

Exploring the Gendered Digital Divide in Haryana District (India)

Abstract

This study investigates the gender-specific digital divide about ICT access, affordability, and ICT skills. The research collected data from 120 respondents from the following four districts of Haryana: Gurugram, Panchkula, Mahendragarh, and Nuh, selected based on the level of the SDG index for quality education in Haryana. The study used mobile phones as a proxy for ICT. It evaluated access and affordability by looking at mobile phone ownership and employment status, while ICT skills were assessed through basic and advanced knowledge of mobile phone use. The results revealed that the gender digital divide is a prominent issue for women facing significant disadvantages in ICT access, affordability, and skill. The majority of educated women were unemployed, which contributed to lower affordability. Gender disparities were also evident in both basic and advanced ICT skills. Statistical analysis using the chi-square test showed a p-value less than 0.05 for all three hypotheses, indicating a strong impact of gender on the digital divide.

Keywords: ICT, Gender, Digital Literacy, skills

1. Introduction

In the last decade, information and communication technology has spread rapidly worldwide. The term (ICT) encompasses tools for handling broadcast media, telecommunications, audio-visual Technology, networking, controlling, and monitoring functions. It plays a vital role in society by facilitating information storage, creation, processing, and exchange. The integration of ICT transformed every sector of economies in tremendous ways, fostering innovation, connectivity, and efficiency on a global level. ICT manipulates the way we communicate, work, and share ideas. All these things present an optimistic view unless we find the term “Gendered Digital Divide”. The uneven distribution of Internet services illustrated the Digital divide problem, especially in low-income countries (ITU, 2023). Below 32 percent of women in India own a mobile phone, while the percentage is over sixty for men, as shown by the India Inequality Report (Oxfam

report,2022). The differences in internet access and digital literacy lead to unequal opportunities for employment, education, and social participation. Various factors are responsible for the issue of the gendered digital divide, including the area in which they live, social judgment, age, education, etc. However, the main factor we are looking at in this study is gender and its impact on equal access to ICT. In the broader context, we can find disparities in equal access to digital resources and digital literacy based on gender. According to the United Nations Educational, Scientific and Cultural Organization (**UNESCO**), men have four times more advanced ICT skills than women in programming computers. According to a 2019 survey by the Indian Statistical Institute, 74 percent of married women were not looking for jobs even though their families wanted them to work. here, gender-based information access was one of the reasons behind the low participation of women in the labor market. Unequal access to information means unequal access to work opportunities, which shows the world is not utilizing human power lower than the potential level. According to the **Women's Gender Snapshot Report 2022** published by the United Nations, Women's exclusion from the ICT world in the last decade caused a loss of up to \$1 trillion of total GDP for low and middle-income countries. Therefore, minimizing these gaps in ICT is crucial, especially for women living in developing countries like India. If an economy wants to achieve better growth with inclusive growth, then women should be a part of ICT with equal access. It will help women become more empowered on the social front and create meaningful life changes in the gendered digital divide: inequality between men and women regarding the uses, access, and knowledge of ICTs.

Overview of the Problem

ICT has profoundly impacted our lives, shaping decisions in daily activities, politics, and social interactions through digital platforms. We can quickly access sports, flights, weather, and personal events updates. However, despite the widespread availability of ICT, significant gender disparities in access and use of digital devices persist. Despite the high female graduate ratio in STEM, the women's workforce is less than a third of India's STEM workforce (**World Bank**). only one out of three women in India can use the Internet, per the report of National Family Health Survey (2019-21). As we discussed, we always prefer inclusive development, which means development for all, irrespective of caste, religion, gender, and economic situation. Still, discrimination in digital

literacy is an obstacle for women and a prominent issue in the current era, reducing their opportunities in terms of employment and overall growth.

The gap between men and women regarding ICT access and use is called the gender digital divide (ITU). Here, we analyze the digital gendered divide in three aspects: access, availability, and proficiency with ICT devices. This can be indicated as:

- ICT access: Availability of mobile phone
- ICT affordability: Employment status
- ICT skills – Basic and Advanced

Access means the availability of ICT, and affordability shows a person's ability to purchase ICT devices, as shown by employment status, ownership of that device, and who paid for the device based on gender. Finally, the paper included two levels of digital literacy skills (Basic and advanced) to analyze ICT skills.

2. Literature review

The gendered digital divide showed triple disadvantages for women. Rural penetration for internet services is below thirty percent; women in rural areas are less likely to own a mobile phone than men. The internet cost for one GB of data accounts for three percent of the total monthly income in low-income households. Biasness at the household level has stopped women's equitable access to digital tools. Social judgment and prevailing social norms are creating hurdles for women to become a part of the digital economy (ITU,2021). Various studies indicated that women in India face barriers in access to digital technologies. According to the Internet and Mobile Association of India (IAMAI, 2021), internet penetration among women remained much lower than that of men, and rural women experienced the disparities significantly. Low literacy rates, low digital skills, and limited financial aid contributed to this gap (Kumar & Kaur, 2020). A study by Das et al. (2020) indicated how societal pressure and family dynamics often restricted women's access to digital technology and the Internet. In the Asia-Pacific region, India had the highest level of gender digital divide as per the Mobile Gender Gap 2021 report. Affordability is also a hindrance impacting women's access to technology. Empirical Studies found that economic factors significantly influenced women's ability to buy smartphones or internet services (Bhardwaj & Jha, 2021). Most families prioritize digital technology access for males, viewing it as an important

investment for employment or education, while women's priorities are often neglected (**Raghunandan, 2021**). A report by the **GSMA (2021)** concluded that the high cost of mobile data remains an obstacle for most women, specifically in rural areas. The distressing fact is that only 15 percent of women in India use internet services. In addition, 25 percent of adult women owned smartphones and 41 percent of adult men, showing a wide disparity based on gender. The case of inequality, particularly in the form of the digital gender divide, referred to an obstacle to India's social development and inclusive growth. **UNICEF (2023)** highlighted the disparities between men and women in low-income countries regarding internet use. Most adolescent girls and women were offline compared to adolescent boys and men. In the case of digital skills, only 62 females had this in contrast to every 100 male youth. Across 41 nations, below 15 percent of female youth owned a mobile phone, restricting their ability to participate in the ICT world. Despite having access to technology, women's internet usage data often differ from men's. A study by **George (2021)** revealed that women use mobile phones mainly for communication rather than for fetching information data or utilizing online services such as e-commerce or social media apps. This limited use resulted from social norms and a lack of confidence in using digital technology for broader utilization (**Choudhary & Gupta, 2020**). Research by **Bala and Singhal (2018)** concluded that despite owning digital devices, women could not use the Internet due to household chores and prevailing social norms in urban areas. Over 50 percent of females lacked basic skills in using mobile phones, and the leading cause was the prevailing patriarchy in our society. Women needed permission from their male family members to own digital devices. **Potnis, D. (2016)** revealed the unique idea of non-economic inequalities and the impact of these on owning a mobile phone by women. The study was conducted in slum areas of Maharashtra. The data showed that the leading cause that restricted the limits of women in the digital world was the oppression of gender roles in society. Most of the women were married at a very young age due to the common belief that it is unsafe to live independently for a woman in India. Young girls were married before they got financial independence. So, the societal norms created economic inequalities, which were also significant obstacles to access to ICT access.

3. Research Methodology

The study utilizes primary data collected through a well-structured questionnaire. Initially, Haryana was purposively selected for the research. According to **Timotheou (2022)**, digital

technologies have changed the nature and scope of the education system, bolstering the education sector worldwide with ICT integration strategies and policies.

Therefore, to examine the digital divide by gender, four districts were chosen from 22, based on the index of quality education outlined in the Haryana SDG District Index Report 2022 published by the Finance Department of Haryana. Two districts with the highest index scores (Gurugram and Panchkula) and two with the lowest (Mahendragarh and Nuh) were selected to meet the study's objectives. Additionally, 120 respondents were randomly selected from these four districts, with 30 respondents from each district.

The study aimed to explore the issue of the Gendered Digital Divide through three key dimensions: access, affordability, and usage of ICT. Basic and Android mobile phones were identified as essential ICT tools for navigating today's technological landscape. Thus, they were selected to represent the ICT component of the research. The following variables are taken into account for ICT aspects:

1. Access to ICT – Owning a mobile phone
2. Affordability of ICT- Employment status
3. ICT skills – The person should know basic and advanced mobile phone skills.

Basic skills – one who can receive/ dial calls and read/send messages

Advanced skills- one who can send e-mails and use social media apps(WhatsApp, Instagram, etc.)

3. Objective of the Study

1. To analyze the role of gender on ICT access (mobile phones).
2. To understand the role of gender in ICT affordability and ICT skills

Based on this information, three hypotheses were taken:

H1- ICT access is not associated with gender

H2- ICT affordability is independent of gender

H3- ICT skills are not associated with gender

4. Data Analysis

The first process is to understand the demographics of respondents. The data shows that respondents are very diverse in employment status, age, and Education. The data given in the table shows that most of the respondents are educated.

Table -I Demographics of respondents

Gender	Frequency	Per cent
Men	60	50
Women	60	50
Total	120	100
Education		
PE	37	30.8
SE	21	17.5
HE	24	20
Uneducated	38	31.7
Total	120	100
Age		
(18-39)	36	30
(40-59)	36	30
Above 60	48	40
Total	120	100
Employment		
Employed	39	32.5
Unemployed	81	67.5
Total	120	100

Source: Authors' compilation

*PE- primary education (1st to 8th), *SE – Secondary education (9th to 12th), *HE- Higher education (College or University)

Test of independence- χ^2

χ^2 Test of independence, since we have nominal data, chi-square is used to test the frequencies of ICT Access, Affordability, and Skills based on gender. Table III shows that the relation between

Access and gender is significant $\chi^2 (1, N- 120) = 18.56, p < 0.05$. It can be concluded that gender and ICT access are not independent, as shown in Table II. Therefore, H1 is rejected.

Table II Tabulation Statistic Gender ICT access

ICT access (Owing mobile phone)					
Gender			YES	NO	TOTAL
Men	Count		56	4	60
	Expected Count		46	14	60
Women	Count		36	24	60
	Expected Count		46	14	60
Total	Count		92	28	120
	Expected Count		92	28	120

Source: Authors' compilation

Table-III Test and Sample Size	Value	Df	Asymp.Sig.(2sided)
Pearson χ^2	18.6	1	2E-05
N	120		

Table V shows that the interrelationship between gender and Employment is significant with $\chi^2 (1, N- 120) = 27.7, p < 0.05$, representing the affordability status of men and women. Table IV shows that the Affordability of ICT and gender correlates with each other, and H2 is rejected.

Table - IV Tabulation Statistic Gender and Affordability of ICT

Affordability of ICT (Employment)					
Gender			YES	NO	TOTAL
Men	Count		33	27	60
	Expected Count		19.5	14.50	60
Women	Count		6	2454	60
	Expected Count		19.5	40.5	60

Total	Count		39	81	120
	Expected Count		39	81	120

Source: Authors' compilation

Table- V Test and Sample Size	Value	Df	Asymp.Sig.(2sided)
Pearson χ^2	27.7	1	1E-07
N	120		

Table VII shows that the association between gender and ICT skills is significant with $\chi^2 (1, N-120) = 22.2, p < 0.05$. Table VI illustrates that basic skills of ICT and gender are related to each other, and H3 is rejected.

Table VI- Tabulation statistic Gender and ICT skills (Basic)

ICT skills (Basic)

Gender		YES	NO	TOTAL
Men	Count	53	7	60
	Expected Count	41	19	60
Women	Count	29	31	60
	Expected Count	41	19	60
Total	Count	82	38	120
	Expected Count	82	38	120

Source: Authors' compilation

Table- VII

Test and Sample Size	Value	Df	Asymp.Sig.(2sided)
Pearson χ^2	22.2	1	2E-07
N	120		

Table IX shows that the relationship between gender and ICT skills at an advanced level is significant with $\chi^2 (1, N-120) = 7.10, p < 0.05$. Table VIII shows that advanced skills in ICT and gender are related to each other, and H4 is rejected. This indicates that an alternate hypothesis is accepted: ICT skills and gender are not independent.

Table- VIII Tabulation statistic Gender and ICT skills (Advanced)

Availability of Advanced skills					
Gender			YES	NO	TOTAL
Men	Count		19	41	60
	Expected Count		13	47	60
Women	Count		7	53	60
	Expected Count		13	47	60
Total	Count		26	94	120
	Expected Count		26	94	120

Source: Authors' compilation

Table- IX

Test and Sample Size	Value	Df	Asymp.Sig.(2sided)
Pearson χ^2	7.1	1	1E-02
N	120		

5. Conclusion and Policy Recommendations

The data shows the significant differences in ICT access, affordability, and skills gap based on gender. Table II indicates that 40 percent of women do not own a mobile phone, while the percentage was 6.6 for men. In addition, eighteen older women and seven middle-aged women did not have a mobile phone compared to one man and three men in the respective age groups. It suggests that ICT access was not the same for everyone. Table III shows that the p-value was less than 0.5, which means gender had a significant role in ICT access. Table II also shows that only 10 percent of women were employed, meaning 90 percent could not afford a mobile phone alone. Table V shows that a value of less than 0.5 indicates the evidence against the null hypothesis that ICT affordability and gender are not dependent on each other. The study found seven out of thirty women could not use a basic phone, suggesting a gap in ICT skills. Young adults were the only age group doing well in basic and advanced skills (18-39). All the educated people had basic skills; unfortunately, 48 percent of women were educated, which was significantly lower than men, where the percentage was 88.5. here. Tables VII and IX prove that with a p-value lower than a

significance level of 0.5, it becomes evident that even in the case of ICT skills, whether it is basic or advanced, gender played a significant role. The null hypothesis was rejected in both cases. The study also found that the problem of the gendered digital divide was high in the case of old age groups.

Suggestions and challenges:

Based on the findings, we can conclude that education is the key to equally distributing the fruits of ICT because all the educated people were possessing ICT skills. Apart from education, affordability is a significant issue because most women are unemployed. Therefore, a better solution is to encourage women to participate in the productive economy. It was interesting to know that Education was not a big issue when it came to learning basic skills such as receiving and doing the calls. Some illiterate women who owned the device were doing these things efficiently. However, since the study included only those who could read and send the messages efficiently, these women were not counted as the women who had the basic skills. The women of the middle and young age group were educated, but only 10 percent were employed. The surprising fact is that most women were also good at basic skills and advanced. It means that despite having a good knowledge of ICT skills, some other factors are responsible for the unproductive women workforce.

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