

# Gender Digital Divide in India: An overview of challenges in access to and use of ICT

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## Abstract

The gender disparities in access, use and ownership of digital technology still exists in societies. The digital gender divide has been identified as a new challenge to achieve gender equality. In this present article, an attempt has been made to explore the gender digital divide in India and to identify the factors responsible for this Gender Digital Divide. This article is based on secondary data. NFHS-5, Mobile Gender Gap Report and previous studies on gender digital gaps are reviewed for the present study. The findings show that the women's access to digital technology in the form of internet usage, mobile phone ownership and awareness of internet use is low as compared to their male counterpart. The findings also indicate that though the lack of technological education is one of the factor that is responsible for gender digital divide, but it is not only one. It is a complex economic, social and cultural issue. Social norms favouring men, economic constraints, safety concern and language barrier are the other reasons that hinder the women's equal access to ICT.

**Keyword:** Gender Digital Divide, Information and communication technology, Social Norms, Women's access to digital technology.

## Introduction

Access to and use of Information and Communication Technology (ICT) has resulted in significant changes in people's lives all around the world. The digital transformation has changed the way people live and has provided immense opportunities and possibilities at workplace. The working methods have reshaped as a result of ICT. The ongoing development of new technologies, as well as their application to economic, political, and social processes, is opening up new possibilities for improving human life quality (Huyer and Sikoska 2023). Information and Communication Technologies (ICTs) have played a crucial role in facilitating global connectivity amidst the backdrop of the COVID-19 Pandemic. In situations where physical mobility was restricted due to the pandemic, individuals were able to establish connections with others remotely through online platforms. ICT networks and services have evolved into the fundamental infrastructure asset for enterprises seeking to enhance competitiveness and productivity within organizations, being classified as a general-purpose technology. ICT has risen as the forefront instrument for providing developmental services like healthcare, financial services, e-commerce, and education, particularly in remote underserved regions. The United Nations has also acknowledged ICT as a facilitator in attaining the Millennium Development Goals and the Sustainable Development Goals (Asrani, 2022).

However, the ability to access and use of ICTs is not uniformly spread (Norris, 2001). there is a huge gap in access to and use of digital technology between men and women. The gender disparities in access, use, ownership of digital technology still exists in societies. The disparity in digital access between genders is acknowledged as a barrier in attaining gender equality for women, especially as the 4th Industrial Revolution accelerates the evolution of information and communication technologies (Kuroda et al., 2019).

India, as the most populous country in the world with a population exceeding 1.44 billion individuals, has transformed government operations through the utilization of information and communications technologies. The initiation of the Digital India Programme in 2015 indicated the government's commitment to convert the country into a society empowered by digital advancements and a knowledge-based economy (Ministry of Electronics & Information Technology, 2017). Under this programme, with the aim of bridging the gender digital divide, the Government launched the "Pradhan Mantri Gramin Digital Saksharta Abhiyaan (PMGDISHA)". The program specifically aims to empower women in rural areas by equipping them with the necessary skills and knowledge to engage in the digital economy and utilize different online government

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services. In the field of education, the National Digital Library aimed at young individuals as indicated in the Union budget for 2023-24 is on track to have a significant influence on closing the digital gap and ensuring equal access to high-quality education, while also elevating levels of digital literacy. The initiative known as the 'Stay Safe Online' campaign by the ministry of electronics and IT, developed within the context of India's G20 presidency, serves as another illustration of the government's emphasis on raising awareness regarding the internet, social media, and digital payment services for the betterment of the citizens. But according to latest data of NFHS-5 (2019-21), only 33% of women in India have access to the internet compared to 51% of men. The data also indicates that More than half (54%) of women have a mobile phone that they themselves use. We can see a large disparity between men and women in the data.

Though India is now the most populous country but when it comes to internet users, China is still home to the world's largest connected population and by a comfortable margin. According to the Digital 2024 Global Overview Report, China is now home to almost 1.09 billion internet users, which is almost 340 million more than India's 751 million. For perspective, 76.4 percent of China's total population is now online, compared with just 52.4 percent of the population in India. And while it's home to the world's second largest internet user base, India is also home to the world's largest "unconnected" population (Kemp, 2024).

Gender equality is not only a fundamental human entitlement but also serves as the cornerstone of a thriving and contemporary economy that promotes sustainable, all-encompassing development. The importance of gender equality lies in its role in enabling both males and females to make comprehensive contributions to the enhancement of society and the economy at large. The division between the two genders hinders our ability to achieve universal prosperity and equality, and this holds particularly true for the gender disparity in digital access (FMUN, 2019). The exclusion of women from ICTs results in them missing out on the progress and success that these technologies offer. It is essential for women, particularly those in developing nations, to have access to ICTs as this will assist them in gaining empowerment on an international scale. Besides, ICTs are of great importance for women, especially in remote settings where driving substantial change may be difficult (FMUN, 2019).

## Objectives

In this review article, we reviewed the existing literature in order to answer the following questions: (1) What is the present status of the gender digital divide in India? (2) What factors contribute to this gender digital divide? (3) What can reduce inequalities and facilitate ICT access for women in India?

## Digital Divide

According to Van Dijk (2017) "Digital divide is the gap between people who do and do not have access to forms of information and communication technology. These forms are primarily computers and the Internet. Sometimes cell phones, particularly smart- (smartphones) phones and other digital hardware and software, are also included." The digital divide is defined by the OECD (2001) as the difference in ICT access and usage across people, households, businesses, and geographical regions at different socioeconomic levels. Norris (2001) characterises the "digital divide" as a multifaceted phenomenon. According to him, there are three distinct types of digital divides: the global digital divide, which refers to access to the Internet; the social divide which is the gap in information among countries; and the democratic divide, which is the difference in participation in public life using digital resources.

The dimensions that the digital divide concept adopts would be defined by the access and use made of ICTs, especially with regard to the use of the internet. The International Communications Union would develop three terminological dimensions defined as (Ancheta-Arrabal et al., 2021):

- ✱ the digital access gap—people who access and those who do not access ICT.
- ✱ the digital gap of use—level of skills and abilities of use of ICTs.
- ✱ the quality of use gap—differences in use between users.

Van Dijk and Hacker (2003) explore the notion that the accessibility to digital resources is a complex phenomenon encompassing four distinct elements that work to regulate access; psychological, material, skills,

and usage. The initial simplistic dichotomy of individuals being either digitally privileged or disadvantaged has transformed into a more intricate conceptual framework. Psychological access is where the user has minimal interest in obtaining access or hold negative perceptions towards technology. Material access is associated with the absence of physical infrastructure. Skills access refers to individuals lacking the necessary digital literacy skills to navigate effectively online, while usage access denotes individuals who lack the time or opportunity to avail digital information, irrespective of their proficiency level.

### **Gender Digital Divide**

The Gender Digital Divide refers to women and girls lack of access to, use and development of information communication technologies (ICTs). The digital divide between men and women is systemic discrimination against women, and can pose an unacceptable obstacle to their participation in society everywhere in the world. This digital gap is not only a technological issue, but also a multifaceted economic, social, and cultural dilemma, inherently intertwined with gender inequality. In the absence of equitable ICT opportunities, females are hindered from fully engaging in our increasingly digitalized communities. Restrictions imposed on females in this area impact various aspects of their lives, including their capacity to voice opinions and drive change on matters that concern them.

### **Methodology**

The article is based on secondary data. GSMA The Mobile Gender Gap report, NFHS-5 Data and previous studies on gender digital gaps are reviewed for the present study. A literature search was undertaken by using the terms “Gender digital divide in India”, “Women and digital India” and some key phrases, such as “Gender gap in ICT uses”, “Gender disparities in access, use and ownership of digital technology” and “Gender difference in Internet access in India”. We found several reports that presents the current status of gender digital divide in India that are “State of India's digital economy report 2023”, “National Family Health Survey (2019-21)”, “Mobile Gender gap 2022”, “Gender digital divide index report 2022” and the Intel “Women and the web report”. Besides, the commentaries on these reports and briefing papers are also helpful in understanding these reports.

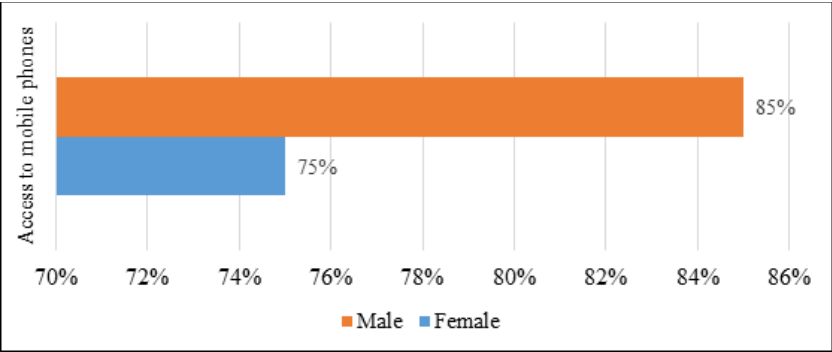
### **The Findings of the Reviews**

The related literature was reviewed in the context of investigating and understanding the present status of Gender Digital Divide in India and the significant challenges preventing Women's from access to and use of Information and Communication Technology. The reviewed literature was analyzed thematically, and women's present status in using and accessing ICT and the major themes related to the significant constraints faced by women are presented.

#### **1. Mobile Phone Ownership**

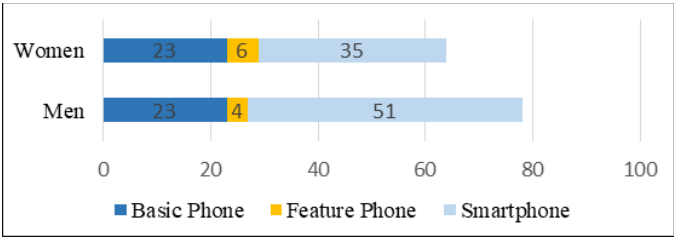
Mobile phones can enable women to access important information and services, including much needed financial services, to help them grow and support their businesses and meet household needs. Global System for Mobile Communication (GSMA) categorized mobile phones into three categories: Basic phone, feature phone and smart phone. A basic phone is an internet-disabled keypad phone. The only purpose of this type of phone is to support calling and texting. It completely relies on mobile networks to relay communications. A feature phone is an internet-enabled mobile phone with a small screen and basic keypad like a basic keypad. They are characterized similarly to basic phones in relative look and feel but can access the internet and run basic web browsers. It may have some pre-installed apps but does not have the ability to download apps from an online app store. A smartphone is a mobile phone with a touchscreen display, an advanced operating system (Android or iOS) and the ability to download apps from an online app store, such as Google Play or the App Store (GSMA, 2024). Smartphones play a crucial role in enabling access to the internet and narrowing the gender gap. Having a smartphone enables women to show a level of awareness and utilization of mobile internet that is nearly equal to that of men.

According to The Mobile Gender Gap Report 2024, women remain less likely than man to own a mobile phone in India. 75% of adult women in India own a mobile phone, compared to the 85% of adult men (Figure 1).



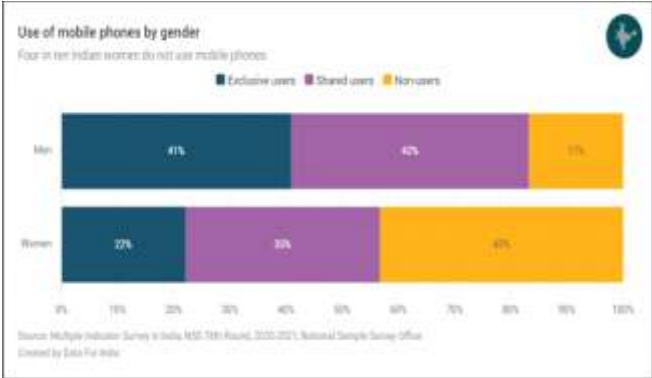
**Figure 1: Access to Mobile Phones (By Gender)**  
Source: GSMA-Mobile Gender Gap Report 2024

The gender gap is even wider when it comes to smartphone ownership, with 35% of women owning a smartphone compared to 51% of men (Figure 2). Both men and women have the same percentage in the ownership of basic phone. The usage of feature phones in India has declined, with just 6% of women and 4% of men having these devices.



**Figure 2: Handset type**  
Source: GSMA: The Mobile Gender Gap Report 2024

A large proportion of mobile phone users in India opt to share their phones with a family member. The practice of utilizing a shared mobile phone is especially common among women and individuals residing in rural areas. Conversely, men and urban residents tend to possess phones that are exclusively for their personal use (Waghmare, 2024) (Figure 3).



**Figure 3: Use of mobile phones by gender (shared Users)**  
Source: National Family Health Survey (NFHS-5), 2019-2021, International Institute of Population Sciences

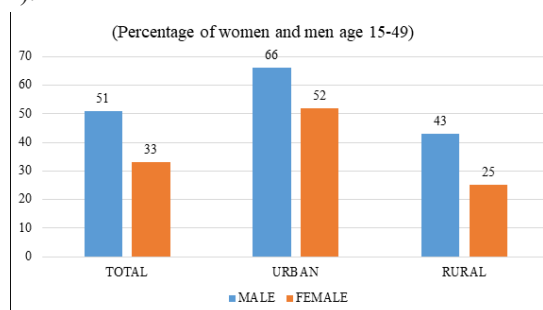
## 2 Digital Gender Gap in Internet Usage

The internet offers many opportunities almost unimaginable a generation ago. It has the power to transform youths' lives enabling them to learn new things, develop new skills, earn money, make new social connections and have their voices be heard (UNCF 2023).

“Internet Access, universal and affordable” was a critical part of the United Nations Sustainable Development Goals (SDGs). The goals include making access to the internet universal, affordable, open, secure, and high quality, ensuring that every person from the most developed to the least-developed countries has equal access.

According to the International Telecommunication Union (2022), a global comparison of internet use by women finds that the percentage of female internet users in India is below the lower-middle income regions and the Asia-Pacific average (Mishra et al., 2023).

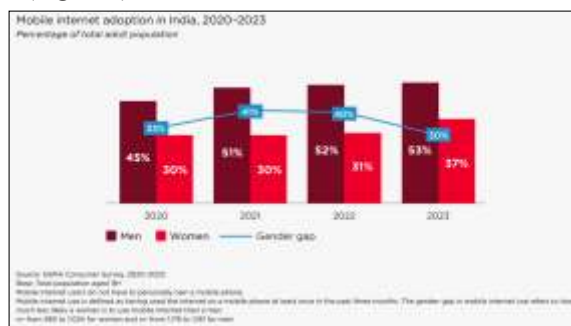
According to the NFHS-5 (2019-21), the utilization of the internet among women in India stands at a mere 33%, in contrast to 51% among men. A substantial disparity exists between the genders in terms of internet usage. In rural India, the rate of internet adoption is notably low. Urban areas show higher rates, with 52% of women and 66% of men having accessed the internet, while in rural areas, only 25% of women and 43% of men have done so (Figure 4).



**Figure 4: Status of men and women using internet**

Source: National Family Health Survey (NFHS-5), 2019-2021, International Institute of Population Sciences

Mobile internet adoption is the process of people adopting mobile internet as their preferred means of internet access. As per the GSMA Consumer Survey Report 2020-23, there has been a positive shift in the rate of mobile internet adoption among females compared to the previous year. The report highlighted that in India, the gender disparity in mobile internet usage has remained consistent for the second consecutive year, with women's adoption rate staying at approximately 30% for three consecutive years. By 2023, this percentage had surged to 37%, while the adoption rate among males experienced minimal change, resulting in a decrease in the gender gap from 40% to 30% (Figure 5).



**Figure 5: Mobile Internet Adoption in India**

Source: GSMA Consumer Survey 2020-2023

3 Mobile Internet Awareness in India

A person is considered aware of mobile internet if they have either used mobile internet before or have not used mobile internet but aware they can access the internet on a mobile phone. The Mobile Gender Gap Report 2024 highlighted that the level of mobile internet awareness among women is significantly low than that of men. While 71% of men are well-informed about accessing the Internet on mobile phones, only 57% of women share the same level of awareness (Figure 6).

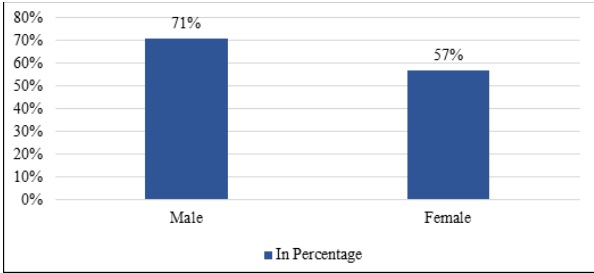


Figure 6: Mobile Internet Awareness

Source: GSMA- The Mobile Gender Gap Report 2024

The GSMA Consumer Survey report also presents the mobile internet user journey. How does a person unfamiliar with phones become a mobile Internet user? It is important to investigate the points where obstacles are experienced by both men and women in this user journey. By identifying the challenges, appropriate measures can be implemented to promote equal access and utilization. The journey starts with the ownership of mobile phone and progresses to mobile internet awareness, mobile internet adoption and finally, to regular and diverse mobile internet use (GSMA, 2024)

If we look at the mobile internet user journey of India, it was found that the at each stage, gender gaps persist but it is interesting to note that once men and women become mobile internet users, the majority tend to use it every day. Consequently, this phenomenon leads to a reduction in the gender gap. The gender gap in mobile ownership stands at 10%, in mobile internet awareness it has increased by 23% and in mobile internet adoption it has increased by 26%. But it decreased in the daily mobile internet use (17%) and diverse daily mobile internet (16%).

The gender gap in mobile ownership stands at 10%, in mobile internet awareness it has increased by 23% and in mobile internet adoption it has increased by 26%. But there has been a decline in the gender gap in terms of daily mobile internet usage that is 17% and diverse daily mobile internet usage that is 16% (figure 7).

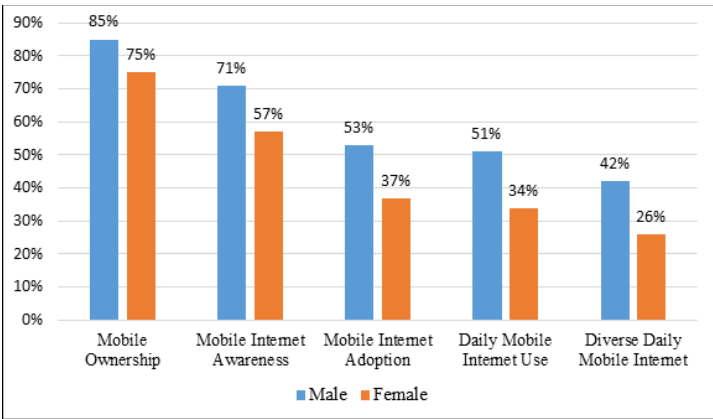


Figure 7: The Mobile Internet User Journey in India

Source: GSMA- The Mobile Gender Gap Report 2024



### **Barriers to Information and Communication Technology for women in India**

Women in India face numerous barriers to accessing and utilizing Information and Communication Technology (ICT), which are multifaceted and deeply rooted in socio-cultural, economic, safety concerns and infrastructural challenges. Lack of knowledge to handle a computer is one of the main barriers in use of internet. Access to education is a crucial element that impacts the participation of women in IT employment. In India, the IT workforce mainly consists of well-educated individuals from urban areas, with women making up nearly one third of this workforce. When examined closely at a larger scale, it becomes evident that a significant portion of the population, particularly women, are unable to access IT employment opportunities. Women working in IT form a small fraction of the vast population in India. The primary factors hindering women's entry into the IT field are the lack of access to basic education and low literacy rates.

Gendered social norms and practices within society account for a significant portion of the variance in the adoption of innovative products, such as ICTs like mobile phones. (Dwyer et al., 2005). Some social norms hinder women's online participation, while many other conventions prevent women from acquiring and prioritizing digital literacy skills. In a study titled "Freedom within a cage: how patriarchal gender norms limit women's use of mobile phones in rural central India", conducted in Madhya Pradesh by Scott et al. (2021), to identifies the factors driving women's unequal use of phones, revealed that although women and their spouses claimed women had the freedom to use phones as they pleased, their phone usage was limited. The gendered norm that a woman should be family oriented and the gendered stereotypes associated with women limits their access to ICT. This research identified five determinants and everyone is related to gendered social norms. Firstly, it was expected that married women would use phones primarily for communication with their natal families and husbands, a sentiment shared by the women themselves. Secondly, a lack of physical access to phones and reliance on men for phone procurement led to fewer women owning phones. Thirdly, women often possessed outdated phones with fewer features and less financial credit compared to their husbands, resulting in frequent 'zero balance' situations as they depended on men for credit top-ups. Fourthly, women typically exhibited lower digital proficiency due to limited literacy, numeracy, confidence, and opportunities to learn new phone technologies. Lastly, women spent very little time using the phone because of their extensive household responsibilities and societal expectations that disapproved of using the phone for leisure.

Concerns regarding safety, security, and harassment significantly deter women from engaging with technology. These concerns include the apprehension of potential harassment from unfamiliar individuals, which may present itself as unwarranted phone calls, unsolicited text messages, uninvited online interactions, or occurrences of cyberbullying, in addition to the related threats concerning online data security and privacy. (USAID, 2022) According to the National Cybercrime Reporting Portal (NCRP) India experienced 129 cybercrimes per lakh population in 2023.

In the another study titled "Women and ICT: An Examination of Access and Perceptions in Northern India," Singh et al. (2018) investigate the potential factors contributing to the limited access and utilization of Information and Communication Technologies (ICTs) among women in India. The research revealed that respondents commonly pointed to "Social norms favouring men" as the primary factor impeding women's access and utilization of ICTs, followed by "Collateral cultural factors" and women's lack of "limited free time." The authors posit that societal norms reinforce male dominance over technology and information, given that men typically possess greater financial resources, higher average incomes, and encounter fewer obstacles in obtaining financial support. Moreover, within a patriarchal society, men enjoy more favourable conditions for engaging with ICT tools and obtaining relevant skills and education. Consequently, these social norms facilitate men's ability to afford, utilize, and leverage ICT resources, while simultaneously constraining women's access to such tools.

Affordability and availability are another barriers of women's access to and usage of ICT tools, especially in the rural areas. Many rural areas with indigenous populations face significant challenges regarding connectivity and access to electricity. In rural, economically challenged areas, the availability of network coverage is generally reduced, creating an additional obstacle for low-income women and girls from diverse backgrounds. (USAID, 2022). According to the After Access Survey, unaffordability is consistently the main barrier to digital inclusion across all developing regions (After Access 2018). The cost of devices and

services were cited along with relevant content as inhibiting factors for digital adoption. The GSMA Report (2015) indicates that economic obstacles are the main factor hindering women from owning ICTs. The disadvantaged situations experienced by women in terms of their work and earnings are largely to blame for their limited access to and use of ICTs. Moreover, the expenses associated with maintaining ICTs, as well as their restricted or lack of access to the financial means necessary for accessing ICTs, are among the most commonly recognized economic barriers that contribute to and sustain the gender digital divide.

The research paper of Potnis (2016) entitled, “Inequalities creating economic barriers to owning mobile phones in India: Factors responsible for the gender digital divide”, focuses on the gender digital divide in India. It was found that a wide range of economic and non-economic inequalities create significant barriers for women in India, preventing them from owning mobile phones. The study also identifies specific economic barriers such as fluctuating low personal income, low household income, low personal savings, lack of financial support from husbands, majority of financial dependents in the family, unexpected family expenses, and inherited debt, which collectively hinder women's ability to own mobile phones.

In another research paper entitled, “The digital gender divide. A focus on inclusion through mobile phone use in India” by Tusińska, M. (2021), mentioned economic constraints as one of the most important reason of gender digital divide. Tusińska M. stated, “Even as smartphone prices decline, low-cost devices are still not affordable for many people in India, especially women whose lower income levels and lack of financial autonomy limit their ability to purchase a smartphone independently.” The Census Report of India (2011) indicated that the women's workforce participation rate has increased to 25.5 percent, it remains notably lower than the men's workforce participation rate of 53.3 percent. It is necessary to eliminate the deep-rooted inequality in skills and technology and provide women with access to ICT to tackle the prevailing gender inequalities.

India is a multilingual country with extensive diversity in languages. In the study “Socio-Economic determinants of digital divide in India”, carried out by Sharma and Banerjee (2022), it was revealed that the absence of proficiency in English is a significant hurdle to accessing ICT. Sharma and Banerjee investigated the effects of socio-economic factors on computer literacy and use of internet (through mobile or computer). In their study, it was found that information stored in a computer predominantly appears in English, consequently, education and English proficiency play a crucial role in one's utilization and understanding of computers. The chances of being knowledgeable about and using computers are diminished for individuals lacking comprehension of the English language compared to those who are fluent in it. They found that female are 50 percent less likely to use the internet in mobile or computer relative to a male counterpart (Sharma and Banerjee, 2022).

In the report of SATTVA CONSULTING, entitled “Connect, Collaborate and Create, Women and Social Media during the Pandemic, Sattva” (2024) stated that lack of regional language platforms limits efficient use of ICTs and its applications and it results in exclusion from ICT. This report quoted lines of lady, in her words, “I cannot read English. Due to language barriers, I haven't seen the settings of the apps or created a social media profile on my phone. I don't know about the app policies as these are also in English. It becomes difficult for me to sign up on these platforms without taking some help from my family.” This report also pointed out the data Facebook Audience Insights, in which stated that, “91% of female users in India use English, followed by 6% who use Hindi and 1%, Bengali. Such women can't read terms and conditions of social media use, privacy updates and other app updates in English. This creates a barrier in understanding and meaningfully accessing social media platforms. Poor literacy and digital skills hamper their use of social media. In fact, nearly 36% women from eighteen low-and middle-income countries cite this as a key reason for digital exclusion.” Women who speak regional languages identify this as a significant factor that restricts their use of ICT.

## Conclusion

The gender digital gap in India is a complex issue influenced by various social, economic, and cultural factors, which greatly hinder women's access to and utilization of digital technologies. Despite the rapid shift towards digitalization and initiatives like Digital India, a notable gap persists between men and women in terms of internet usage and digital literacy. This divide obstructs women from leveraging opportunities in trade,



manufacturing, and financial services, as they are commonly engaged in low-value chain roles without social security. To bridge this gap, it is crucial to address affordability concerns, offer personalized digital skills training, especially for rural women, and shift societal and cultural attitudes towards women's acceptance of technology. A rights-based approach that highlights women's right to ICT education, online privacy, and mobile phone ownership is also crucial. Embracing inclusive digitalization can result in personal and communal benefits, ultimately benefiting the entire nation. Therefore, policy efforts should concentrate on ensuring universal digital access and literacy, particularly for women, to fully utilize the benefits of digital technologies for economic advancement and progress. The government and development organizations should provide complimentary or discounted smart devices to rural women, in addition to offering relevant digital skills training for their economic activities. Changing social and cultural attitudes towards women's use of digital technology is critical for closing the gender digital gap. This requires awareness-raising campaigns and initiatives that promote the benefits of digital inclusion for women and society as a whole.

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