Vol. 15, Issue: 11, November 2026
ISSN: (P) 2347-5412 ISSN: (O) 2320-091X

Digital Empowerment of Rural Women and SDG 5: A Study on access to Mobile, Internet and Government Schemes

DOI: https://doi.org/10.63345/ijre.v15.i11.IJRE1126002

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Abstract— Digital inclusion is increasingly central to gender equality, but the presence of a phone does not by itself establish control over technology, access to entitlements or greater decision-making power. This paper examines how mobile possession, internet engagement, functional skills and interaction with government programmes are reported by 225 rural women surveyed through a structured questionnaire, using the resources–agency–achievements perspective of empowerment (Kabeer, 1999; Rotondi et al., 2020). A descriptive, non-causal analysis compares ownership with recent use, examines schooling-related differences and identifies the main reported difficulties in everyday digital engagement.

Among the 225 respondents, 172 (76.4%) indicate mobile use in the previous three months, whereas 109 (48.4%) indicate personal mobile ownership and 82 (36.4%) smartphone ownership. Recent internet use appears in 130 respondents (57.8%). Scheme awareness is recorded for 150 (66.7%), online application for 68 (30.2%) and government transfer receipt during the previous twelve months for 49 (21.8%).

The analysis suggests that a meaningful SDG 5 approach must distinguish an available connection from usable, trusted and independently controlled access. Practical digital training, affordable connectivity, local-language services and privacy-conscious application support emerge as priorities for subsequent field evaluation. Because the survey data are self-reported and cross-sectional, the findings are presented as descriptive patterns rather than causal or population-level estimates.

Keywords: rural women; digital inclusion; mobile ownership; government schemes; SDG 5.

1. Introduction

1.1 Digital inclusion, rural livelihoods, and the meaning of SDG 5

Sustainable Development Goal 5 calls for gender equality and the empowerment of women and girls. Its relevance to digital inclusion extends beyond technology ownership to the conditions under which women can obtain information, communicate, make choices and pursue opportunities. Empowerment is best understood as a process in which resources may enlarge agency and produce achievements, rather than as the simple accumulation of assets (Kabeer, 1999). A telephone may therefore be useful without being empowering if its owner cannot decide when to use it, who may read messages or whether it can support paid work. Economic development and women's empowerment influence each other, but their relationship cannot be reduced to an automatic technological effect (Duflo, 2012).

Mobile connectivity can reduce the practical cost of contacting employers, health providers, banks, peers and public offices. Studies outside India illustrate how expanding communication infrastructure can improve coordination and reduce information frictions (Aker & Mbiti, 2010). Nevertheless, affordable service, dependable coverage and confidence in navigating digital interfaces determine whether connectivity becomes useful. Rotondi et al. (2020) connect mobile technology with multiple sustainable-development

Vol. 15, Issue: 11, November 2026
ISSN: (P) 2347-5412 ISSN: (O) 2320-091X

outcomes while also indicating that opportunities differ across social contexts.

Rural India offers an important setting because public entitlements, banking communication, local markets and welfare information increasingly involve digital channels. Earlier evidence from South Indian fisheries shows how timely information can change market behaviour under particular institutional conditions (Jensen, 2007); it does not imply that the same benefit follows for every rural household. In this paper, digital inclusion means a combination of practical reach, competence, repeat use and scope for independent action. The analysis accordingly separates recent phone use, ownership, smartphone possession, online skills and interactions with government programmes. This avoids describing all connected women as equally empowered and makes visible the differences between exposure to technology and its meaningful use.

1.2 Problem statement and the gendered access gap

A central difficulty in measuring digital inclusion is the tendency to treat using a mobile phone as equivalent to possessing one. Of the 225 respondents surveyed here, 172 (76.4%) indicate some phone use within three months, while only 109 (48.4%) indicate ownership. These values describe separate questions with different meanings: access may occur through borrowing, family sharing or another person's device, whereas ownership records possession. Gender-sensitive measurement must retain this distinction because it is possible for overall phone use to increase without an equivalent increase in women's discretion over devices (Hilbert, 2011; Islam & Manchanda, 2023).

The gap becomes socially significant within households where phones circulate according to work schedules, domestic obligations or the authority of other family members. In rural central India, Scott et al. (2021) document the ways patriarchal expectations can restrict women's mobile use despite technological availability. More recent work from North India describes the negotiation involved in women's everyday smartphone practices, including anticipated surveillance and the difficulty of claiming personal digital space (Sharma & Ojha, 2026). Privacy, timing and the ability to act without permission are consequential dimensions of access.

This paper addresses a descriptive problem: how far do patterns of device access extend into digital competence and awareness of welfare opportunities? It brings the measures together without presuming that their differences form a proven sequence. For example, the number identifying a programme need not equal the number eligible for it, and receiving a transfer need not follow an online application during the same period. Potnis (2016) highlights how economic barriers help sustain India's gendered mobile divide. A joint reading of affordability, skills, use and public-service contact can identify where supportive interventions deserve closer examination, while remaining clear that the present records do not identify causal mechanisms or representative rural populations.

Image 1: Rural Woman Using a Mobile Phone in Tamil Nadu



Source: Ammalu, Wikimedia Commons, photographed 12 February 2010. CC BY-SA 3.0; original photo, unaltered.

Source URL: https://commons.wikimedia.org/wiki/File:Tamil_rural_woman_with_a_mobile_phone_facility.jpg

Explanation: The photograph shows everyday mobile use within a rural household. It illustrates the distinction between access to a device and control over the circumstances of its

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ISSN: (P) 2347-5412 ISSN: (O) 2320-091X

use; the person pictured is not identified with the records analysed.

2. Review of Literature and Conceptual Framework

2.1 From first-level access to digital skills and differentiated use

Digital inequality is commonly described at several interconnected levels. Van Dijk (2006) distinguishes motivational, material, skills-based and usage access, showing why the provision of infrastructure is only the beginning of inclusion. Someone may be motivated to use a phone but unable to obtain one; another may possess a device but lack the capability needed to navigate government portals. Hargittai (2002) likewise demonstrates the importance of differences in online skills, sometimes termed the second-level digital divide. Applied to rural women, these perspectives direct attention to the distance between owning a device and being able to use it regularly for an intended purpose.

Usage is not a single outcome. Sending files may require finding a document, selecting an application and completing a transfer; email use involves reading, composing and managing messages; banking may add identity checks, passwords and awareness of fraud. Frequency provides another dimension because occasional contact with the internet is different from having predictable daily access. Van Deursen and van Dijk (2014) argue that differences in what people do online are increasingly important even where basic connectivity expands. Accordingly, the present analysis reports recent internet use, frequency, file sending, email competence and online-banking ability separately. These indicators are related in everyday life but cannot be merged without a defensible measurement model.

Research on digital literacy among rural women in Himachal Pradesh emphasises the role of education, training and local context in converting connectivity into practical engagement (Kumar et al., 2024). Similarly, a confident messaging user may not trust a financial application. A multidimensional framework recognises these combinations and guides the interpretation of the schooling and competence differences recorded below. The central question is not merely who is connected, but what the connection can reliably enable.

2.2 Patriarchal norms, agency, and device control

Gender relations shape both the distribution of household resources and the terms on which those resources can be used. Agarwal (1997) explains that bargaining power extends beyond formal ownership and depends on material and social positions inside and outside the home. Kabeer (1999) further distinguishes resources from agency and achievements. From this perspective, a mobile phone may enlarge a woman's choices when she controls calls, messages and service transactions; identical physical possession may offer less independence where another person sets the rules. Digital empowerment thus requires attention to decision-making opportunities rather than a mechanical ownership threshold.

Indian research makes these theoretical concerns tangible. Garg (2021) examines how mobile use can cross boundaries of personal life and social expectations for rural women with limited literacy. Kumawat and Garg (2026), studying older widowed women receiving free smartphones, show why allocating a device does not necessarily ensure that the intended recipient incorporates it into daily routines. Such evidence discourages assuming that shared access is inherently negative or that private possession automatically grants freedom. It instead prompts questions about who chooses the activity, the duration of access and the confidentiality of communication.

International findings can broaden the discussion without serving as a direct numerical benchmark. Amber and Chichaibelu (2023) investigate mobile-phone ownership and women's labour-force participation in Pakistan, indicating a meaningful research interest in the link between communication resources and economic opportunity. The present autonomy score, rated from one to five, supplies only one limited indicator of perceived decision-making. It cannot establish the household bargaining process or validate a comprehensive empowerment scale. The conceptual framework therefore treats device control, purposeful use and

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agency as distinguishable questions that future direct fieldwork should investigate together.

2.3 Government schemes, training and the proposed analytical link

Digital interfaces now affect how people learn about, apply for and track government assistance. Direct-benefit transfers can streamline payment delivery, but their value for women also depends on correct identification, accessible accounts, clear instructions and control over funds. Sabherwal et al. (2019) discuss the opportunities and challenges of benefit transfers to women in India. Gupta (2026) examines the impact of information and application assistance on social benefit take-up, underscoring why administrative complexity cannot be solved by connectivity alone. Awareness of a programme, completion of an online form and receipt of money are consequently distinct processes, each potentially influenced by eligibility and intermediary support.

Skills interventions seek to address another part of this difficulty. Gogoi et al. (2025) report findings from a digital-literacy training programme in rural India, suggesting that the design and delivery of instruction require attention to users' capabilities and everyday needs. Studies of rural–urban differences in women's internet use also reveal the relevance of education, household conditions and other structural factors (Singh et al., 2025; Roy et al., 2026).

Financial inclusion research outside India illustrates why access to payment technology may matter for welfare and livelihood security under suitable institutional arrangements (Suri & Jack, 2016). In India, gender differences in educational technology access have also been documented among rural Tamil Nadu households (Balasundaram et al., 2026). The proposed analytical connection is therefore cautious: affordable devices and practical skills may make programme information easier to obtain, while trustworthy local assistance may help translate knowledge into an application. The records can show the numbers present at each point but cannot prove that one leads to another. The relevant policy question is how public service delivery can support agency without making women increasingly dependent on informal intermediaries.

3. Research Objectives and Questions

The first objective is to describe access to mobile technology across the 225 survey respondents. It distinguishes recent use from ownership, differentiates smartphones from basic phones, records reliance on shared devices and examines the regularity of internet engagement. In addition, the study considers basic operational abilities, including sending files, managing email and using online banking. This disaggregated approach follows the concern that connectivity and digital skill should not be collapsed into one indicator (Hargittai, 2002; Hilbert, 2011).

The second objective is to describe interaction with public-benefit programmes. Particular attention is given to identifying at least one scheme, recognising the source of information, reporting an online application, requesting application assistance and reporting a government transfer in the preceding twelve months. Because programme eligibility and the timing of individual applications are not established, the counts cannot be interpreted as a rate of successful conversion from awareness to payment. Research on transfers and paperwork provides context for this distinction (Sabherwal et al., 2019; Gupta, 2026).

The third objective is to identify the most frequently recorded obstacles to digital participation and consider whether internet engagement differs across schooling groups. The recorded reasons include connectivity, data expenditure, device costs, privacy concerns, language and household restrictions. The purpose is to identify patterns needing investigation, not to estimate the independent causal contribution of any characteristic (Scott et al., 2021; Singh et al., 2025).

Five questions organise the inquiry. How common are personal ownership and shared or recent phone use? How frequently is the internet used? What practical digital capabilities are indicated? How do scheme awareness, online applications and reported transfers compare? Which barriers

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ISSN: (P) 2347-5412 ISSN: (O) 2320-091X

occur most often, and how does internet use vary across schooling groups?

4. Research Design and Analytical Approach

4.1 Data Collection and Questionnaire Design

The study relies on primary data collected by the researchers through a structured questionnaire. The questionnaire was administered to 225 rural women aged 15 to 70 years, and every respondent was asked the same set of questions to facilitate coding and comparison. The data was collected voluntarily. Before administering the questionnaire, participants were explained the purpose of the study and signed an informed consent form. Names or other identifying details were not captured in the dataset, and therefore the analysis is based on anonymized responses.

The survey consisted of seven sections. The first asked about socio-demographic information of respondents (i.e., age, education, primary activity and income). The second section asked about the ownership and usage of mobile phones and the type of phone owned. The third section asked about the usage and frequency of the internet in the last three months. The fourth section asked about the respondents' digital skills (i.e., sending and receiving digital files, online banking, and email) and if the respondents took any digital training. The fifth section asked respondents about the government schemes (i.e., if they are aware of any schemes, how they found out about it, if they needed help to apply for the scheme, and if they got the scheme). The sixth section asked about what the respondents' main barrier to digital participation is, and the seventh section asked about how respondents see themselves (i.e., decide-making autonomy, on a scale of 1 to 5).

There were three types of responses: closed yes/no questions for the majority of access, use and skill items; pre-coded responses to device type, internet frequency, scheme, information and transfer channel, primary activity, income band and main barrier; and response scale of 1-5 to represent decision-making autonomy. Two reference periods were applicable: the past 3 months to measure mobile phone, internet and file-sending use and the past 12 months to measure government transfers.

The completed questionnaires were assigned a unique identifier from RW-0001 to RW-0225 and coded and entered into a spreadsheet. Binary responses were coded consistently. Categorical responses were pre-coded. Data were checked for completeness and consistency before analysis. The resulting dataset of 225 complete records was the basis of all the tables and graphs that follow.

4.2 Record structure, variables, and scope of inference

The analysis covers the 225 completed questionnaires. Every entry identifies gender as Woman and residence as Rural; individual identifiers are unique. Ages range from 15 to 70 years, with 50 respondents in the 15–24 group and 175 aged 25 or above. Recorded schooling comprises no formal education, one to five years, six to ten years and twelve to sixteen years. Other descriptors include principal activity, household monthly income band and a one-to-five decision-autonomy rating. The technology fields cover recent mobile use, ownership, personal-device type, shared-device use, internet activity, file transmission, email, banking and training. These distinctions reflect the importance of examining literacy, access and usage as related but non-identical measures (Islam & Manchanda, 2023).

The survey design constrains the scope of inference. The data consists of 225 rural women who provided self-reported responses. The data were collected to summarize rural women's circumstances and were not intended to be generalized to all rural women. Therefore, this report provides a rapprortere akseker based on survey responses and will not assess rural women situations in general or determine the causes. Population level inferences cannot be made from the results presented below and will not be implied. Results will be reported using simple language to enhance readability and will not be complicated by tests of statistical significance, nor will standard errors or confidence intervals be computed or implied. Reproducibility of results and the accuracy of

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ISSN: (P) 2347-5412 ISSN: (O) 2320-091X

survey responses is confident, hence, no adjustments will be made for response or survey bias.

The substantive concepts are operationalised separately. Access refers to possession, device type, recent use and shared access; competence includes the recorded ability to use email and banking and the act of sending files; government interaction includes awareness, an identified programme, an online application and a twelve-month transfer indicator. The barrier field records one principal obstacle for each respondent, including an option indicating no major problem. Finally, a five-point autonomy response is retained as a single descriptive rating, not combined with technical measures to form an empowerment index. The interpretation follows Kabeer's (1999) insistence on distinguishing resources from the ability to exercise choice. Table 1 presents the age and schooling composition that underpins the group comparisons. The age and schooling categories were retained without imputation, allowing their counts to be checked directly against the complete records rather than inferred from averages or rounded proportions.

Table 1: Selected Age and Schooling Characteristics (n = 225)

Characteristic	Number	Share
Age 15–24 years	50	22.2%
Age 25 years or above	175	77.8%
No formal schooling	44	19.6%
1–5 years	45	20.0%
6–10 years	84	37.3%
12–16 years	52	23.1%

Explanation: The respondents comprise 50 women aged 15–24 years and 175 aged 25 years or above. The schooling categories form a separate complete distribution, with 44 recording no formal schooling. All percentages use the same denominator of 225 respondents.

4.3 Descriptive calculations, consistency checks, and safeguards

The calculations use straightforward frequency tabulation. For every categorical measure, the number of entries assigned to each response is counted and divided by the applicable valid total. Percentage is computed as 100 multiplied by category count divided by denominator, with the result displayed to one decimal place. Whole-sample indicators use 225 as the denominator because the relevant fields are populated throughout. Group comparisons use their own category totals instead: for example, the internet-use proportion for women with no schooling is calculated from 6 of the 44 respondents in that schooling category. This procedure prevents the misleading comparison of subgroup counts against the full total.

Several internal checks were conducted before interpretation. Personal smartphone ownership is nested within overall phone ownership; all personal-device categories together account for the 225 entries. The binary internet-use field agrees with the Never category in the recorded frequency field. Scheme-awareness status agrees with the presence or absence of an identified programme, while transfer-receipt status agrees with the transfer-channel entry. Application-assistance responses were checked against online application status, and the 225 record identifiers are distinct. The checks ensure the responses to the coded questions and the information provided in the tables are logical and consistent.

Responses to survey questions are often affected by respondents' ability to recall information and their tendency to give socially desirable answers. The barrier item only captures the most prevalent response barriers named by respondents. It is possible that some of the relationships documented in the survey relate more to characteristics of the survey population than to salient rural development conditions. Consequently, percentages are reported solely within the 225 responses, with no claims of statistical significance or causal direction. For example, transfer receipt refers to the preceding twelve months, while recent phone and internet use refer to three months; those reference windows cannot simply be aligned.

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Table 2 and Graph 1 describe different device measures but draw from the same phone-ownership fields. Graph 2 includes all five recorded internet-frequency responses; Table 3 and Graph 3 share the counts for scheme awareness, online application and transfer receipt. Table 4 groups three less frequently recorded barriers into an explicitly labelled category; Graph 4 expresses recent internet use with each schooling group as its denominator. The design is intentionally transparent so that an independent reader can reproduce the descriptive arithmetic directly from the coded questionnaire responses.

5. Results and Descriptive Analysis

5.1 Mobile access, ownership, and digital competencies

Mobile contact is considerably more widespread in the records than personal possession. A total of 172 respondents (76.4%) indicate that a mobile was used during the previous three months; 109 (48.4%) indicate ownership of a phone. Of these, 82 (36.4% of all respondents) indicate smartphone ownership and 27 (12.0%) indicate ownership of a basic mobile. Another 116 respondents (51.6%) have no personal phone, while 63 (28.0%) explicitly record use of a shared phone. These figures represent related but different questions: the difference between total use and ownership is not itself a direct count of borrowed-phone users. Access may occur through multiple arrangements, and ownership does not document whether the owner controls the device at all times (Garg, 2021; Potnis, 2016). Within these records, 53 respondents also indicate no mobile use in the same three-month interval, a separate status from nonownership. Consequently, the 116 entries without a personal handset cannot be equated with 116 women who had no opportunity for mobile communication.

Functional participation is less common than basic mobile use. Sending files during the preceding three months appears in 115 respondents (51.1%), email capability in 81 (36.0%) and online-banking capability in 62 (27.6%). Only 57 respondents (25.3%) indicate receipt of digital training. These proportions may overlap, so their totals should not be added. The ordering is analytically useful because using a handset, operating an email account and navigating banking functions call upon different combinations of literacy, confidence and access. Rural digital-literacy research similarly argues for attention to specific competencies rather than device counts alone (Kumar et al., 2024). Table 2 retains the individual indicators and Graph 1 presents the three exclusive personal-device types. Together, the exhibits make the distinction between access and capability visible without implying that any single indicator measures empowerment. Equally, the 109 owners include smartphone and basic-handset users, yet the ownership question does not establish the availability of a connection on any particular day. Such distinctions encourage a study of when access is possible and whether it enables an activity.

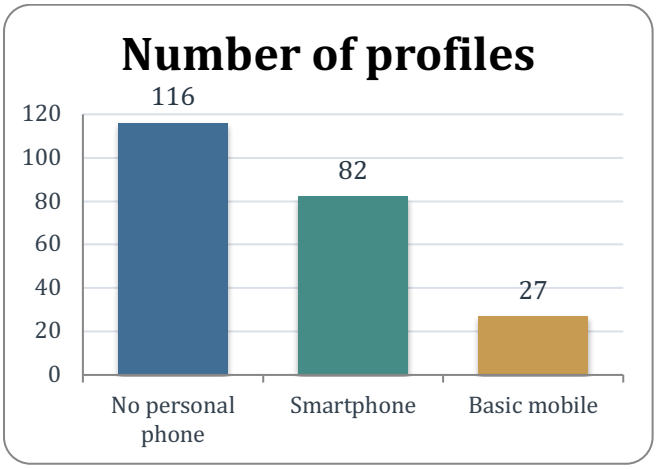
Table 2: Mobile and Functional Digital Access Indicators (n = 225)

Indicator	Number	Share
Used a mobile in the last 3 months	172	76.4%
Owns a mobile phone	109	48.4%
Owns a smartphone	82	36.4%
Uses a shared phone	63	28.0%
Used internet in the last 3 months	130	57.8%
Can use email	81	36.0%
Can use online banking	62	27.6%
Received digital training	57	25.3%

Explanation: Recent mobile use is more common than personal ownership, while smartphone ownership and banking skills are lower still. These indicators are not mutually exclusive and should not be summed. They trace distinct stages from physical access to digitally enabled activity.

Graph 1: Personal Mobile Device Types Among Rural Women

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ISSN: (P) 2347-5412 ISSN: (O) 2320-091X



Explanation: Of the 225 respondents, 116 record no personal phone, 82 record an owned smartphone and 27 a basic mobile. These categories sum to the full record count. The graph separates device type from broader access through borrowed or shared phones.

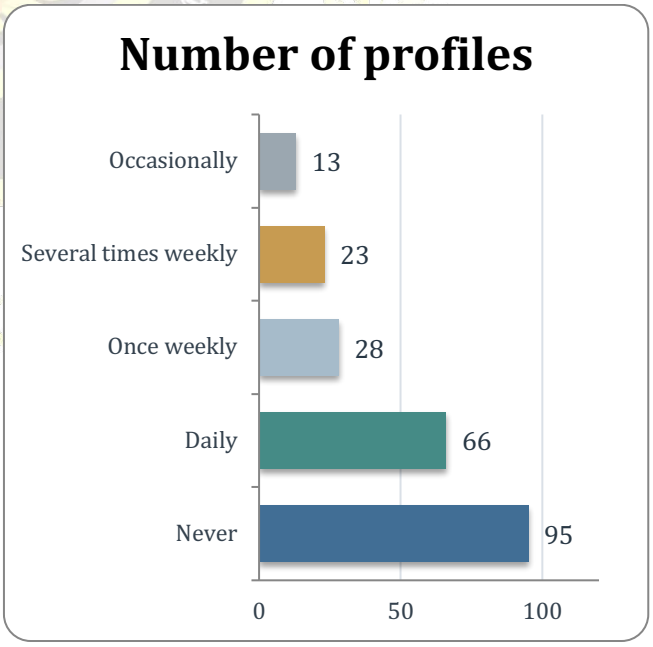
5.2 Internet engagement, frequency, and schooling

Internet engagement is recorded in 130 of the 225 respondents (57.8%) during the preceding three months. Frequency nevertheless varies substantially. Daily use is recorded for 66 (29.3%); several-times-weekly use for 23 (10.2%); once-weekly use for 28 (12.4%); and occasional use for 13 (5.8%). The remaining 95 (42.2%) record Never. All five categories are exclusive and together account for the full set of respondents. A binary internet-access figure therefore obscures a meaningful distinction between predictable daily engagement and use that may be infrequent or situational. This matters when accessing an online form requires repeated attempts, authentication or a later return to check its status (van Deursen & van Dijk, 2014).

The schooling comparison shows a pronounced within-record gradient. Among the 44 respondents with no formal schooling, 6 indicate recent internet use, equivalent to 13.6%. The corresponding figures are 16 of 45 (35.6%) for one to five years of schooling, 60 of 84 (71.4%) for six to ten years and 48 of 52 (92.3%) for twelve to sixteen years. These figures use each group's own denominator and therefore should not be confused with shares of all users. The association is compatible with the possibility that reading competence, confidence, employment opportunities and household resources shape online engagement. It does not establish which mechanism explains the observed difference, or whether the pattern would persist in a larger representative sample (Singh et al., 2025).

Graph 2 presents the complete frequency pattern, while Graph 4 later isolates the schooling comparison. The two charts serve different purposes: one documents regularity of use; the other displays variation across educational categories. Neither is evidence that schooling independently produces internet access. Rural–urban disparities among Indian women have been examined with stronger observational designs and multiple covariates (Roy et al., 2026), but those analyses cannot be transferred mechanically to these respondents. Age, income, family expectations and device control remain plausible competing explanations requiring direct investigation. The descriptive result is nonetheless useful for designing questions about literacy, interface accessibility and the reliability of shared or intermittent connectivity.

Graph 2: Frequency of Internet Use Across 225 Respondents



Explanation: The internet-use distribution contains 95 never-users, 66 daily users, 28 once-weekly users, 23 several-times-weekly users and 13 occasional users. The five

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ISSN: (P) 2347-5412 ISSN: (O) 2320-091X

categories total 225. The chart therefore distinguishes regular engagement from intermittent access and complete non-use.

5.3 Scheme awareness, applications, and benefit receipt

A total of 150 respondents (66.7%) indicate awareness of at least one government programme. The number indicating an online application is 68 (30.2% of all 225), while 49 (21.8%) indicate receipt of a government transfer during the preceding twelve months. Another 29 (12.9%) indicate the use of help for an online application. Awareness, application and benefit receipt refer to separate variables rather than verified consecutive steps for the same eligible individuals. For instance, a recipient might have obtained a benefit through an offline process, and awareness does not establish eligibility or an intention to apply. The distinction is consistent with research on digital transfers and administrative assistance in India (Sabherwal et al., 2019; Gupta, 2026).

Among the 150 aware respondents, one programme is identified for each entry. MGNREGA is mentioned in 44, the National Rural Livelihoods Mission or self-help-group category in 29, PMJDY in 26, PMMVY in 23 and PMUY in 23; another five entries identify a different government benefit. These mentions add to 150 because the record format contains one identified category per aware respondent. In the transfer records, the stated channels include 43 bank transfers, one mobile-linked payment, three cash receipts and two other routes. Those 49 entries align with the recorded transfer total, without establishing whether applicants independently controlled the funds.

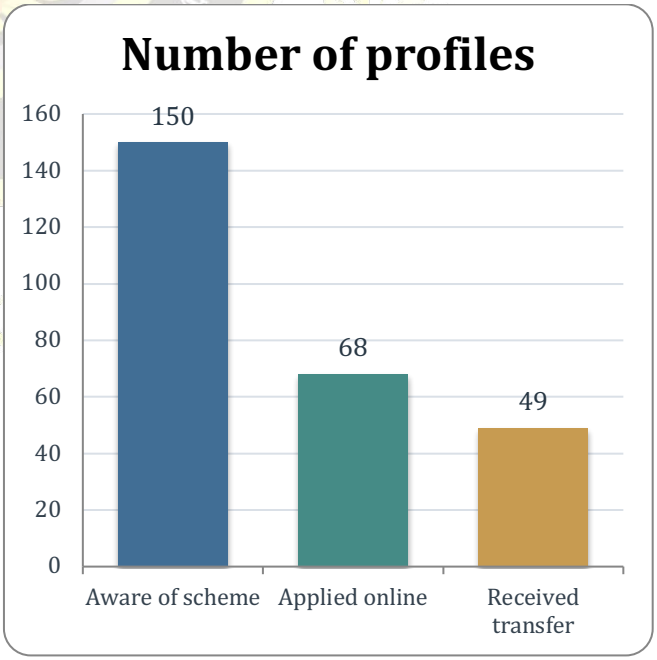
Information channels show the continuing importance of local social institutions. Of the 150 respondents indicating awareness, 36 identify family or neighbours as the information source, 35 identify an Anganwadi or ASHA worker, 30 a Panchayat office, 23 a self-help-group meeting, 17 a mobile or internet channel and 9 bank staff. These counts total 150, and their denominator is the number reporting awareness, not 225. Direct digital information is therefore only one of several channels represented. Training and trusted support can be examined together with public-service design, as emphasised in rural digital-literacy research (Gogoi et al., 2025). Table 3, Graph 3 and Image 2 place the administrative indicators beside the community-information context without claiming verified programme outcomes.

Table 3: Awareness, Application and Transfer Indicators (n = 225)

Scheme interaction	Number	Share
Aware of at least one scheme	150	66.7%
Applied online for a scheme	68	30.2%
Received government transfer in 12 months	49	21.8%
Used help for an online application	29	12.9%

Explanation: Scheme awareness is recorded for 150 women, online application for 68 and transfer receipt for 49. These are separate indicators with different reference periods, not a confirmed individual conversion funnel. The 29 assistance reports measure help with online applications.

Graph 3: Government Scheme Awareness, Online Applications and Transfers



Explanation: Awareness reaches 150 respondents, compared with 68 online applications and 49 reports of benefit receipt within twelve months. The series depicts decreasing counts

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across three distinct measures. It does not verify eligibility, application outcomes or individual pathways between stages.

Image 2: Women Participating in a Rural Self-Help Group Meeting



Source: Pondicherry17, Wikimedia Commons, Tamil Nadu, 29 August 2017. CC BY-SA 4.0; original photo, unaltered.

Source URL: https://commons.wikimedia.org/wiki/File:Women_self_help_group_foundation.jpg

Explanation: The photograph documents a rural self-help group meeting and offers a grounded visual context for community information sharing. It does not depict an identified participant in this analysis, nor does it establish that a particular government benefit was received.

5.4 Digital barriers and educational variation

The principal-barrier field records one response per respondent. Weak network availability is the most frequent specific barrier at 34 entries (15.1%), followed by cost of mobile data at 30 (13.3%). Online safety concerns and language difficulties each appear in 26 entries (11.6%), while device affordability appears in 24 (10.7%). An additional 38 (16.9%) are grouped as other stated barriers: family restrictions account for 14, low digital confidence for 13 and limited digital skills for 11. Research on women's negotiated access to phones offers a useful conceptual explanation for including family rules and safety alongside device prices (Scott et al., 2021).

Importantly, 47 respondents (20.9%) indicate no major obstacle. This category should not be taken as proof that these women enjoy fully autonomous digital participation; it records only their selected answer to one question. Conversely, a respondent naming weak connectivity may also experience another obstacle that the single-response field does not capture. For this reason, Table 4 identifies a main barrier rather than an exhaustive list of experiences. The percentages across its seven rows add to approximately 100%, subject to rounding, because the response groups are exclusive. The distinction prevents an unsupported interpretation that every internet non-user faces one common barrier or that the listed difficulties have mutually exclusive real-world causes (Sharma & Ojha, 2026).

Graph 4 compares the four schooling groups and shows recent internet-use shares rising from 13.6% among respondents without formal schooling to 92.3% among those with twelve to sixteen years. The intermediate rates, 35.6% and 71.4%, reinforce that the pattern is gradual rather than a simple divide between educated and uneducated users. However, schooling may be associated with age, household income, employment demands or opportunities to learn through others. The records do not separate these influences. Earlier analyses of the digital gender divide and rural household technology access similarly caution against explanations based on one characteristic alone (Hilbert, 2011; Balasundaram et al., 2026). The practical implication is to investigate both literacy needs and material constraints rather than prioritise one to the exclusion of the other.

Table 4: Most Frequently Recorded Main Digital Barriers (n = 225)

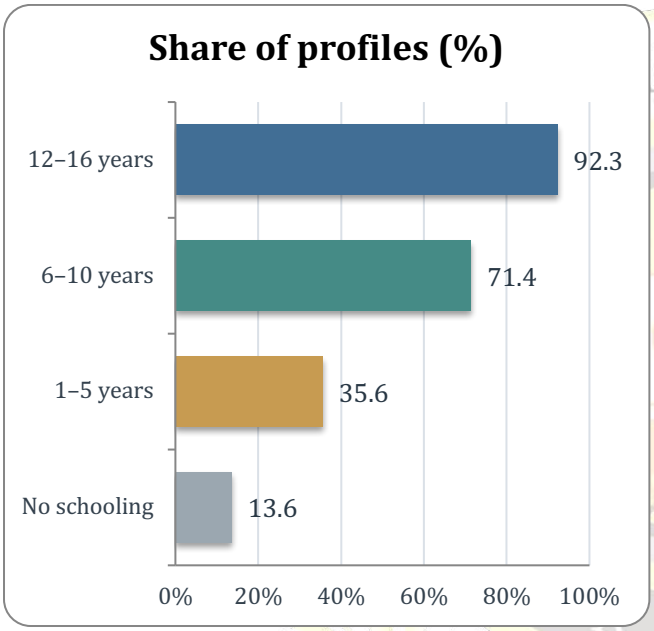
Main reported barrier	Number	Share
Weak network	34	15.1%
Cost of mobile data	30	13.3%
Online safety concerns	26	11.6%
Language difficulties	26	11.6%
Device affordability	24	10.7%
Other stated barriers	38	16.9%

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Main reported barrier	Number	Share
No major obstacle	47	20.9%

Explanation: Weak networks (34) and data cost (30) lead the specific obstacles, followed by safety, language and device cost. The grouped other category combines family restrictions, low confidence and skills. Forty-seven respondents identify no major obstacle; all categories are exclusive.

Graph 4: Internet Use Within Schooling Groups (%)



Explanation: Recorded internet use increases from 13.6% among respondents with no schooling to 92.3% among those with 12–16 years. Each percentage uses its group-specific count. The contrast is descriptive and should not be treated as schooling causing use.

6. Discussion: Digital Access, Welfare and Women's Agency

6.1 Interpreting access and skill gradients through empowerment theory

The results are most informative when interpreted through a distinction between resources and agency. Phone ownership is recorded for 48.4% of respondents, while recent use reaches 76.4%. This contrast establishes a difference between possession and contact with technology, but it does not identify the quality of access for individual women. A shared handset may offer a valuable route to information and social support, yet it can also make transactions dependent on another person's schedule or permission. Kabeer (1999) argues that resources become relevant to empowerment when they enlarge the ability to make meaningful choices. Agarwal's (1997) work on household bargaining similarly warns against inferring negotiating power from the mere allocation of a material good. The present figures therefore describe a potential resource environment, not an observed increase in agency. Even owned smartphones may have little practical value if literacy or privacy constraints remain unresolved.

The competence indicators suggest another gradient within digital participation. File sending appears in 51.1% of respondents, email capability in 36.0% and online-banking capability in 27.6%. Each task demands different procedures, and each may also be affected by the sensitivity of the information involved. Hargittai's (2002) account of online skills helps explain why basic access is not enough to describe the effective digital divide. The schooling comparison is compatible with uneven opportunities to acquire these capacities, but the records do not demonstrate an educational effect. Social arrangements further complicate the interpretation. Scott et al. (2021) describe how gender norms can restrict phone use, while Kumawat and Garg (2026) show how free smartphone provision to older widowed women need not lead to use by the intended recipients. These accounts direct attention to training that is useful within women's actual routines rather than designed around a generic technically connected user.

The decision-autonomy field has a mean score of 2.88 on a one-to-five scale across all 225 respondents. Its distribution is 23 scores of one, 56 of two, 82 of three, 53 of four and 11 of five. This variable is a single self-reported questionnaire item that gives a limited indication of perceived decision-making; it is not a validated multi-item index, and no reliability evidence is available for it. It should therefore not be converted into an empowerment classification or regressed on ownership as if it were an independently established

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ISSN: (P) 2347-5412 ISSN: (O) 2320-091X

outcome. Duflo (2012) highlights the complex interplay between economic circumstances and women's empowerment; Rotondi et al. (2020) likewise situate mobile connectivity among multiple development conditions. The contribution here is to make explicit how many dimensions a future investigation needs to measure: device control, routine competence, financial privacy, bargaining processes and independently documented changes in women's choices.

6.2 Interpreting welfare access, intermediaries and SDG 5 implications

The three programme indicators reveal different levels of engagement rather than a proven sequence of administrative success. Awareness is recorded in 150 respondents, an online application in 68 and a transfer during the previous twelve months in 49. The apparent narrowing should be interpreted carefully: the categories have different meanings, periods and eligibility requirements, and there is no field verification of application decisions. Gupta (2026) demonstrates the importance of information and procedural assistance in benefit take-up, while Sabherwal et al. (2019) discuss the challenges of transferring public benefits to women. These studies make it reasonable to examine administrative friction, but they do not explain the numerical differences in these respondents by themselves.

The information channels show why service access should be understood as both social and digital. Family and neighbours are recorded in 36 aware respondents, Anganwadi or ASHA staff in 35, Panchayat offices in 30 and self-help-group meetings in 23. Only 17 aware respondents name a mobile or internet source, so a fully online information strategy would ignore many of the routes represented here. Gogoi et al. (2025) show the relevance of practical training interventions, but successful assistance should be evaluated through demonstrable comprehension and user choice, not merely the number of forms an intermediary submits.

The wider development literature helps clarify what cannot be claimed. Aker and Mbiti (2010) review how mobile phones may lower communication frictions in African contexts. Suri and Jack (2016) report important long-run poverty and gender effects of mobile money in Kenya under specific conditions. Such findings illustrate plausible benefits of robust digital-finance systems, but the institutional setting and research design differ considerably from a descriptive questionnaire survey of rural Indian women. The relevant SDG 5 concern is whether public systems expand meaningful choice, particularly when a woman must rely on someone else's device or credentials.

Transferability is also constrained within India. Recent work identifies persistent rural–urban inequalities in internet participation among women and examines the roles of schooling and household resources (Singh et al., 2025; Roy et al., 2026). Sharma and Ojha (2026) describe the continual negotiation of digital presence in rural North India. These studies suggest valuable mechanisms to examine but do not license a national generalisation from the present 225 respondents. The survey relied upon a single group of 225 women and was limited in scope by the nature of the data collection. The data was collected through self-reporting and was not validated by administrative records. Agreement amongst the category sums or other cross field checks indicates internal consistency. However, such agreements do not inform representativeness. Therefore, the author identifies research and program's implementation frameworks and constraints, and refers to potential interventions, without making assertive statements regarding the effect of the interventions on women's well-being and/or ability to act in their own best interest.

7. Policy and Programme Recommendations

7.1 Low-cost access, reliable connectivity and local-language confidence

Access interventions should respond to several distinct recorded obstacles. Weak networks appear in 34 respondents, data expense in 30 and device affordability in 24. These counts support considering reliable village connectivity, affordable service options, repair access and low-cost handsets as separate programme components. Merely distributing a device would not address a weak signal or the continuing cost of data; conversely, improving a network

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does not guarantee private access to a handset. Potnis (2016) links economic barriers to gendered mobile inequality, while Hilbert (2011) cautions against unqualified interpretations of aggregate technology gaps. Practical pilots should therefore observe how frequently women can use services when needed, what they spend and whether use requires another household member's permission. Shared services must also provide safe spaces for independent use rather than assuming ownership is possible for everyone.

A second priority is usable capability. Online safety and language difficulties each appear in 26 respondents, and other recorded barriers include low confidence and limited skills. Short, locally delivered sessions could cover reading service messages, sharing documents, recognising fraudulent links, protecting passwords and navigating online banking without disclosing credentials. Instruction should use the languages and interfaces women actually encounter, allow repeated practice and include accessible help after the initial session. Van Dijk (2006) and Kumar et al. (2024) both support thinking beyond equipment towards effective digital skills. Evaluation should document the successful independent completion of specific tasks, rather than counting attendance alone. Community facilitators should be trained to respect privacy and avoid taking permanent control of beneficiaries' accounts.

7.2 Inclusive scheme information, application help and SDG 5 tracking

Government-programme access requires an approach that combines online availability with trustworthy local guidance. Panchayat offices, Anganwadi or ASHA workers and self-help-group meetings already appear among the information channels identified in the respondents. These networks could disseminate eligibility information in simple language, help people identify official forms and offer accessible channels for checking application status. Assistance should be voluntary, with clear consent, transparent explanations and safeguards against the unnecessary disclosure of personal information. Where women rely on family devices, appointment-based assistance or private service points may help prevent unintended sharing of financial or identity details. Research on direct-benefit transfers and restrictions arising from household norms reinforces the need to protect both access and autonomy (Sabherwal et al., 2019; Scott et al., 2021).

Monitoring needs to distinguish processes from outcomes. Future larger-scale field studies should record personal device control, regular internet use, the independent completion of applications, formal eligibility decisions, confirmed payment receipt and women's control over benefits. Administrative records can confirm application and transfer events, while consent-based interviews can illuminate circumstances that numerical logs miss. The comparison of these measures should account for different time periods and types of benefit. Gupta (2026) shows why applications and information assistance deserve attention; Rotondi et al. (2020) situate digital access within wider development goals. For SDG 5, the strongest indicator of improvement would not be the number of connected accounts but reliable evidence that women have gained usable options and practical decision-making power. Follow-up interviews would also establish whether women understood each transaction.

8. Conclusion

The examination of survey responses from 225 rural women identifies substantial differences between basic technology contact and forms of digital participation that demand greater control and skill. Recent mobile use is recorded in 76.4% of respondents, whereas personal ownership is 48.4% and smartphone ownership is 36.4%. Internet use within the previous three months appears in 57.8%, with 42.2% recording no use. Scheme awareness reaches 66.7%; online application is recorded in 30.2%, and government transfer receipt within twelve months in 21.8%.

The recorded obstacles are likewise multidimensional. Network weakness, data expenditure, online safety, language and device affordability feature prominently, while training and operational skills are not universal. Internet engagement differs considerably across schooling categories, although the

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ISSN: (P) 2347-5412 ISSN: (O) 2320-091X

figures do not establish the cause of that relationship. Kabeer's (1999) distinction between resources and agency is therefore essential: the presence of a technological resource is only one condition for empowerment. Usage-focused accounts of the digital divide further show why what women can accomplish online matters as much as whether they have a connection (van Deursen & van Dijk, 2014).

The implications for SDG 5 concern the design of future interventions and the evidence required to evaluate them. Affordable and dependable connectivity should be coupled with local-language learning, privacy-protecting support and clear access to government-service information. Larger and representative surveys, combined with administrative records and observed outcomes, would be needed before drawing conclusions about prevalence or programme effectiveness. Until then, the present analysis offers a reproducible description of the survey responses and a framework for questions to investigate, not a claim that the conditions of rural women generally have been measured or improved.

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