and suggestions. This application is particularly evident in the expanding femtech (female technology) sector. For instance, Nurx, a telemedicine provider, employs AI algorithms in its "smart questionnaire" feature to determine the most suitable contraceptive options for each woman. The platform analyzes the user's medical history, habits, and preferences when they complete an online questionnaire for a prescription request, subsequently providing customized recommendations for the most effective birth control methods. (JK, 2023 May)

**Disease and risk analysis:** AI can predict the risk of disease and health outcomes in various body systems. For example, AI can predict the risk of cancer in postmenopausal women. So, one can get diagnose and undergo essential treatment to avoid risk to death.

- **Cancer screening:** AI can improve screening for some gynecological cancers. AI-based decision support systems can gather information about breast cancer patients and various other cancer type.
- **Pregnancy and childbirth:** Women has higher risk at her maternity. In India there is high cases of maternity death as due to its cultural and structural issue. AI can help reduce serious health risks associated with pregnancy and childbirth.
- **Keep track on health:** AI-enabled tools can help women monitor their health in real time and provide early intervention opportunities. For example, FitXpress: This app uses 3D body composition scanning to analyze body and provide insights into muscle mass, fat percentage, and other metrics. It can also create personalized workout plans. As weight issues among women are exceeding these days, It will help them to track their weight goals.
- **Breastfeeding:**
  1. **Anya:** An app that helps parents who are having trouble breastfeeding. It includes an avatar that demonstrates breastfeeding skills, a chat box to ask questions, and a virtual support group.

2. Save mom: is AI based tool developed by BBMP health department, Bengaluru to help pregnant and lactating mothers to monitor their health and ensure safer deliveries.
3. Coroflo: It is breastfeeding monitor gadget which needs to attach to the breast as a nipple shield to measure milk flow in real time.
  - Emergency gynecology care: AI can help improve access to emergency obstetric care.
  - Chronic disease management: AI can help to manage chronic disease.
  - Explore the impact of climate change on women's health: As climate change is a new challenge in today's world women gets major affected by it as she is always goes through biological hormonal changes. AI can help to detect such problem and find solution on it.
  - Addressing variations in women's health: Women's health issues may vary by her geographical, ethnical and racial condition. So AI can help to counter her issue by studying those conditions.

**Conclusion:**

Women are backbone to every society, as they fulfill numerous roles within patriarchal social structures. While performing these roles, women often experience various health issues; however, due to a lack of health awareness in society and lengthy diagnostic processes, they frequently disregard symptoms and avoid seeking medical treatment. Artificial Intelligence (AI) can streamline this process and assist in detecting, diagnosing, and addressing women's health concerns. AI can be utilized to support digital communications, providing schedule reminders, personalized health recommendations, and suggested next steps for patients. Furthermore, AI has the potential to contribute to the development of healthier generations.

**Recommendation:**

Government entities, the healthcare sector, and non-governmental organizations should initiate efforts to raise awareness among the populace regarding artificial intelligence facilities and tools. These initiatives should extend to encompass economically disadvantaged and underprivileged individuals within society.

**References:**

1. Howes, C. (2024, June 24). Harnessing the power of AI for women's health.
2. Edmonds (JK, 2023 May). Use of Artificial Intelligence to Improve Women's Health and Enhance Nursing Care. *J Obstet Gynecol Neonatal Nurs.* 2023 May;52(3):169-171. doi: 10.1016/j.jogn.2023.03.004. Epub 2023 Apr 10. PMID: 37054751.
3. Shang, Z. (2021). A concept analysis on the use of artificial intelligence in nursing. *Cureus*, 13(5).
4. Korytnikova E. (2023) Artificial intelligence and women health: Innovation, challenges, and Ethical considerations. *Adv clin Med Res* 4(3):1-6
5. Dr. Hariharan 'Health status of Rural woman in India' (2016) *International journal of economics and Social Sciences (IJRESS)*
6. Hussain, H. K., Tariq, A., Gill, A. Y., & Ahmad, A. (2022). Transforming Healthcare: The Rapid Rise of Artificial Intelligence Revolutionizing Healthcare Applications. *BULLET: Jurnal Multidisiplin Ilmu*, 1(02).

**Website:**

1. Wikipedia. Women's\_health\_in\_India. [https://en.wikipedia.org/wiki/Women%27s\\_health\\_in\\_India](https://en.wikipedia.org/wiki/Women%27s_health_in_India)
2. What is Artificial Intelligence  
<https://www.ibm.com/topics/artificial-intelligence>